Evaluation of the 'Risk Assessment Protocol for Intellectual Disabilities' in Community Services for adults with a Learning Disability

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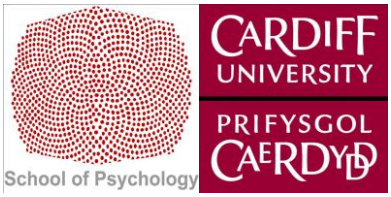

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Thesis Summary

Review of the research literature on the prevalence of physical aggression in community teams for adults with a learning disability (CLDTs) suggests that services are managing people who are physically aggressive, which impacts on services. This suggests that there is a need for services to use risk assessment instruments of physical aggression to support teams to accurately identify those who will be physically aggressive to others. Established risk assessment instruments are resource intensive and so a screen, such as The Risk Assessment Protocol for Intellectual Disabilities (RAPID), developed in forensic psychiatric patients with a learning disability (LD), could support services to target their limited resources.

The predictive validity of the RAPID to predict physical aggression, property aggression and verbal aggression, in a community sample of adults with a LD was evaluated. The RAPID was compared to an established risk assessment instrument, the VRAG, in order to assess its concurrent validity. The predictive validity of the items of the RAPID were analysed to provide a measure of construct validity. The RAPID was also compared to a Risk Rating made by staff, to assess incremental validity. In addition, the ability of the RAPID to be easily and reliably scored was evaluated.

The RAPID predicted incidents of physical aggression with a large effect size. The RAPID was highly correlated with the VRAG, which suggests that it has good concurrent validity. Some of the items of the RAPID predicted physical aggression, which suggests some construct validity. It was not possible to establish that the RAPID has incremental validity above the VRAG or the Risk Rating. The RAPID was found to have good inter-rater reliability. The findings of the study suggest that the RAPID could be used to support CLDTs to make informed decisions about the completion of risk assessment instruments, risk management plans and interventions that aim to reduce the risk of physical aggression.

Contents

Chapter 1
Introduction

1.1 Overview of literature review

The aim of the present study is to establish if a screen for risk assessment of physical aggression is valid and reliable in adults with a learning disability (LD) who access community services. This review aims to outline the prevalence of physical aggression in adults with a LD who are supported by community LD services, and so highlight the need for services to be able to accurately identify and manage this behaviour. The literature regarding risk assessment of physical aggression in adults with a LD will be reviewed. The vast majority of this research has been conducted within forensic psychiatric populations. The applicability of this literature to community populations will be considered along with the ability of community services to complete risk assessments of physical aggression. The potential applicability of a screening tool, the Risk Assessment Protocol for Intellectual Disabilities (RAPID; Fitzgerald, 2008), that has been developed in forensic psychiatric populations, will be presented. The subsequent aims of the current study will be identified and outlined.

1.1.1. Definitions and inclusions

1.1.1.1. Risk Assessment

It is necessary for mental health professionals both to accurately assess the risk that service users will be physically aggressive in the future and to identify the risk factors and contexts that may trigger such behaviour. There are a number of risk assessment instruments that have been developed in mentally disordered offenders to aid clinicians to conduct risk assessments of harm to others. There is also a burgeoning literature that demonstrates that these risk assessment instruments are also

valid and reliable in forensic psychiatric LD populations, and in LD community services. In the present study, the term risk assessment instrument refers to any instrument that has been empirically shown to be valid and reliable in accurately assessing risk of harm to others, specifically physical aggression (Andrews, Bonta & Wormith, 2006).

1.1.1.2. Physical aggression

For the purposes of the present study, physical aggression refers to a physical assault on another person. The research literature pertinent to aggression in people with a LD includes a large number of studies that have investigated the prevalence of 'challenging behaviour' in this population. A widely accepted definition of 'challenging behaviour' has been provided by Emerson. This refers to "*culturally abnormal behaviours of such intensity, frequency or duration that the physical safety of the person, or others, is likely to be placed in serious jeopardy, or behaviour which is likely to seriously limit use of, or result in the person being denied success to, ordinary community facilities"* (Emerson, 1995, p.4). This definition does not specify the type of behaviour that might be difficult to manage, but rather that behaviour is deemed to be challenging based upon the impact it has on others. Indeed, the research literature on behaviours that challenge includes a wide range of behaviours. Therefore, a number of different behaviours could all be deemed to be behaviours that challenge, and physical aggression is only one of them. Studies often do not differentiate between these different behaviours, but evaluate the prevalence and impact collectively. However, different behaviours are likely to have different prevalence rates and aetiologies and so drawing conclusions from a heterogeneous group of behaviours is likely to be inaccurate (Benson & Brooks, 2008; Darrow, Follette, Maragakis, & Dykstra, 2011; McClintock, Hall & Oliver, 2003; Wheeler et

al., 2009). To be able to accurately measure the prevalence and aetiology of specific behaviours, it is necessary to measure and study these behaviours independently.

In the present study, only studies that have specifically looked at physical aggression, or have presented data separately for different behaviours that challenge and so allow an analysis of the data pertinent to physical aggression, have been reviewed. Studies that report data about behaviours that challenge, without describing data for specific behaviours, have been excluded.

1.1.1.3. Learning Disability

Diagnostic classification systems such as ICD-10 (World Health Organisation, 1992) specify three criteria required to obtain a diagnosis of learning disability: an IQ of less than 70 (confidence interval of 67-75), a concurrent deficit of adaptive functioning and age of onset before 18 years. The ICD-10 also defines varying degrees of LD. A mild LD is defined as a Full Scale IQ between 50 and 69, which is likely to result in some learning difficulties in school, though many adults with a mild LD will be able to work and maintain good social relationships. A moderate LD is defined as an IQ between 35 and 49 with marked developmental delays in childhood. It is suggested that adults with a moderate LD will need varying degrees of support to live and work in the community. A severe LD is defined as an IQ between 20 and 34, which is likely to result in a continuous need of support. A profound and multiple LD (PMLD) is an IQ below 20 with severe limitations in self-care, continence, communication and mobility.

A diagnosis of LD is akin to a diagnosis of Mental Retardation as defined by DSM-IV-TR (American Psychiatric Association, 2004). In the research literature a number of terms are used to describe these criteria: mental retardation, learning

disabilities, developmental disabilities and intellectual disabilities. These terms all refer to the same cluster of criteria, and all were searched for (see Appendix A).

1.1.1.4. Community Services

Social and health care policy over the last 40 years has striven for adults with a LD to be more visible in the community, with more opportunity to access community facilities and greater social inclusion (e.g. Department of Health; DoH, 2000; 2006). This policy has led to the closure of NHS long-term stay hospitals. Adults with a LD who were previously managed in institutions are now being supported by Community Learning Disability Teams (CLDTs), who provide combined health and social services provision.

In the UK, community health services for people with a LD are provided to people who meet the diagnostic classification systems definition of LD (DoH, 2001; Welsh Assembly Government; WAG; 2001). Community social services provide a service to a broader range of people, who do not necessarily meet the above criteria, but who may have a borderline LD and be vulnerable as a result of their learning disability (DoH, 2001; Slevin, Truesdale-Kennedy, McConkey, Barr & Taggart, 2008; WAG, 2001). Community health teams are situated within the wider social services team.

Community services for people with a LD are split into child services, for people aged 18 and below and adult services, for people age above 19 (DoH, 2001; WAG, 2001). In the present study, those who are eligible to access adult services were of interest. In reviewing the research literature, studies that involved community services for adults with a LD were included[1]. Studies that included children with a

[1]Reviewing the research literature on risk assessment instruments identified very few studies (two) in community services. Therefore, it was necessary to include studies on risk assessment of harm to others in forensic psychiatric populations, for this section of the review. Forensic psychiatric populations are

LD were excluded. In addition, very old studies that were conducted within institutional settings only, prior to the establishment of CLDTs, were also excluded. In this review of the research literature the term LD refers to those who access CLDTs. Therefore, this will include people who meet the ICD-10 criteria for a diagnosis of LD, and also people who receive a service from CLDTs, but who do not necessarily have a diagnosis of a LD.

In summary, this review evaluates the prevalence of physical aggression in adult CLDTs and the ability of risk assessment instruments to support services to accurately identify and manage this behaviour.

1.1.2. Process of searching for relevant literature

In order to review the literature relevant to this study, articles relating to risk assessment, physical aggression, and LD were of interest. Each of these terms is open to interpretation and so are defined below. In order to search for relevant research literature broader terms that incorporate these terms were entered into the Web of Science database. Specifically, to search for articles related to the prevalence of physical aggression in community teams for adults with a LD, the search terms Challenging Behaviour and Prevalence and Learning Disability were all searched for. The search was repeated, swapping the term Learning Disability for Mental Retardation, then repeated again with the term Developmental Disabilities and finally it was repeated again with the term Intellectual Disabilities. The search term challenging behaviour was then interchanged with the term aggression and the terms aggression, prevalence and learning disability were all searched for. As before, the term Learning Disability was then alternated with Mental Retardation, Developmental Disabilities and Intellectual Disabilities. In total, these searches resulted in 684

adults with a LD who are admitted to secure services or are supported by specialist services in the community, due to the risk of harm they pose to others.

articles. The number of articles that these individual searches resulted in is outlined in Appendix A.

Articles were excluded if they investigated challenging behaviour, without delineating different types of challenging behaviour; if they related to children, or to a combination of adults and children or if the article was conducted in an institutional setting prior to de-institutionalisation. Following from this exclusion criterion, the inclusion criteria was that the article related to physical aggression in adults with a learning disability, being supported in the community. A large proportion of the literature was excluded at this point (k = 667) as only nine articles met the search inclusion criteria. Three additional articles were identified in the Introduction sections of the included articles. The number of articles included in the review on the prevalence of physical aggression in community teams for adults with a LD was therefore 12.

In order to search for articles related to risk assessment instruments developed or tested in adults with a Learning Disability the search terms Risk, Aggression and Learning Disability were entered into the Web of Science database. As before, the search term Learning Disability was interchanged with comparable terms used in the research literature; Mental Retardation; Developmental Disabilities and Intellectual Disabilities. The search was repeated replacing the term aggression with violence. The number of articles that the individual searches identified is outlined in Appendix A. In total these searches resulted in 326 articles. Studies were excluded if they did not specifically evaluate risk assessment of violence in adults with a LD. Initially only articles for adults with a LD supported in the community were included, but this resulted in just two studies being included in the review (and k = 324 studies being excluded). Therefore studies that had looked at risk assessment instruments for

violence in adults with a LD in both community and forensic populations were included. This resulted in 10 studies being included in the review and 316 studies being excluded. As the RAPID is as yet unpublished, and it was developed by the author of this thesis, it was known that there are no published articles relating to the validity or reliability of the RAPID. One pilot study has been conducted with the permission of the author and the results of this study are discussed in the literature review.

1.2 Prevalence of physical aggression in community teams for people with a learning disability

Bhaumik et al. (2009) note that the move to CLDTs has raised some concern about how services will identify and manage physical aggression in the community. They reviewed the literature that has evaluated the move of adults with a LD to community settings and report inconsistent findings as to the positive impact on managing physical aggression.

There are 13 studies that have reported on the rate of physical aggression in adults with a LD supported by CLDTs. These studies collectively suggest that the prevalence of physical aggression in this population ranges from 14% to 57.6% (Bhaumik, Branford, McGrother, & Thorp, 1997; Crocker, Mercier, Lachapelle, Brunet, Morin, & Roy, 2006; Crocker, Mercier, Allaire, & Roy, 2007; Deb, Thomas & Bright, 2001; Hemmings, Gravestock, Pickard & Bouras, 2006; Hill & Bruininks, 1984; Joyce, Ditchfield & Harris, 2001; McBrien, Hodgetts & Gregory, 2003; Nottestad & Linaker, 2002; Smith, Branford, Collacott, Cooper, & McGrother, 1996; Tenneij & Koot, 2008; Totsika, Toogood, Hastings & Lewis, 2008; Tsiouris, Kim, Brown & Cohen, 2011; Tyrer, et al., 2006). Taking just the studies conducted within the UK, the reported prevalence rate of physical aggression ranges from 14% – 56%

(Deb, et al, 2001; Joyce, et al., 2001; Tyrer et al., 2006). Studies in America report the prevalence rate to be 57.6% (Tsiouris et al., 2011). In the Netherlands, it ranges from 41% to 44% (Nottestad & Linaker, 2002; Tenneij & Koot, 2008). A summary of the study characteristics for all of these studies are outlined in Table 1[2]. To be able to interpret these prevalence rates it is necessary to consider the procedures employed in these studies. This is discussed below. Studies conducted in different countries will be considered separately as the set up of services and prevalence of LD are likely to be different in different countries.

1.2.1. Studies conducted outside of the UK

Tsiouris et al. (2011) reported the highest prevalence rate of physical aggression (57.6%). The study recruited a large sample of people who accessed community service for people with a LD in New York (n = 4069 from a total population of n = 9894). Despite the large sample size, the study received a relatively low response rate and reported that not all of the largest service providers responded to the request to participate in the study and some of the agencies who responded did not provide information about all of their service users. Consequently, the sample employed may not be representative of the total population. However, Tsiouris et al. descriptively compared the sample to the total population on demographic factors and level of LD and reported that the study sample was largely similar to the total population. No detail about the type of accommodation where participants resided was provided.

In the Netherlands, Nottestad and Linaker (2002) reported that 41% of people who left an institution in 1995 had been physically aggressive in the preceding year. In the year post deinstitutionalisation this had significantly increased to 57% of

[2] Joyce et al. (2001) is not included in this table. See section 1.2.2.

people. Aggression was rated by staff using questions about five types of behaviour disturbance. These questions are not detailed by the authors, and so it is difficult to compare this measurement to other studies. The focus of this study was the increase in physical aggression post deinstitutionalisation and so the sample characteristics are only described for the latter group of people. Within this group, 4% had a mild LD, 21% a moderate LD; 55% a severe LD and 20% a PMLD, as assessed by ICD-10 criteria. They reported that the male to female ratio was 2:1 and the mean age was 46 years old.

Table 1: *Studies reporting on the prevalence of physical aggression in adults with a LD in community services.*

Authors	Country	Age (years)	Gender (% male)	Setting	Sample (*n*)	Measurement of LD	Range of LD	Measurement of Physical Aggression	Prevalence of Physical Aggression (%)
Prevalence studies									
Bhaumik, Branford, McGrother and Thorp (1997)	UK	Not reported	Not reported	Population study: variety	2201	Not reported	Not reported	Questionnaire rated by carer	22
Deb, Thomas and Bright (2001)	UK	37.7	51	Prevalence in one CLDT: Group homes Family homes independently	246	Interview with carer	Mild 48% Mod 42% Severe 11% PMLD 0%	DAS rated by carer	23
McBrien, Hodgetts and Gregory (2003)	UK	Not reported	Not reported	Population study: variety	348	Not reported	Not reported	Convictions	64
Nottestad and Linaker (2002)	Nether-lands	46	60	Cohort, pre and post institutionalisation: variety of settings	22	Diagnostic criteria	Mild 4% Mod 21% Severe 55% PMLD 20%	Questionnaire rated by carer	41 - 57
Tenneij and Koot (2008)	Nether-lands	26.8	74.5	Residential facilities	185	IQ	Average IQ 65 (mild LD range)	SOAS-R rated by staff	44

Authors	Country	Age (years)	Gender (% male)	Setting	Sample (*n*)	Measurement of LD	Range of LD	Measurement of Physical Aggression	Prevalence of Physical Aggression (%)
Tsiouris, Kim, Brown and Cohen, (2011)	USA	49.6	60	Population study: Variety, 73% residential	4069	Not reported	Mild 28% Mod 16% Severe 19% PMLD 38%	MOAS rated by carer	57.6
Tyrer et al. (2006)	UK	Majority < 50	57	Population study: Variety	3062	IQ	Mild 8% Mod 11% Severe 17% PMLD 20%	DAS rated by carer	14
				Percentage of behaviours that challenge, that were physical aggression					**Of behaviours that challenge**
Crocker, Mercier, Lachapelle, Brunet, Morin and Roy (2006)	Canada	40.6	51.7	Population study: 55% family type residence 30% group home 11% supported accommodation	3125	Diagnostic criteria	Mild 31.2% Mod 37.8% Severe 18.9% PMLD 12.6%	MOAS rated by carer	12.2
Hemmings, Gravestock, Pickard and Bouras (2006)	UK	Not reported	49.5	Population study: Variety, 60% supported accommodation	214	Diagnostic criteria	Mild 8% Mod 11% Severe 17% PMLD 20%	DAS rated by psychiatrist	14
Hill and Bruininks (1984)	UK	Not reported	Not reported	Population study: variety	236	Not reported	Not reported	Questioned staff	16.3 - 42

Authors	Country	Age (years)	Gender (% male)	Setting	Sample (n)	Measurement of LD	Range of LD	Measurement of Physical Aggression	Prevalence of Physical Aggression (%)
Smith, Branford, Collacott, Cooper and McGrother (1996)	UK	37.7	56.7	Population study	2202	Interview with carer	Mild / borderline 11.6% Mod 26.0% Severe 30.9% PMLD 31.5%	Interview with carer	20
Totsika, Toogood, Hastings and Lewis (2008)	UK	45.3	62	Cohort	58	Not reported	Borderline 3% Mod 16% Severe 81% PMLD 0%	Challenging Behaviour Survey	70

Tenneij and Koot (2008) reported a similar rate of aggression (44%) in people with a LD in residential facilities in the Netherlands (n = 185). Of the total clients, 138 (74.5%) were men and the average age was 26.8 years. Tenneij and Koot reported that most people in this study had a mild LD and that the mean IQ score was 65. However, this data was only available for 134 of the 150 participants. The prevalence rate of aggression includes verbal aggression and aggression against property, as well as physical aggression and so is likely to be over-inclusive. Aggression was measured using the Staff Observation Aggression Scale-Revised (SOAS-R; Nijman & Palmstierna, 2002).

The prevalence of physical aggression in community services outside of the UK is notably high, up to 57.6%. It is difficult to compare across these studies as different studies used different methods to measure LD and physical aggression. The methodological limitations of studies are considered in more detail in section 1.2.6.

1.2.2. Studies conducted in the UK

In Leicester, Tyrer et al. (2006) and Bhaumik et al. (1997) made use of the register of people with a LD in the area (total population n = 700,000). Individuals are placed on the register if they have moderate, severe or profound impairment in intellectual functioning; associated adaptive behaviour difficulties and an identified need for specialist service provision. This inclusion criterion is likely to result in a slightly skewed sample of people with LD as it does not include people with mild or borderline LD. Of those on the register, 443 (14%) were identified by an informant as being physically aggressive frequently, or severely, so as to cause a management difficulty. Physically aggressive behaviours were scored on the Disability Assessment Schedule (DAS: Holmes, Shah & Wing, 1982). Physical aggression that had been rated to be a lesser management problem was not included in the prevalence

rate. Utilising the same register and the same assessment measure, Bhaumik et al. reported a prevalence rate of 22% of people on the register who were physically aggressive. Bhaumik et al. did not exclude physical aggression that was deemed to be a lesser management problem, which, Tyrer et al. suggest, may account for the higher prevalence rate in the earlier study.

Deb et al. (2001) investigated the prevalence of behaviour disorder in a sample of people with a LD from one social services department in Wales (n = 246). They reported that, based on the assessment of behaviour disorder using the DAS, 23% of people were physically aggressive. In this study, level of LD was obtained by interviewing individuals, their carer and sometimes their key worker. Therefore, the level of LD identified for each participant would have been based on individual subjective judgement, and it would have been difficult to ensure that this was consistent across carers and key workers.

Joyce et al. (2001) in a sample recruited from across three London Boroughs (n = 448; total population, n = 670,000), used the Challenging Behaviour Checklist (CBC; Harris & Russell, 1989) to identify the prevalence of a range of physically aggressive behaviours. Participants were resident in a range of settings: 24% were living in a family home, 50% in staffed supported accommodation and 20% were living out of borough. Fifty-six per cent of the sample were reported to have grabbed others; 49% hit others, 26% kicked others; 21% pinched others; 17% pulled others; 9% bit others; 4% head-butted others and 5% choked others. The authors did not report where individuals were responsible for more than one of these types of behaviours and so it is not clear how many people were responsible for these incidents. Therefore, this study provides a prevalence of behaviours, not a prevalence of people who exhibit these behaviours.

McBrien et al. (2003) reported that 348 individuals living in residential settings across one local authority (Plymouth), were identified by services for people with a LD to have offended or to be at risk of offending. Within this group, 163 (47%) people were known to have assaulted others. This figure was obtained by interviewing social services care managers, community nurses, or other members of the health team. All settings within the authority were involved in the study, and so it is suggested that the sample is representative of this service area.

Overall, the prevalence of physical aggression in CLDTs in the UK ranges from 14% - 47%. This seems to be lower than in countries outside of the UK. However, it is difficult to compare across studies, both in the UK and outside of the UK, due to methodological limitations. See section 1.2.6.

1.2.3. Incidence of physical aggression within behaviours that challenge

Some studies have investigated behaviours that challenge and reported on the prevalence of different behaviours. This makes it possible to look at the rate of physical aggression. Totsika et al. (2008) measured behaviours that challenge in 58 people in a long term residential facility, over an eleven year period. Seventy per cent of the behaviours that challenged, as rated by the Challenging Behaviour Survey (Alborz, Bromley, Emerson, Kiernan & Qureshi, 1994), were reported to be physical assaults on others. This was higher than the prevalence of other behaviours that challenged, the next most frequent behaviour being 'disruptive behaviour', displayed by 58% of the sample. The vast majority (81%) of this sample had severe LD; 16% had moderate LD and 3% had borderline LD. Level of LD was measured by the service, but how this was assessed was not described. This makes it difficult to consider how accurate this measurement was.

Smith et al. (1996), with a large sample (*n* = 2202), reported physical aggression to be 'more than 20%' of behaviours that challenged the services on the Leicestershire register. Other behaviours that challenged to a similar extent were temper tantrums, verbal abuse, uncooperativeness and attention seeking. It is possible that these behaviours co-occurred. Participants were recruited from the Leicestershire register of people with a LD and diagnoses and difficult behaviours were taken from an interview with the individual's carer. Although researchers were trained in interviewing carers, the prevalence of LD and the prevalence of difficult to manage behaviours would have been influenced by the subjective judgement of carers, and prevalence rates may have been different if more formal measures were used.

Hemmings et al. (2006) recruited a sample of adults with a LD from the total population of adults on the register of adults with a LD in South East London. Hemmings et al. included all people who were willing to partake in the study (*n* = 214), regardless of if they were known to services to be aggressive. Participants resided in a number of different settings, including family homes, group homes, independently in the community and in supported accommodation. The majority (60.3%) lived in supported accommodation. Behaviour was rated by one of three psychiatrists for the purpose of the study and so was not necessarily completed by someone who knew the person well. Behaviour was rated using the DAS. Level of LD was also rated by one of the psychiatrists, measured in accordance with ICD-10 diagnostic criteria. However, IQ data was not available for everyone. Sixty-four per cent of the sample were deemed to have mild or moderate LD, and 36% were described as having severe LD or PMLD. The number of participants recruited from across the LD range was not accurately described in the study, and so it is difficult to know how representative the sample was, in terms of the people with different levels

of LD. Of the total sample, 10% were identified to have any problem behaviour. Fourteen per cent of these behaviours were aggression. The definition of aggression was not specified and so it is difficult to know precisely what behaviour this refers to. For example, it may have included verbal and property aggression.

Hill and Bruininks (1984) looked at the prevalence rate of a range of behaviours that challenge in adults with a LD in community services and residential settings. Two hundred and thirty-six participants were recruited from a total population of $n = 2271$. Between 16.3% and 42% of participants, across a range of services, were rated by carers to display behaviour that injured others. This behaviour was not defined. Participants were recruited from a number of settings, including an institution for more than 400 people, as well as people who were living with support in the community. Individuals who lived at home with a carer were excluded from the study. The applicability of this sample to modern CLDTs is, therefore, somewhat limited.

Crocker et al. (2006) in Canada had a successful response rate and 97.5% of services responded to their request to identify people within their service who exhibited aggression directed at oneself, the environment, or others. Aggression could be direct or indirect and planned or unplanned ($n = 3125$). Of those identified, 51.8% were reported by their carers to display verbal aggression, aggression against property, physical aggression or self-injurious behaviour, using the Modified Overt Aggression Scale (MOAS; Kay, Wolkenfeld, & Murrill, 1988). Of this group, it was reported that the majority; 24.4%, were physically aggressive.

The prevalence rates reported by Smith et al. (1996), Hemmings et al. (2006) and Crocker et al. (2006) are quite different to the prevalence reported by Totsika et al. (2011). It is possible that this is due to differences in selection processes and

measurement of physical aggression. See section 1.2.6. Of behaviours that challenge services, physical aggression is consistently reported to be the most common type of difficult to manage behaviour. Even though the rate of physical aggression differs across studies, all studies reported that physical aggression was the most common behaviour that challenged services. Darrow et al. (2011) in a review of the research literature on risk in people with a LD, suggest that there is a need to develop research into physical aggression in isolation from other behaviours that challenge services, as this behaviour has the greatest impact on others and on the therapeutic environment.

1.2.4. Summary of prevalence of physical aggression studies

As outlined above, due to methodological limitations, it is difficult to collectively consider the data reported in the research literature on the prevalence of physical aggression in people with a LD in community services. The prevalence rate will be influenced by where, and how, and by whom the aggression is rated. Studies that have based the prevalence rate of any physical aggression in the UK report a prevalence rate of 14% - 23% (Bhaumik et al., 1997; Deb et al., 2001; McBrien et al., 2003; Tyrer et al., 2006). Studies conducted outside of the UK report a higher prevalence rate of up to 57.6% in America (Tsiouris et al., 2011), and 41% to 44% in the Netherlands (Nottestad & Linaker, 2002; Tenneij & Koot, 2008).

1.2.5. Differentiating between severity of physical aggression

Some studies have attempted to evaluate the severity of physical aggression in more detail. Crocker et al. (2006), who measured physical aggression using the MOAS, separately analysed any physical aggression and physical aggression that caused some injury (defined as a score of 3 or 4 on the MOAS; attacking others causing mild injury; attacking others causing serious injury, respectively). They reported that where 24.4% of the sample had engaged in any physical aggression,

4.9% had engaged in physical aggression that had caused injury. Similarly, Crocker et al. (2007) looked at a subsample of people with mild or moderate LD who had been identified in the Crocker at al. (2006) study as being aggressive towards other people (*n* = 296). This definition was not limited to physical aggression, but included verbal and property aggression also and so may have resulted in an inflated prevalence rate. The prevalence rates of such behaviours followed a linear pattern and 47.6% were reported to be threatening, 35.8% physically attacked others and 13.9% physically attacked others causing mild and/or serious injury. These behaviours were rated by the researchers from a file review, interview with the individual, interview with a significant other and with their case manager.

Tenneij and Koot (2008) asked staff to rate incidents of physical aggression with the SOAS-R. They report prevalence rates of severe physical aggression consistent with Crocker et al. (2006) and state that 4% of the incidents of physical aggression caused injury to others or required treatment. Tyrer et al. reported that whilst 14% of the whole sample were reported to be physically aggressive, only 9% of incidents within this group were deemed to be severely physically aggressive (infrequently) and 3% were frequently, severely physically aggressive, as rated by the DAS.

Where studies have differentiated between any physical aggression and more severe physical aggression that has caused others injury, the prevalence rate for severe physical aggression is predictably lower and ranges from 3% to 4.9 % (Crocker et al., 2006; Tenneij & Koot, 2008). It seems that a small number of people are responsible for more severe incidents. This group of people, whose behaviour is less common, but has more negative consequences on others and on services, will be more difficult

to identify and also more difficult to manage. Arguably, it is most important for services to identify and manage this group of people.

1.2.6. Limitations of the prevalence studies

1.2.6.1. Identification of samples

The studies described above, that have attempted to select a sample of people from a total population study (Bhaumik et al., 1997; Tsiouris et al., 2011; Tyrer et al., 2006), employed methodology that relied upon service managers to identify a sample of people who were aggressive, (including verbal aggression, destruction of property, physical aggression and aggression to self) or who displayed behaviours that challenged the service. Therefore the samples only included people who service managers subjectively judged to be aggressive or difficult to manage. It is possible that there were other people within the population who exhibited physically aggressive behaviour, but who were unknown to service managers. Consequently, the prevalence rate of physical aggression reported may not accurately reflect the prevalence rate in the total population, but only in the sample of people identified by service managers.

In all studies where managers were required to select a sample of people to be aggressive or challenging, they were provided with a definition of 'challenging behaviour' or aggressive behaviour. It was not detailed if service managers were guided on how to decide if someone met the criteria and it was not possible to measure the inter-rater reliability of this judgement, or even to be certain that managers used the definition as a guide. Providing managers with a definition and asking them to identify people in the service is open to subjective bias. It is difficult to ensure its reliability and therefore samples may differ across studies. McClintock et al. (2003) in a review of the research literature, also note that the use of different

definitions of challenging or aggressive behaviour makes it difficult to compare across studies. Therefore samples from different services may not represent the same subgroup of people. This is also supported by Darrow et al. (2011) in a more recent review. Further, Wheeler et al. (2009) suggest that the use of localised, service specific samples may result in contradictory findings as the behaviours that challenge services may differ. Ideally, studies would be conducted across services, with a consistent definition of physical aggression.

1.2.6.2. Measurement of physical aggression

Once the sample has been identified, in order to establish the prevalence rate of physical aggression, a number of studies have asked an informant to assess if the individual with a LD is physically aggressive or not, and if so, how severely (Bhaumik et al., 2006; Crocker et al., 2006; Crocker et al., 2007; Deb et al., 2001; Joyce et al., 2001; Nottestad & Linaker, 2002; Tenneij & Koot, 2008; Tsiouris et al., 2011; Tyrer et al., 2006). Reliance on retrospective, subjective judgement is subject to bias and is not as accurate as actually measuring if someone behaves in a physically aggressive way. It is surprising that none of the studies that have looked at the prevalence of physical aggression have actually measured observed behaviour. Different experiences of people with a LD, experiences of people who are physically aggressive, tolerance of aggression and emotional attachment to the individual will influence staff and carers ratings of physical aggression and so the subsequent prevalence rates reported.

Further, studies used different assessments of aggressive behaviour and so it is difficult to compare across studies (Benson & Brooks, 2008; Darrow et al., 2011; McClintock et al., 2003). For example, Crocker et al. (2006) and Tsiouris et al. (2011) used the MOAS. Bhaumik et al. (1997); Deb et al. (2001) and Tyrer et al.

(2006) used the DAS. Joyce et al. (2001) used the CBC. Tenneij and Koot (2008) used the SOAS-R. Different measures of aggression would have given informants similar, but different definitions of physical aggression. Therefore, the prevalence rates across studies may reflect the different instruments used and not necessarily a 'real' difference.

1.2.6.3. Measurement of LD

As with the measurement of physical aggression, the measurement of LD also varied widely across studies. Some studies used formal diagnostic criteria (Crocker et al., 2006; Nottestad and Linaker, 2002), some studies asked an informant to rate the individual's level of LD (Deb et al., 2001; Joyce et al. 2001), some reported an IQ (Tenneij & Koot, 2008), some took people on a register of adults with a LD (Bhaumik et al., 1997; Tyrer, et al., 2006; Smith et al., 1996), and some studies did not describe how they measured LD (McBrien et al., 2003; Totsika et al., 2011; Tsiouris et al., 2011). The percentage of participants across the LD range also varied widely across studies and due to the different methods of measurement used it is difficult to know if this difference represents a difference across samples or a difference due to using different assessments of LD. McClintock et al. (2003) state that there is not enough information about samples to meaningfully compare across samples.

1.2.6.4. Service settings

It is difficult to draw conclusions about the rate of physical aggression in people with a LD in the community, because they are drawn from different service settings and so again it is difficult to compare data across studies (Darrow et al. 2011; Wheeler et al., 2011). The rate of physical aggression may be influenced by policies within services and also by the response of the people around individuals with a LD (Allen, 2003), which is likely to be different in different settings.

Attempts at a total population study in a given geographical area (Bhaumik et al., 1997; McBrien et al., 2003; Tsiouris et al., 2011; Tyrer et al., 2006), necessarily includes people who are receiving input from a range of services. Studies report that people resided in a range of settings, such as residential health settings, supported accommodation in the community, at home with relatives, independently, etc. Totsika et al. (2008) and Crocker et al. (2007) highlighted that environmental factors are important in relation to difficult to manage behaviours. In different settings, people will be exposed to different environmental factors and this may differentially influence the prevalence of physical aggression. Further, in different settings responses to frustration or difficulties that may trigger physical aggression may also differ in type, in quality and in consistency (Embregts, Didden, Huitnik & Schneuder, 2009). Studies do not report on different rates of aggression in different settings and so it is not possible to compare within or across studies.

1.2.6.5. Summary of methodological limitations

The limitations in the selection of the sample, the measurement of physical aggression, the measurement of LD and recruiting across settings makes it difficult to compare prevalence rates of physical aggression across studies. Reviews of the research literature (Benson & Brooks, 2008; Darrow et al., 2011; McClintock et al., 2003) all concur that it is not possible to consider the research literature on the prevalence of physical aggression collectively, as differences in methodology and a lack of information about methodology mean that it is not possible to consider the research literature as a whole.

1.2.7. Need for risk assessment of physical aggression in CLDTs

Review of the research literature on the prevalence of physical aggression in community services for people with a LD suggests that services are managing people

who are physically aggressive. In addition, Lindsay et al. (2010) found that, in forensic LD services, although there was a linear relationship between risk assessment score and the level of security of the placement where people resided, these differences were small. This suggests that other factors influence decisions about level of security and community services will differ in the prevalence of people that they support who pose a risk of harm to others. Furthermore, Wheeler et al. (2009) analysed the care pathways of people with a LD across 15 CLDTs and reported that people rarely get discharged from services. Therefore, CLDTs are managing people who are physically aggressive in the long-term.

Robertson et al. (2005) report a number of negative outcomes as a result of assaults on others in LD services. These are physical injury, social exclusion and isolation of individuals who are physically aggressive, abuse from caregivers, restricted management techniques, increased stress amongst caregivers and increased financial cost. Indeed, Emerson, Hatton, Robertson, Roberts, Baines and Glover (2010) in a review of service provision for adults with a LD, report that in 2009 / 2010 local authority spending on assessment and care increased from £205 million to £257 million. Rose and Cleary (2007) report that staff in LD services are scared of the people that they care for and Emerson et al. (2010) note that the rates of dissatisfaction of carers of adults with a LD are higher at 13% than the average percentage in other populations (8%). Howard, Rose and Levenson (2009) note that fear of violence is greater in staff working with people with a LD in community settings than in secure services. Deb et al. (2009); Jones, Arlidge, Gillham, Reagu, van den Bree and Taylor (2011) and Antonacci, Manuel and Davis (2008) all report that services have limited strategies for managing physical aggression and, instead, rely on anti-psychotic, anti-depressant and anti-epileptic medication to manage

people's behaviour. This is concerning as it means that anti-psychotic medication and anti-depressants are being used beyond the purposes for which they are licensed.

The rate and impact of this behaviour on services suggests that there is a need for risk assessment of physical aggression to support services to accurately identify the people who will be physically aggressive to others. Services need to be able to identify these subgroups in order to adequately manage this behaviour. Andrews et al. (2006) state that assessment of risk of harm to others, such as physical aggression, should be facilitated with assessment instruments that have been developed empirically. Indeed, the Welsh Assembly National Service Framework (2005) Strategic Objective 6.6 states that a risk assessment of potential harm to others must be carried out for every service user in Wales. The literature pertinent to risk assessment of physical aggression in people with a LD has primarily been developed with forensic psychiatric populations.

1.3 Risk assessment instruments in forensic psychiatric patients with a LD.

The vast majority of the research literature that has developed and evaluated risk assessment instruments for assessing the risk of harm to others has been in general offender populations (see Gendreau, Goggin & Smith, 2002, for a review) and with mentally disordered offender populations (see Campbell, French & Gendreau, 2009, for a recent review). The developments in this research literature will be briefly reviewed here, so that the applicability of such instruments to people with a LD can be considered.

1.3.1. Development of risk assessment instruments

Historically, in mentally disordered offender populations, risk assessment of harm to others was assessed by clinicians, and was based on their expert opinion of the likelihood that the individual will be violent or aggressive in the future (Grove,

Zald, Lebow, Snitz & Nelson, 2000). Monahan (1981) reviewed this literature and assessed the ability of clinicians to predict risk of harm to others and concluded that clinicians were poor at this and accurately predicted harm to others just once in every three cases. The response to this in the research literature was to develop and evaluate the ability of actuarial measures to predict future harm to others. The risk assessment literature has since evolved further and risk assessment instruments have incorporated risk factors that are amenable to change, in the development of structured clinical guides. The literature on actuarial measures and structured clinical guides will briefly be reviewed here.

1.3.1.1. Actuarial measures

Actuarial measures take a set of risk factors known to be predictive of future harm to others (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 key difference to clinical judgement is the use of a formula to derive risk, as opposed to making a subjective judgement. A reported 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 (Quinsey, Harris, Rice & Cormier, 1998). A number of meta-analyses have highlighted the superiority of actuarial models compared to clinical judgement, 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). Actuarial measures include static risk factors and so they are good at predicting risk of harm to others over the long-term.

The most well validated actuarial instrument in the research literature is the Violence Risk Appraisal Guide (VRAG; Harris, Rice & Quinsey, 1993). In the

construction sample of 618 male forensic psychiatric patients (Harris et al., 1993), the VRAG was found to predict future violent offences with a large effect size. This was later extended to a follow-up period of 10 years by Quinsey et al. (1998), who again reported large effect sizes. The predictive efficacy of the VRAG has been repeatedly replicated and Harris, Rice and Camilleri (2004), report that the VRAG has been validated in more than 25 studies in at least five different countries. More recently, Campbell et al. (2009) conducted a meta-analysis of risk assessment instruments and reported that, over the long-term, the VRAG had superior predictive efficacy compared to other risk assessment instruments.

1.3.1.2. Structured Clinical Guides

Structured clinical guides combine static and dynamic variables that have been found to be associated with risk of harm to others, 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 violence and can also be repeatedly administered, so could potentially be used to gauge any change in the assessed level of risk (e.g. Campbell et al., 2009). Such risk assessment instruments are therefore good at predicting risk of harm to others in the shorter-term.

The most widely studied structured clinical guide is the History, Clinical, Risk-Management-20, Version 2 (HCR-20; Webster, Douglas, Eaves & Hart, 1997). The HCR-20 was designed for use in any population with a high incidence of physical aggression (Webster et al., 1997). 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 in the UK (e.g. Belfrage, Fransson & Strand, 2000; Douglas et al., 1999; Doyle et al. 2002; Gray, Taylor & Snowden, 2008; McNeil, Gregory, Lam, Binder & Sullivan, 2003). Campbell et al.

(2009) found that the HCR-20 had superior predictive efficacy for short-term physical aggression, compared to other risk assessment instruments.

In addition to the advancements in risk assessment instruments developed specifically for the purpose of predicting future harm to others, the Psychopathy Checklist-Revised (PCL-R; Hare, 2003) and its variants, (Psychopathy Checklist-Screening Version (PCL-SV); Hart, Cox & Hare, 1995) have been found to be important in the prediction of harm to others. The PCL-R is included in the VRAG and the HCR-20 (as well as other risk assessment instruments) and has repeatedly been found to predict recidivism and physical aggression in mentally disordered offenders. The PCL-R is a measure of a personality construct, and not a risk assessment instrument and so this research literature will not be reviewed here. For reviews of this literature see Hare (2006); Hare, Clarke, Grann & Thornton (2000); Hart, (1998); Hemphill and Hare (1998; 2004) and for meta-analyses of this literature see Gendreau et al. (2002); Guy, Edens, Anthony and Douglas (2005); Leistico, Salekin, DeCoster and Rogers (2008); Salekin, Rogers and Sewell (1996) and Walters (2003).

In conclusion, the most comprehensive research on risk assessment instruments in mentally disordered offenders has been completed on the VRAG and the HCR-20. In their meta-analytic review of the research literature, Campbell et al. (2009) reported that the VRAG and the HCR-20 demonstrated the greatest predictive efficacy when predicting recidivism in the community in the longer-term (VRAG) and predicting institutional aggression in the shorter term (HCR-20).

1.3.2. Predictive efficacy of risk assessment instruments in people with a LD

There is a developing evidence base for the predictive efficacy of risk assessment instruments developed in mentally disordered offender populations, in

forensic psychiatric patients with a LD. In line with the literature regarding mentally disordered offenders, the majority of studies have evaluated the predictive efficacy of the VRAG and the HCR-20. Other studies have also looked at the predictive efficacy of the PCL-R, the Offender Group Re-conviction Scale (OGRS; Copas & Marshall, 1998); the Dynamic Assessment of Situational Aggression (DASA; Lipsey & Wilson, 1998); the Short Dynamic Risk Scale (SDRS; Quinsey, Book & Skilling, 2004) and the Dynamic Risk Assessment and Management System (DRAMS; Lindsay et al., 2004). See Table 2 for a summary of these studies.

1.3.2.1. Predicting long-term recidivism in forensic psychiatric populations

Gray, Fitzgerald, Taylor and Snowden (2007) evaluated the predictive efficacy of the VRAG and the HCR-20 in forensic psychiatric patients with a LD, discharged from four medium secure units across the UK. This study directly compared the predictive efficacy of the VRAG and the HCR-20 in forensic psychiatric patients with a LD (n = 145) to other mentally disordered offenders (n = 996); for whom the predictive efficacy is well established. LD was defined by diagnoses reported in the participant's file, as given by the responsible clinician. As IQ and adaptive functioning were not measured directly in the Gray et al. study, it is not possible to be certain that all those in the LD group met the diagnostic criteria for a LD. However, as individuals had been given this diagnosis it is likely that they did and, further, services were managing and treating them in line with having a LD and so this is the population of people for who validated risk assessments would be used.

The outcome measure in this study was both violent and general recidivism in the community, five years post-discharge. It is known that convictions represent just the 'tip of the iceberg' of offences committed (for example, Holland et al., 2002) and

so using convictions as the outcome measure may not have been an accurate representation of all offences committed.

The risk assessment instruments were scored from file review only, which is not in accordance with how the HCR-20 is intended to be completed (Webster et al., 1997). This could have served to work against the ability of the HCR-20 to predict harm to others. However, this was not found to be the case and both the VRAG and the HCR-20 predicted general and violent recidivism with large effect sizes. The efficacy of the VRAG was comparable in the LD group and the control group (AUC[3] = 0.75 and AUC = 0.70, respectively) and was better in the LD group compared to the control group for the HCR-20 (AUC = 0.82 and AUC = 0.71, respectively).

In the same sample, Fitzgerald, Gray, Taylor and Snowden (2011) evaluated the predictive utility of the OGRS. The OGRS is an actuarial predictor of recidivism developed in general offender populations. It is based upon criminal history variables and personal demographic variables and provides a probability of general recidivism over a two year period. In mentally disordered offenders, the OGRS has repeatedly been found to be have predictive efficacy (for example, Gray, Snowden, MacCulloch, Phillips, Taylor & MacCulloch, 2004; Snowden, Gray, Taylor & MacCulloch, 2007). The OGRS was found to be able to predict recidivism in the community with large effect sizes for those with a LD; producing an AUC of 0.85 predicting violent offences and 0.90 predicting general offences.

[3] Signal Detection Theory (SDT; Green & Swets, 1966) plots the proportion of times a risk assessment instrument correctly predicts physical aggression, 'hits', against the proportion of times it incorrectly predicts physical aggression, 'false alarms'. By doing this for each score of the instrument it constructs the Receiver Operating Characteristic (ROC). 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. 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).

Table 2: *Studies evaluating the predictive efficacy of risk assessment of physical aggression in adults with a LD*

Risk Assessment	**Authors**	**Population**	**Sample (*n*)**	**Gender (% male)**	**Level of LD**	**Statistics**	**Effect size[a]**
VRAG							
	Camelleri and Quinsey (2011)	Community	677	Not reported	Not reported	LD AUC = 0.70 Control AUC = 0.70	Medium
	Fitzgerald, et al. (in press)	Forensic	LD = 25 Control = 45	LD = 92 Control = 71	Mild 84% Mod 12% Severe 4% PMLD 0%	[b] LD AUC = 0.87 Control AUC = 0.60	Large
	Gray, Fitzgerald, Taylor, & Snowden (2007)	Forensic	LD = 145 Control = 996	LD = 81.4 Control = 84.6	Mild 83.4% Mod 12.4% Severe 3.4% PMLD 0%	LD AUC = 0.75 Control AUC = 0.70	Large
	Lindsay et al., (2008)	Forensic	212	100	Average IQ = mild range	AUC = 0.71	Large
	Quinsey , Book and Skilling (2004)	Community	58	100	Not reported	*r* = 0.32	Medium
HCR-20							
	Fitzgerald, et al. (in press)	Forensic	LD = 25 Control = 45	LD = 92 Control = 71	Mild 84% Mod 12% Severe 4%	[b] LD AUC = 0.88 Control AUC = 0.62	Large

Risk Assessment	Authors	Population	Sample (*n*)	Gender (% male)	Level of LD	Statistics	Effect size[a]
HCR-20	Gray, Fitzgerald, Taylor, and Snowden (2007)	Forensic	LD = 145 Control = 996	LD = 81.4 Control = 84.6	Mild 83.4% Mod 12.4% Severe 3.4%	LD AUC = 0.82 Control AUC = 0.71	Large
	Lindsay et al., (2008)	Forensic	212	100	Average IQ = mild range	AUC = 0.72	Large
	Morrissey et al. (2007)	Forensic	60	100	Mean IQ = 65 (mild)	*r* = 0.42	Medium
Actuarial							
OGRS	Fitzgerald, Gray, Taylor and Snowden (2011)	Forensic	145	81.4	Mild 83.4% Mod 12.4% Severe 3.4%	AUC = 0.90	Large
History of violence	McMillan, Hastings and Coldwell (2004)	Forensic	124	75.8	Mild = 90%	AUC = 0.77	Large
Dynamic							
DASA	Barry-Walsh, Daffern, Duncan & Ogloff (2011)	Forensic and community	58	96	Not reported	AUC = 0.65	Medium
SDRS	Lindsay et al. (2008)	Forensic	212	100	Average IQ = mild range	AUC = 0.72	Large
DRAMS	Steptoe, Lindsay, Murphy and Young (2008)	Forensic	23	100	Average IQ = 64.6; all had a diagnosis of LD	AUC = 0.73	Large

[a] Calculated based on Cohen (1992) for correlation analyses and Hanley and McNeil (1992) for ROC analyses. [b] Figures presented for predicting any physical aggression. VRAG and HCR-20 also predicted severe physical aggression with large effect sizes in the LD group and medium-large effect sizes in the control group.

These studies suggest that risk assessment instruments developed in general offender populations and with mentally disordered offenders without a LD, are generalisable when predicting long-term recidivism in the community in a forensic psychiatric LD population.

1.3.2.2. Predicting physical aggression in forensic psychiatric populations: The VRAG and the HCR-20

Lindsay et al. (2008) tested the predictive abilities of the VRAG and the HCR-20 in a large sample (n = 212) of male, forensic psychiatric patients with a LD, recruited from across three levels of security; from the community (n = 69), a low/medium secure unit (n = 70) and a high security hospital (n = 73). Lindsay et al. (2008) evaluated the inter-rater reliability for the VRAG and the HCR-20 and reported good reliability for both instruments; 92.2% agreement for the VRAG scores and ranging from 82.7% - 93.1% across the subscales of the HCR-20. This is an important measure to take, because if an instrument cannot be reliably scored its validity will be compromised. Across one year the VRAG and the HCR-20 were able to predict physical aggression significantly above chance levels producing AUCs of 0.71 and 0.72 respectively. The risk assessment instruments were scored from file review and any missing information was obtained from an interview with mental health professionals who knew the individual well. This would have served to improve the reliability and validity of the instruments because omission in data decreases reliability and validity (Harris, Rice, Quinsey, Lalumiere, Boer & Lang, 2003).

Lindsay et al. (2008) provide comprehensive evidence as to the predictive utility of the VRAG and the HCR-20 in forensic psychiatric patients with a LD, as the study employed a large sample, recruited from a range of services. It would have

been beneficial to have evaluated the predictive validity of the risk assessment instruments within these different settings too, to highlight any similarities or differences across settings. For example, the measurement of physical aggression may have been effected by the setting. It is likely that a different level of tolerance of physical aggression may have been accepted in high secure services compared to community services.

Morrissey et al. (2007) present findings for the HCR-20 in a subgroup of the sample employed by Lindsay et al. (2008); those in high security (n = 60), followed up over a 12 month follow up period. Eighty one per cent had a diagnosis of LD, and the mean Full Scale IQ score was 66.2 (in the mild range). The HCR-20 was significantly positively related to physical aggression (r = 0.42; AUC = 0.68). Morrissey et al. measured incidents of physical aggression from incident forms completed in the hospital. This method is likely to result in an under-estimation of incidents, as not all incidents of aggression result in an incident form being completed. This may have decreased the ability of the HCR-20 to predict such incidents.

Fitzgerald et al. (in press) replicated the findings of Lindsay et al. (2008), with additional comparison to a control group of mentally disordered offenders, residing in four medium secure units in the UK (n = 70). In this study the VRAG and the HCR-20 were scored from file review and from an interview with the individual with a LD. This is in accordance with the HCR-20 manual (Webster et al., 1997). Physical aggression was taken from nursing case notes and so should be a close representation of actual behaviour as all behaviour observed by nursing staff in secure settings, are recorded in the case notes.

Again, the predictive validity of the VRAG and the HCR-20 in the LD group (n = 25) equalled or improved upon the predictive validity in the control group (n = 45); predicting physical aggression with large effect sizes in the LD group and with small effect sizes in the control group. The VRAG and HCR-20 were also able to predict severe physical aggression with large effect sizes in the LD group and medium – large effect sizes in the control group. This is the only known study that has attempted to measure the predictive efficacy for more severe physical aggression.

1.3.2.3. Predicting physical aggression in forensic psychiatric populations: Other actuarial measures

McMillan, Hastings and Coldwell (2004) compared the predictive ability of clinical judgement and an actuarial model, previous violence, in a community forensic sample in Canada (n = 124). The vast majority of the sample (90%) had a mild LD and were male (75.8%). Clinical risk assessments were made by a clinical team at a clinical meeting. This is an ecologically valid measure of a clinical judgement of risk of harm to others. The actuarial model was simply the number of incidents of physical aggression in the six months preceding the team meeting. Each risk assessment method was used to predict incidents of institutional violence in the six month period 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. Incidents of violence were taken from official records and so only reflect incidents deemed serious enough to warrant recording in this system.

1.3.2.4. Predicting physical aggression in forensic psychiatric populations: Dynamic risk assessments

Barry-Walsh, Daffern, Duncan and Ogloff (2011) have recently evaluated the DASA, which attempts to predict aggression in the very short term, over a period of

24 hours. The DASA was scored for individuals (n = 58) in a low secure service in New Zealand. Participants had a primary diagnosis of major mental illness or mental retardation. Unfortunately, the authors did not evaluate the predict efficacy of the DASA separately for these groups and so it is not possible to isolate the predictive efficacy of the DASA for those with a LD. Similarly, participants were drawn from both forensic psychiatric and civil psychiatric populations and so it was hard to delineate the findings across these groups. The DASA was able to significantly predict imminent physical aggression towards staff with a large effect size (AUC = 0.80) and towards other patients with a medium effect size (AUC = 0.65). It is interesting that the DASA was better able to predict physical aggression towards staff than towards others patients. Not enough is known about the incidents to try and accurately interpret this finding.

Lindsay et al. (2008) evaluated the SDRS alongside the VRAG and the HCR-20. The SDRS showed promise in its ability to predict physical aggression over a period of a year and significantly predicted physical aggression with a large effect size (AUC = 0.72). In the Lindsay et al. (2008) study, the SDRS were completed for less people than the VRAG and the HCR-20 because of insufficient file information. This raises the question of the ease with which the SDRS can be scored in this population.

Steptoe et al. (2008) evaluated the predictive efficacy of the DRAMS in a high secure forensic psychiatric LD population. The DRAMS was completed once or twice a week for participants, based on clinical need. The DRAMS assessments that were completed one or two days before any incident of physical aggression, across a six month period, were included in the analysis (n = 62). Incidents were taken from formal incident reports and so, as previously stated, are possibly an under-estimation

of actual incidents of physical aggression. Despite this, the DRAMS was able to predict incidents of physical aggression with an AUC of 0.73, which is a large effect size.

1.3.2.5. Psychopathy Checklist-Revised in forensic psychiatric populations

As discussed above, the PCL-R and its variants, are not risk assessment instruments, but have been found to have excellent predictive abilities in mentally disordered offenders (see Leistico et al., 2008, for a recent meta-analysis). Based on this research literature, the ability of the PCL-R and its variants, to predict physical aggression and recidivism in forensic psychiatric patients with a LD has also been evaluated (Gray et al., 2007; Fitzgerald et al., in press; Morrissey et al., 2005; Morrissey et al., 2007). The focus of this thesis is risk assessment of physical aggression and so these studies will not be reviewed here. In summary, as with the VRAG and the HCR-20, the predictive efficacy of the PCL-R has also been shown to extend to forensic psychiatric populations of people with a LD. Morrissey et al. (2005); Morrissey et al. (2007) and Fitzgerald et al. (in press) all found the PCL-R to predict physical aggression in in-patient settings. In addition, Gray et al. (2007) found that the PCL-SV predicted long-term re-convictions in the community.

1.3.2.6. Predicting physical aggression in community services

There have been two studies that have looked at the ability of the VRAG to predict physical aggression in community samples of people with a LD; Quinsey, et al. (2004) in Canada and Camelleri and Quinsey (2011) in the US. Quinsey et al. (2004) evaluated the ability of the VRAG to predict physical aggression in those with a LD discharged from institutions into supervised homes into the community (n = 58). The VRAG was found to have a significant, moderate relationship with violent incidents (r = 0.32), as reported by staff, in the 16 month follow up period. More

recently Camilleri and Quinsey (2011) utilised the MacArthur database (Monahan et al., 2001) to evaluate the VRAG in a large community sample, compared to other civil psychiatric patients. The MacArthur database is a publicly available database with a large number of clinical variables recorded for a large number of civil psychiatric patients. The VRAG produced comparable, large effect sizes in each group (AUC = 0.70 in each). These studies provide some preliminary evidence that the VRAG has predictive validity for non-forensic LD populations in the community.

1.3.3. Applicability of risk assessment studies in forensic psychiatric LD populations to community LD populations

In the above studies, the samples consist mainly of men. In addition, the samples are not representative across the range of LD, but most participants had a mild LD. Although these samples are not representative of people across the LD range, the high prevalence of men with a mild LD is fairly typical of forensic psychiatric patients with a LD, in secure services in the UK (Rutherford & Duggan, 2007). This is also evidenced by the fact that all studies report very similar samples. However, this is not necessarily representative of the adults with a LD who present to CLDTs. In the studies reviewed in section 1.2, in most of the study samples approximately half were men, and so have more female participants compared to the studies on risk assessment instruments in forensic psychiatric populations. It is difficult to know how representative samples were across the range of LD, due to inconsistencies in how LD was measured. However, there was a greater representation across the spectrum of LD (including moderate, severe and PMLD).

The risk factors for physical aggression may be different in adults who access CLDTs, compared to forensic psychiatric patients with a LD. It is difficult to consider the research literature on risk factors for physical aggression in CLDTs

collectively, due to differences in research design. Of the studies reported in Section 1.2, that have looked specifically at physical aggression, some report that having a PMLD is associated with greater levels of physical aggression (Crocker et al., 2006; Tyrer et al., 2006). However, others have reported that individuals with greater mobility are more likely to be physically aggressive (Totsika et al., 2011). People with a PMLD are more likely to have mobility difficulties and so this finding is somewhat contradictory. Some studies have found that a diagnosis of autism is associated with physical aggression (Bhaumik et al., 1997; McClintock et al., 2003; Tsiouris et al., 2011). No studies have reported the opposite, though not all studies have measured autism as a risk factor for physical aggression. Some studies have reported that men are more likely to be physically aggressive than women in CLDTs (Tyrer et al., 2006), yet others have reported no gender effects (Crocker et al., 2006; Tenneij & Koot, 2008). However, not all studies have reported on gender as a risk factor. Some studies have noted that being younger is associated with a greater rate of physical aggression (Crocker et al., 2006; Totsika et al., 2011; Tyrer et al., 2006); though not all studies have measured age as a risk factor for physical aggression.

Studies have reported on environmental factors, such as being in a group home (Crocker et al., 2006) or in an institution (Tyrer et al., 2006) as being associated with being physically aggressive. Similarly, Totsika, et al. (2011) report that decreased daily living skills are linked to physical aggression and Crocker et al. (2006) found that a lack of social involvement increased the likelihood of physical aggression. It is possible that those who live in group homes or in institutions are more socially isolated and so more likely to have decreased social involvement or daily living skills. As well as environmental factors, mood has been reported to be linked with physical aggression (Hemming et al., 2006; Tyrer et al., 2006). Deb et al. (2001) report that

people who are more physically aggressive are more likely to be on anti-psychotic medication. It is possible to interpret this finding to suggest that individuals with psychosis may be more likely to be physically aggressive. However, it may also be that services are managing people who are physically aggressive with anti-psychotic medication (e.g. Deb et al., 2009; Jones et al., 2011).

As summarised in Section 1.2.3, because studies utilise different selection procedures, different measures of physical aggression and measures of LD, it difficult to compare across studies and it is difficult to ascertain if study samples and reported risk factors or prevalence rates are representative of CLDTs (Benson & Brooks, 2008; Darrow et al., 2011; McClintock et al., 2003).

1.3.4. Summary of risk assessment in people with LD

There is evidence to suggest that risk assessment instruments developed for use in mentally disordered offender populations have predictive efficacy in forensic psychiatric LD populations. Studies have been conducted across a range of secure settings (Lindsay, et al., 2008; Fitzgerald et al., in press; Morrissey et al., 2007; Steptoe et al., 2008) and also in community forensic services (Lindsay et al., 2008; McMillan et al., 2004). Quinsey et al. (2004) and Camelleri and Quinsey (2011) also provide evidence that the VRAG has predictive validity in community samples of adults with a LD.

The majority of the research literature has evaluated the predictive efficacy of the VRAG and the HCR-20 (Camilleri & Quinsey, 2011; Gray et al., 2007; Fitzgerald et al., in press; Lindsay et al., 2008; Quinsey et al., 2004). There is also some evidence for the use of other risk assessment instruments, the OGRS (Fitzgerald et al., 2011), the DASA (Barry-Walsh et al., 2011), the SDRS (Lindsay et al., 2008) and the DRAMS (Steptoe et al., 2008). The majority of studies have evaluated the ability of

risk assessment instruments to predict physical aggression within services, though Gray et al. (2007) and Fitzgerald et al. (2011) found that risk assessment instruments were able to predict long-term reconvictions in the community. In summary, there is some evidence that risk assessment instruments have predictive validity in adults with a LD, and the evidence base is principally for the VRAG and the HCR-20. It would be beneficial to build upon this evidence base and conduct more research into risk assessment instruments in CLDTs.

1.4 The need for a screening tool

The evidence base on risk assessment of risk of harm to others suggests that CLDTs should be using validated risk assessment instruments, the VRAG and the HCR-20, to identify those service users who may be physically aggressive. However, completion of the VRAG and the HCR-20 is resource intensive. Each requires a full review of the client's medical records, a lengthy clinical interview and completion of the PCL-R. Both the HCR-20 and PCL-R require that the evaluator is trained in their use and interpretation. Emerson et al. (2010) report that in 2008 / 2009 CLDTs had to complete an assessment of need for 8720 new adult clients and reviews for 104, 400 clients. This resource load makes it difficult for CLDTs to meet the Welsh Assembly objective of completing a risk assessment for every service user in Wales. A screening tool that quickly and easily identifies the individuals who are more likely to be physically aggressive, could support services to target their limited resources to those individuals who would benefit from a full risk assessment of physical aggression, using established tools such as the VRAG and the HCR-20. These tools can then be used to more fully understand the propensity for physical aggression, and to develop a risk management plan with individuals.

1.5 Development of the Risk Assessment Protocol for Intellectual Disabilities

The Risk Assessment Protocol for Intellectual Disabilities (RAPID) is a potential screening tool that has been developed in forensic psychiatric patients with a LD. A screening tool should be quick and easy to score by all staff, without the need for training. To try and fulfil this aim, in the development of the RAPID the potential ease of reliably scoring the item and the ability to easily score the item from a brief file review, with no advanced training in risk assessment, was considered. It was hoped that this would ensure that the items of the RAPID would have good reliability and clinical application. In addition, for a screening tool of physical aggression to be effective, it needs to be able to accurately predict physical aggression.

The RAPID was developed on a large sample of forensic psychiatric patients with a LD, discharged from medium secure services (n = 145) and followed up in the community for five years[4]. This will be termed the RAPID construction sample. The items of the RAPID were drawn from the evidence base for the predictive efficacy of risk assessment instruments of harm to others in forensic psychiatric LD populations. In addition, the evidence base on the risk factors for violence in forensic psychiatric populations was reviewed and expert opinion as to the inclusion and scoring of the RAPID items was sought. This process is described below.

1.5.1. Preliminary analysis for inclusion of the RAPID items

The majority of the literature on risk assessment of harm to others in those with a LD pertains to the VRAG and the HCR-20. Therefore, the items of these risk assessment instruments were used as a guide for identifying risk factors that might be included in the RAPID. Items of the VRAG and the HCR-20 were subjected to SDT analyses to assess the ability to predict violent and general re-convictions at five years

[4] The sample upon which the RAPID was developed is the same sample employed by Gray et al. (2007). Gray et al. is the published data from Fitzgerald (2008), unpublished thesis.

post-discharge. See Appendix B for the resulting AUCs for each item of the VRAG and the HCR-20.

If an item predicted recidivism well it was deemed suitable to include in the RAPID. In addition to the predictive efficacy of the item, the ease with which it could be scored from a file review, and the ease with which it could be scored by staff not trained in risk assessment of harm to others was considered[5]. Finally, if the item duplicated an item already suitable for inclusion in the RAPID, 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 'alcohol problems' and the HCR-20 Item 'substance use problem' predicted recidivism. However, the HCR-20 'substance use problems' considers all substance abuse whereas the VRAG 'alcohol problems' is more narrowly defined and so the HCR-20 item was retained and the VRAG item removed.

For the RAPID to function successfully as a screening tool it is necessarily short. Therefore, only the most predictive items were considered. This process identified six items of the VRAG and HCR-20 that showed potential for inclusion in the RAPID: HCR-20 Non-compliance with remediation attempts; HCR-20 Early maladjustment; VRAG Failure on conditional release; HCR-20 Substance use problems; HCR-20 Personality disorder[6]; HCR-20 Young age at first violent incident.

1.5.2. Preliminary evidence for the potential predictive validity of the RAPID items

The ability of these RAPID items to predict future harm to others, as a collective, was tested on the construction sample. Unsurprisingly, the RAPID items

[5] These judgements were made by the researcher and supervisors of the project: two professors of psychology. One of whom is a clinical and forensic psychologist.
[6] A diagnosis of personality disorder would only be quick to make if it was readily available in the case notes.

were able to predict both violent and general re-convictions five years post-discharge, with large effect sizes (AUC = 0.85 and AUC = 0.80 respectively). Since the RAPID items were included based on their ability to predict violent and general re-convictions in this sample, it follows that the items collectively predicted violent and general re-convictions. Therefore, the ability of the RAPID to predict institutional physical aggression was tested on an independent sample (n = 25) of forensic psychiatric patients with a LD, Fitzgerald (2008)[7]. This sample was similar to other forensic psychiatric LD populations. The majority were men (92%) with a mild LD (84%). This validation study supported the findings of the construction sample, and the RAPID predicted any physical aggression with a large effect size (AUC = 0.76) and severe physical aggression, again with a large effect size (AUC = 0.72). In both the construction sample analyses and the validation sample analyses, the RAPID items were scored as they had been scored on the original risk assessment instrument, the VRAG or the HCR-20. Therefore these analyses provide preliminary evidence only, as to the predictive validity of the RAPID items in forensic psychiatric patients with a LD.

1.5.3. Construct validity of the RAPID items

The construct validity of the items was also considered through a review of the evidence base for risk factors in forensic psychiatric patients with a LD. Review of this research literature suggests that forensic psychiatric patients with a LD are young males (Alexander et al., 2006; Holland et al., 2002; Puri, Lekh, & Tresaden, 2000; Woods & Mason, 1998), with behavioural and substance abuse problems (Lund, 1990; Murphy, Harnett & Holland, 1995; Winter et al., 1997), with an increased likelihood of a diagnosis of personality disorder (Lindsay, Hogue, et al., 2006; Puri et

[7] This is the same sample as that described by Fitzgerald et al. (in press). Fitzgerald et al. (in press) is the published data of Fitzgerald (2008), unpublished thesis.

al., 2000; Woods & Mason, 1998). This research literature is consistent with the risk factors that were found to most consistently predict re-convictions in the RAPID construction sample. See Appendix C for a summary for the literature pertinent to each item of the RAPID.

Following review of this literature, expert opinion on the validity and appropriateness of the included items was sought. In addition to the researcher and the supervisors on the project, two clinical psychologists with a wealth of experience working with adults with LD in CLDTs, and in forensic services, were consulted. This group discussion developed scoring criteria for each item of the RAPID and also led to the decision to separate the HCR-20 item 'early maladjustment' into childhood maltreatment, neglect and abuse, and childhood delinquent behaviour. It was felt that these items represented different constructs and so it would be beneficial to measure them independently. The authors of the HCR-20 state that this can be done for research purposes (Webster et al., 1997).

In addition, the item 'history of violence' was not found to be predictive in the SDT analysis (Fitzgerald, 2008). This item was redundant as all clients had a history of violence which resulted in a lack of statistical variance in this analysis. However, a history of violence has consistently been found to be the single best predictor of future violence in LD populations when compared to people who have no history of violence (Fitzgerald et al., 2011; Lindsay et al., 2004; McMillan et al., 2004; Quinsey et al., 2004). In CLDTs the base rate of a history of violence would be expected to be more variable than in forensic psychiatric LD populations and so this item could have more predictive value. Therefore, it was felt important to test this as an additional item of the screening tool in CLDTs, and so it was included in the RAPID.

This process determined the final RAPID items to be: Adult violent behaviour; Violent behaviour in childhood or adolescence; Childhood deprivation, maltreatment and abuse; Childhood delinquency; Enduring problems of personality; Drug or alcohol abuse and related problems; Rule breaking, problems with authority, or lack of respect; Compliance with treatment and management. See Appendix C for the full version of the RAPID, along with the scoring criteria.

1.5.4. Pilot data collected on the RAPID

Lindsay, Tinsley, Hastings, Fitzgerald, Gray and Snowden (2011) presented pilot data on the predictive efficacy of the RAPID items. In a sample of forensic psychiatric patients with a LD in secure settings (n = 21). SDT was employed to evaluate the ability of each item of the RAPID to identify the need for police involvement in association with incidents of physical aggression. Two-thirds of the sample were male (n = 14) and one third were female (n = 7). All were age between 18 and 63 years old. Lindsay et al. found that some RAPID items had superior predictive efficacy, compared to the other items of the RAPID. Overall, five of the items had good predictive efficacy, but three had poor predictive efficacy and did not produce AUCs different to chance levels. A confounding factor of the outcome measure is that police involvement was found to be significantly more likely in those with a higher IQ, which suggests that participants that were deemed to be more able were more likely to have police involvement as a consequence of physical aggression. The results of this pilot study should be considered with this in mind.

Item 1 ‘a history of violent behaviour’ produced an AUC at chance levels (AUC = 0.51). However, as the sample was drawn from secure services, all had been violent in the past. Therefore, this item would not be expected to have predictive efficacy in this population and replicates the findings of Fitzgerald (2008). Item 6, ‘enduring

problems of personality' produced an AUC of 0.45, below chance levels. As with a history of violence, it is possible that a large proportion of participants had a diagnosis of personality disorder, and so this may have resulted in a lack of statistical variance in this analysis. Unfortunately, Lindsay et al. did not describe the diagnoses of the sample, and so it is not possible to evaluate this further. The third item that had poor predictive utility in this pilot study was Item 8, 'compliance with treatment and management'. This item predicted police involvement below chance levels (AUC = 0.33). It is not clear why this is the case and there is a need for further research to explore the predictive efficacy of the items of the RAPID beyond this pilot data, in larger samples. It is perhaps noteworthy that Item 3, 'childhood deprivation, maltreatment and abuse' had a much larger AUC (0.90) compared to Item 4, 'childhood delinquency' (AUC = 0.61). This finding provides some support for the decision to separate the HCR-20 item 'early maladjustment' into two separate constructs in the RAPID.

1.5.5. Further research required on the RAPID

The preliminary SDT analyses on the items of the RAPID and review of the research literature pertinent to forensic psychiatric patients with a LD, suggests that the RAPID has predictive and construct validity in this population. However, it is not known if the RAPID has predictive validity in non-forensic LD populations. 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. In order for the RAPID to be utilised in CLDTs, it remains necessary to be tested in this population.

It is also not known if the RAPID has construct validity in non-forensic LD populations. The risk factors for harm to others known to be important in forensic

psychiatric populations may not be the same in adults with a LD who access CLDTs. As outlined above, review of the research literature in forensic psychiatric LD populations suggests that important risk factors for violence are being a young male, with behavioural and substance misuse problems and a diagnosis of personality disorder. Review of the risk factors for physical aggression in CLDTs is inconsistent and inconclusive and so it is not known if the same risk factors are relevant for those in CLDTs. The reliability of the RAPID has not been tested in any LD population. The validity of the RAPID will be constrained by the reliability with which it can be scored. In order to test the reliability of the RAPID it should be scored by two independent raters and their scores compared.

1.6 Aims of the present study

The primary aim of the study is to evaluate the predictive and construct validity of the RAPID in a community sample of people with a LD. Therefore the ability of the RAPID and the RAPID items to accurately identify individuals who are physically aggressive in CLDT services will be evaluated. It would be beneficial to compare the ability of the RAPID to predict physical aggression with a risk assessment instrument that is known to have predictive efficacy in CLDTs. The VRAG has been validated in this population (Quinsey et al., 2004; Camelleri & Quinsey, 2011). Therefore, it would be beneficial to compare the predictive efficacy of the RAPID with the VRAG in a CLDT and obtain a measure of the RAPIDs concurrent validity.

It is proposed that the RAPID may support staff in CLDTs to identify service users who are at increased likelihood of being physically aggressive and so identify quickly and easily, those who may benefit from a full risk assessment of physical aggression. At present, as far as is known, CLDTs use their professional judgement to consider risk of physical aggression. So if the RAPID is to be clinically useful, it

should have superior predictive efficacy compared to professional's judgement of risk of physical aggression. Therefore, the RAPID score will be directly compared to a professional judgement of risk of physical aggression to obtain a measure of its incremental validity over current practice. The validity of the RAPID will be constrained by how reliably it can be scored. Therefore, the reliability of the RAPID will be assessed. As an indication of the clinical utility of the RAPID, it would also be interesting to establish how easy it is to score the items of the RAPID from the information available to professionals in the CLDT.

Chapter 2
Method

2.1 Design

The study was a prospective analysis of the validity of the Risk Assessment Protocol for Intellectual Disabilities (RAPID; Fitzgerald, 2008) to predict physical aggression in a community sample of adults with a LD. The predictor variable was the RAPID score. The outcome measure was physical aggression. i.e. if the individual was noted by staff to be physically aggressive in the month following the date that the RAPID was completed. In addition, verbal and property aggression were also recorded for the purposes of the study, as these types of aggression often co-occur with physical aggression.

The RAPID was compared to an existing, well established risk assessment instrument, the VRAG (Harris et al., 1993), in order to assess its concurrent validity. The predictive validity of the items of the RAPID were analysed to provide a measure of construct validity of the factors measured by the RAPID, in this population. The RAPID was also compared to staff's professional judgement of risk (risk rating) to enable an assessment of incremental validity above current practice. The reliability of the RAPID was also assessed using inter-rater reliability. The ease of scoring the RAPID items was also considered.

2.2 Sample

Participants were recruited from four CLDTs across Aneurin Bevan Health Board (ABHB). CLDTs consist of a health team and a social services team. Service users' support in the community may be funded by either the health or the social services team, but a service is provided collectively by the health and social services teams under the umbrella term, the CLDT. In order to be provided a service by the

health team it is necessary to have a diagnosis of a LD and for the individual's service needs to be related to their health needs. Service users can access the social services team if they are deemed to be a vulnerable adult as a result of a LD. Four of the five CLDTs in ABHB agreed to support the study. These were Caerphilly CLDT, Torfaen CLDT, Blaenau Gwent CLDT and Monmouthshire CLDT. Newport CLDT declined to take part due to other pressures on the service making it difficult for them to support the study at this time.

From across the four CLDTs in ABHB, a total of 122 potential participants were identified for recruitment to the study. Participants were identified via independent, voluntary sector and statutory agency providers ('providers') in the ABHB catchment area, recommended by the CLDT.

In accordance with the ethical approval given for the study, it was only possible to include participants who had the capacity to give consent to take part, see Section 2.4. Therefore if it was deemed by the researcher that a service user did not have the capacity to provide informed consent, then they were excluded from the study. Twenty-nine potential participants were excluded on this basis. A further eight service users declined to meet with the researcher, and two more met with the researcher, but declined to take part in the study. In addition it was not possible to meet with seven potential participants, due to it not being possible to arrange a suitable time with them. Finally, 20 potential participants were excluded from the study as there was insufficient time to collect data for these participants. In line with the Data Protection Act (1998), it was not possible to obtain information about those service users excluded from the study.

A total of 56 participants were recruited to the study. Of these, three were subsequently excluded because it transpired that although supported by the same

provider as service users who accessed the CLDT, they were not supported by the CLDT, but were supported by the local Community Mental Health Team. Therefore, it was felt that these service users were not representative of the population of interest. To include a participant it was necessary to interview their care co-ordinator. Therefore, care co-ordinators were also provided with the option to opt out of supporting the study, but none did and no participants were excluded on this basis. This resulted in a final sample of 53 participants recruited from across ABHB. Twenty-three participants were from the Torfaen CLDT; 21 participants were from the Caerphilly CLDT; 8 from the Blaenau Gwent CLDT and one from the Monmouthshire CLDT.

2.2.1. Description of sample

Participant's care co-ordinators, or someone in the CLDT who knew the participant well, were requested to rate the level of LD that they believed participants to have. The Torfaen CLDT does not have a care co-ordinator system and so participant's social workers provided the rating for the purposes of the study. These staff were all allocated the care of the participant, and so knew them well. In the Caerphilly CLDT, service users are not automatically allocated a care co-ordinator. For these cases the social worker who had most recently conducted a review of the participants care provided the rating (n = 4; 7.5%), or their previous social worker provided the rating (n = 1; 1.9%).[8] For two (3.8%) of these cases it was necessary for the duty social worker to provide the rating. For six (11.3%) participants, the care co-ordinator was not available due to retirement or being on annual leave at the time of the study, and so the care co-ordinator's supervisor, who also knew the participant, completed the rating. For the purposes of clarity, the staff member in the CLDT

[8] This participant had recently moved from the Torfaen CLDT to the Caerphilly CLDT. Therefore the previous social worker in the Torfaen CLDT provided the rating.

interviewed for the purposes of the study will be referred to as the care co-ordinator from here on in.

Care co-ordinators were provided with definitions of the different levels of LD, taken from ICD-10. The percentage of participants deemed to have mild, moderate, and severe LD are outlined in Table 3. Twenty four of the sample (45.3%) were rated as having a mild LD; slightly more, (n = 26; 49.1%) were rated as having a moderate LD; two were rated as having a severe LD (3.8%) and one a borderline LD (1.9%).

Table 3: *Frequency of participants rated as having a borderline, mild, moderate or severe LD.*

Level of LD	Number (%)
Borderline	1 (1.9)
Mild	24 (45.3)
Moderate	26 (49.1)
Severe	2 (3.8)

Where available, diagnoses were also taken from participant's files, as made by a consultant psychiatrist using ICD-10 (WHO, 1992). The specific frequency and percentage of participants with different diagnoses (grouped according to ICD-10 categories) are outlined in Table 4. Eight (15.1%) of the sample had a diagnosis of LD, as defined by ICD-10 (codes F70-F79, termed Mental Impairment (MI) in the ICD-10). For a diagnosis of MI the person should have a Full Scale IQ of less than 70 and impaired adaptive functioning. Of those with a diagnosis of MI, all had a diagnosis of Mild MI (ICD-10 code F70; Full Scale IQ 50 – 69). Care co-ordinator's judgements were in line with formal diagnoses for 5 / 8 (62.5%) of cases. The

remaining three participants were deemed to have a moderate LD by their care co-ordinator.

Table 4: *Frequency of diagnoses across the entire sample (n = 53)*

Diagnosis	ICD-10 Code	N (%)
Endocrine, nutritional and metabolic diseases		
Disorders of other endocrine glands (endocrine disorder)	E20-35	1 (1.9%)
Diseases of the Nervous System		
Episodic and paroxysmal disorders (epilepsy)	G40-44	12 (22.7)
Cerebral Palsy and other paralytic disorders	G80-83	3 (5.7)
Mental and Behavioural Disorders		
Schizophrenia, schizotypal and delusional disorders	F20-29	2 (3.8)
Affective disorders	F30-39	8 (15.1)
Neurotic, stress-related and somatoform disorders	F40-49	6 (11.3)
Disorders of adult personality and behaviour	F60-69	2 (3.8)
Mental impairment	F70-79	8 (15.1)
Disorders of psychological development	F80-89	6 (11.3)
Congenital malformations, deformations and chromosomal abnormalities		
Chromosomal abnormalities not specified elsewhere (Fragile X syndrome)	Q90-99	1 (1.9)

Table 4 highlights that the majority of participants had a diagnosis of epilepsy (22.7%). A number (15.1%) had an affective disorder and slightly fewer (11.3%) had

a neurotic stress related disorder. A comparable number had a disorder of psychological development (11.3%), namely Autistic Spectrum Disorder (ASD).

IQ data was taken from the clinical records and was available for just 4/53 participants. It is felt that this data was not available for the majority of participants as it is not routine practice to administer an IQ assessment unless it is clinically relevant. The mean Full Scale IQ score was 57.25 (*SD* = 8.5; Range 49-69). All IQ scores fell within the LD range (70 or below).

There were 25 (47.2%) men and 28 (52.8%) women in the sample, with a mean age of 36.85 years (*SD* = 13.21, range 17 – 77).

2.3 Measures

2.3.1. The Risk Assessment Protocol for Intellectual Disabilities

The RAPID (Fitzgerald, 2008) consists of eight risk factors that are scored as present or absent. The presence of a risk factor is given a score of 1 (the absence of a risk factor a score of 0); the RAPID is scored on a scale of 0 – 8. Each item is presumed to be absent unless there is evidence to suggest the presence of the risk factor for an individual. Therefore if there is no information available for a particular item it is given a score of 0. It is not possible to omit any of the items on the RAPID. See Appendix C for the items of the RAPID. The RAPID is scored from a brief file review and a brief interview with a member of staff who knows the participant. For the present study, the participant's care co-ordinator was approached to provide the relevant information. Inter-rater reliability data is not yet available for the RAPID, as this is the first study that has evaluated the validity and reliability of the RAPID.

2.3.2. The Violence Risk Appraisal Guide

The Violence Risk Appraisal Guide (VRAG; Harris et al., 1993) is an actuarial risk assessment instrument that predicts risk of re-offending based on 12 historical 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 D 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. If, due to a lack of information, it is not possible to score an item of the VRAG then it can be pro-rated (Quinsey et al., 1998). The inter-rater reliability for the researcher on the VRAG has previously been assessed to be high (Gray et al., 2007), with a VRAG total score Intra Class Correlation (ICC) of .95 which is in line with the reliability reported by the authors of the VRAG (r = 0.96; Harris et al., 2003).

2.3.3. Risk Rating

The care co-ordinator[9] who was interviewed for completion of the RAPID was asked to rate on a scale of 0 – 8, their professional judgement of the risk of the individual being physically aggressive, aggressive towards property or verbally aggressive in the month following the interview. This was termed the Risk Rating. In order to reduce the influence of subjective judgement of aggression the care co-ordinator was provided with a definition of physical, property and verbal aggression. This definition was the same as the definitions of aggression, taken from the

[9] The rater who provided the risk rating was the same member of staff who provided the rating of LD. See Section 2.2.1 for a breakdown of those who provided risk ratings across the CLDTs.

Aggression Vulnerability Scale (AVS; Gray, Hill, McGleish, Timmons, MacCulloch, & Snowden, 2003) used for the outcome measure. See section 2.3.4. A scale of 0 - 8 was used for the Risk Ratings to enable a direct comparison with the RAPID score. As each participant only had one care co-ordinator, it was not possible to obtain inter-rater reliability data for the Risk Ratings.

2.3.4. Aggression Vulnerability Scale

The main outcome measure was physical aggression: if the individual was noted by staff to be physically aggressive, as defined by the AVS. Any aggressive behaviour reported by staff was recorded and quantified by the researcher using the AVS. The AVS categorises aggression into physical aggression (including aggression with a weapon and contact sexual aggression), property aggression and verbal aggression

Each incident of aggression is given a frequency score of 1, i.e. that it occurred. There are no upper limits to the AVS frequency score, if the person is not aggressive in the given follow up 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 - 11. The property aggression subscale ranges from 0 - 7 and the verbal aggression subscale ranges from 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. These total scores were not used because they include other subscales of the AVS, not of interest to the

present study[10]. See Appendix E for the AVS subscales which provide the definitions of aggression and the accompanying severity scores.

The researcher's inter-rater reliability on the AVS has previously been assessed (Fitzgerald, 2008). The ICC for the AVS physical aggression frequency was 0.92; for physical aggression severity it was 0.92; for property aggression frequency it was 0.79; for property aggression severity it was 0.85; for verbal aggression frequency it was 0.99; for verbal aggression severity it was 0.99.

2.4 Procedure

Ethical permission to conduct the study was obtained from London Queen Square Research Ethics Committee (Appendix F) and permission was obtained from Cardiff and Vale University Health Board and ABHB Research and Development departments (Appendix G). In addition, written permission was obtained from senior management in social services departments across the five local authorities in ABHB; Caerphilly, Torfaen, Blaenau Gwent and Newport (See Appendix H for the letter sent to social services managers and Appendix I for the responses). The researcher met with the CLDTs health team managers and social services team managers and presented the research protocol and obtained permission to conduct the study in their team. The managers of Newport CLDT felt that they were unable to support the study due to other pressures on the team at the time of the study. Therefore, Newport CLDT were not included in the study from this point forward. Subsequently, the

[10] The AVS also quantifies non-compliant behaviour and absconding. These subscales are totalled with verbal, property and physical aggression to give a total aggression frequency and severity score. As these other types of behaviour were not of interest in the present study, the total scores were not included in the analyses. The AVS also quantifies any incidents of self-harm, sexual vulnerability or exploitation 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.

researcher met with care co-ordinators within each of the CLDTs and again presented the research protocol and discussed any site specific considerations.

The research was presented to house managers / area managers / senior support workers in LD supported accommodation 'providers' in the ABHB catchment area. Only providers that were recommended by the CLDTs were approached. If the providers agreed for the study to be conducted within their organisation then the researcher liaised with house managers or senior support workers to explain the research in more detail and to discuss any house specific considerations that affected the research protocol. The researcher provided the house manager or senior support worker with a leaflet about the study to show to service users, prior to the researcher visiting the house to recruit participants (see Appendix J).

2.4.1. Obtaining informed consent

There was no active involvement of participants in the study. However, in order to complete the predictor variables and the outcome measure of aggression, it was necessary to have access to participant's personal information, and to discuss their behaviour with staff. Therefore, informed consent was obtained from participants to have access to this information.

Prior to visiting a house the researcher called the house manager or senior support worker to ensure that they had shown the research leaflet to service users and identified anyone who did not wish to talk to the researcher. The researcher visited the house and asked a member of staff to approach the service users who had not excluded themselves from the study, to inform them that the researcher was there to ask people if they would like to take part in a research study. A member of staff completed this role to ensure that the researcher was not informed of any of the

service user's personal details (i.e. their name) without the service user's permission; in line with the Data Protection Act (1998).

If a service user agreed to meet with the researcher, the researcher, the service user and a member of staff met together in a quiet room. A member of staff was asked to be present to support the service user in the process of providing informed consent and to ensure that the researcher didn't unwittingly coerce anyone into taking part in the study. Ethical permission dictated that only service users who had the capacity to provide informed consent could be included in the study. The Mental Capacity Act (2005) specifies that the person completing the capacity assessment should be the person responsible for taking action; therefore the researcher took responsibility for assessing the service user's capacity to understand the purpose of the study and to decide whether they were willing to take part.

In line with the Mental Capacity Act (2005) it was presumed that all service users had the capacity to decide whether to take part in the study, unless there was evidence to suggest that they did not. The information sheet (see Appendix K) was used to facilitate completing the capacity assessment in accordance with these guidelines. The information sheet included information relevant to deciding whether to take part in the study or not. The information was presented in simple language to facilitate people with a LD understanding the information presented. In addition, information was presented pictorially using the Change Picture Bank (Change, 2005). The format and style of the information sheet was developed in line with guidelines provided by the DoH (2010).

Service users were given verbal and visual support to communicate what they could remember. The key pros and cons to taking part in the study were made clear in the information sheet, again using simple, clear language and pictures or symbols

where appropriate. If the service user, member of staff and researcher were all in agreement that, in line with the Mental Capacity Act (2005), the service user had understood the information relevant to deciding whether to take part or not, had been able to retain this information (if even for a short time), had been able to weigh up the costs and benefits of taking part and could communicate their decision, then the service user was asked to sign the consent form. The member of staff was asked to be a witness to this process and was asked to countersign the consent form.

The consent form was also presented in clear, concise language using pictures and symbols where appropriate (See Appendix L). The Mental Capacity Act (2005) states that reasonable methods should be taken to assist people to have the capacity to make decisions. Therefore communication was facilitated by the best means available to service users. For example, if, following the above procedure, it was only possible for service users to sign to the researcher 'yes' they would like to take part or 'no' they would not, then this was taken as providing permission and the member of staff signed the consent form on their behalf.

To enable inter-rater reliability to be assessed, it was necessary for a second rater to also complete a subset of RAPIDs. Therefore for a subset of participants (n = 17), a different version of the information sheet and consent form, Version 2.1, were used (See Appendices K and L). The information sheet and consent form version 2.1 included information about the second researcher who would also access their information, along with a picture.

2.4.2. Data Collection

Participant's health and or social services files were read, whichever were available, and participant's care co-ordinator was interviewed to obtain the required information to complete the RAPID, the VRAG and the Risk Rating. The service

user was assigned a participant number and the RAPID, Risk Rating and the VRAG were identifiable only by participant number. The data was stored confidentially.

The outcome measures of physical aggression, property aggression and verbal aggression, as measured by the AVS, were obtained from interview with a member of staff working with the service user in their accommodation and via access to the participant's care records. The researcher asked staff to inform them of any incidents of aggression and to describe these incidents for a period of a month following the date that the RAPID was completed. The researcher then scored the AVS based on this information. The researcher interviewed staff at regular intervals (determined by staff preference) over the follow up period of a month, so that staff did not have to recall incidents for long periods of time.

For the subset of participants who were included in the reliability analysis, a second rater, CD, also completed RAPIDs. For this purpose, CD independently read the participant's health and / or social services files. CD then sat in on the interview with the participant's care co-ordinator to obtain any additional information relating to the RAPID items. The two raters then independently score the RAPIDs and the item and total scores were compared in the reliability analysis. Due to the time constraints of care co-ordinators, it was only possible to conduct one interview with both raters present. Therefore the two raters had access to exactly the same information for scoring the RAPID. CD's RAPID scores were included in the reliability analyses. This was the extent of CD's involvement in the data collection. For all other analyses, only the author's RAPID scores were used.

2.5 Analyses

In addition to descriptive statistics, signal detection theory (SDT; Green & Swets, 1996) will be used to evaluate the predictive validity of the RAPID. SDT plots

the proportion of 'hits': a RAPID score that correctly predicts physical aggression, against the proportion of 'false alarms': predicting physical aggression when it did not occur. By doing this for each score of the instrument we can construct the Receiver Operating Characteristic (ROC) curve. If the RAPID has little predictive validity the proportion of false alarms will be similar to the proportion of hits and the area under the curve (AUC) will be near 0.5 (chance level). If the RAPID 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). In order to obtain a measure of any incremental validity of the RAPID, the AUC of the RAPID will be compared to the AUC produced by the VRAG and the Risk Rating made by the care co-ordinator. AUCs will be compared to see if they differ statistically from each other by the methods described by Hanley and McNeil (1992).

SDT requires that the outcome measure of aggression be dichotomised, so each participant will be grouped as having been physically aggressive or not; aggressive towards property, or not and verbally aggressive, or not. In addition, the outcome measure of physical aggression will be split into those who were severely aggressive or not, in order to analyse the ability of the RAPID, and the other predictor variables, to predict severe physical aggression. Dichotomising the outcome measure reduces its statistical power. Therefore correlations will also be run on the data. Correlations between RAPID score and incidents of physical, property and verbal aggression in the month follow up period enable the continuous nature of the outcome measure to be maintained. This increases the statistical power of the data.

An analysis of the predictive efficacy of the items of the RAPID, using SDT, was used to indicate the construct validity of the factors being measured, in this

population. In order to obtain a measure of the concurrent validity of the RAPID, a correlation analysis will be used to indicate the extent to which the RAPID scores are associated with scores on the VRAG, a risk assessment instrument which has previously been reported to have validity in this population.

The inter-rater reliability of the RAPID was analysed using Intra-class Correlation (ICC) for the RAPID total score, as this is continuous data. Intra-class correlations measure the extent to which a variable is similar between two group members; in this case two researcher's risk assessment scores (see Shrout & Fliess, 1979, for an explanation). The individual items of the RAPID were analysed with the kappa statistic, which is a reliability analysis for categorical data. The subjective judgement of the ease of scoring the items of the RAPID, made by the two raters, were compared using a likert scale. In addition, as an indication of the ease with which the RAPID and the VRAG can be scored in this population, the number of omitted items for each instrument were compared.

Chapter 3
Results

3.1 Descriptive statistics: predictor variables

The descriptive statistics for the predictor variables: the Risk Assessment Protocol for Intellectual Disabilities (RAPID), the Violence Risk Appraisal Guide (VRAG) and the Risk Rating provided by participants' care co-ordinators (Risk Rating), are outlined in Table 5. The possible range of scores for the RAPID and the Risk Rating is 0 - 8; the possible range of scores for the VRAG is $^{-}24$ - $^{+}36$. The mean scores and the range of scores suggest that the rated level of risk for the sample, based on the RAPID, the VRAG and the Risk Rating, is relatively low. The descriptive statistics for the items of the RAPID are outlined in Table 6.

Table 5: *Descriptive statistics for the predictor variables: the RAPID, the VRAG and the Risk Rating*

Risk Scale	Number	Median	Mean (SD)	Range
RAPID	53	1.00	1.87 (1.82)	0 - 7
VRAG	47	$^{-}4.00$	$^{-}2.74$ (4.43)	$^{-}10$ - $^{+}13$
Risk Rating Physical Aggression	53	0.00	1.57 (2.43)	0 - 8
Risk Rating Property Aggression	53	1.00	2.17 (2.67)	0 - 8
Risk Rating Verbal Aggression	53	2.00	3.06 (2.74)	0 - 8

Table 6: *Descriptive statistics for the items of the RAPID*

	Score			
	Yes		No	
RAPID Item	*n*	**(%)**	*n*	**(%)**
1. Adult violent behaviour	27	50.1	26	49.1
2 Violent behaviour in childhood or adolescence	13	24.5	40	75.5
3. Childhood deprivation, maltreatment & abuse	16	30.2	37	69.8
4. Childhood delinquency	5	9.4	48	90.6
5. Drug or alcohol abuse and related problems	13	24.5	40	75.5
6. Enduring problems of personality	3	5.7	50	94.3
7. Rule breaking, problems with authority, or lack of respect	16	30.2	37	69.8
8. Compliance with treatment and management	6	11.3	47	88.7

Table 6 highlights that about half of the sample had been violent in the past. Though not many, about a quarter, had been violent as a child or adolescent. There were very few examples of participants who scored 'yes' on Item 4, childhood delinquency; Item 6, enduring problems of personality or Item 8 compliance with treatment and management.

3.2 Descriptive statistics: Outcome measures

The outcome measures of physical, property and verbal aggression were measured using the Aggression Vulnerability Scale (AVS). The main outcome measure was physical aggression. Physical aggression was defined as a frequency

score of one or more on the physical aggression subscale of the AVS. Similarly, aggression with property was defined as a score of one or more on the property aggression subscale, and verbal aggression as a frequency score of one or more on the verbal aggression subscale. All participants were followed up for a period of one month, defined as 31 days, following completion of the RAPID. Therefore, as all participants were followed up for the same period of time, it was possible to directly compare frequency scores across participants. Figure 1 outlines the physical aggression frequency scores across the sample and Table 7 outlines the descriptive statistics for the frequency scores for each subscale of the AVS; physical, property and verbal aggression.

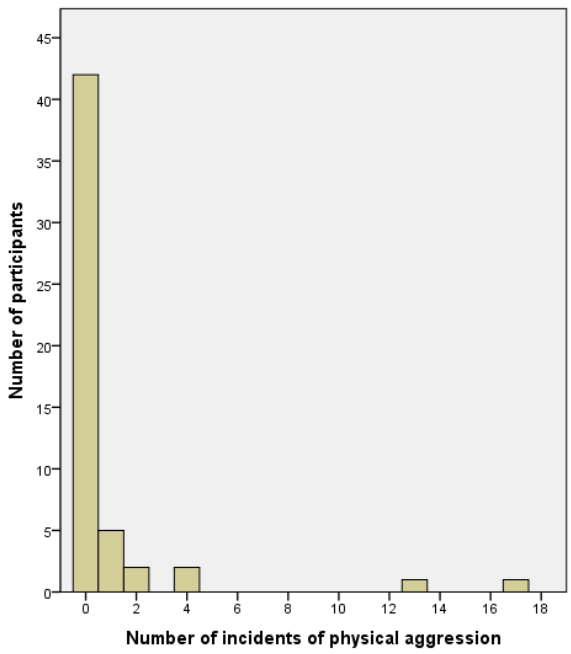

Figure 1: Number of participants who presented with incidents of physical aggression.

As can be seen from Figure 1, the majority of participants were not physically aggressive in the follow up period. Only eleven (20.8%) of the fifty-three participants

were. In addition, 15 (28.3%) were aggressive towards property and 26 (49.0%) participants were verbally aggressive.

Table 7: *Descriptive statistics for the frequency scores on the physical, property and verbal aggression subscales of the AVS*

AVS subscale	**Number**	**Median**	**Mean (SD)**	**Range**
Physical Aggression	53	0.00	0.89 (2.98)	0-17
Property Aggression	53	0.00	1.06 (2.98)	0-18
Verbal Aggression	53	0.00	3.47 (6.90)	0-31

In Table 7, the average scores and the range of frequency scores suggest that verbal aggression was more frequent than property aggression and physical aggression.

The AVS also provides a severity score for each subscale, defined as the most severe incident across the follow up period. The descriptive statistics for the severity scores for each subscale of the AVS; physical, property and verbal aggression, are outlined in Table 8.

Table 8: *Descriptive statistics for the severity scores on the physical, property and verbal aggression subscales of the AVS*

AVS subscale	**Number**	**Median**	**Mean (SD)**	**Range**
Physical Aggression	53	0.00	0.45 (1.05)	0-4
Property Aggression	53	0.00	0.53 (1.03)	0-5
Verbal Aggression	53	0.00	1.11 (1.37)	0-4

The AVS physical aggression subscale score ranges from 0 - 11; the property aggression subscale ranges from 0 - 7 and the verbal aggression subscale ranges from 0 - 6. The range of scores in the present sample is somewhat restricted and there were few incidents of severe physical aggression, as defined by the AVS. In order to evaluate if the predictor variables were able to accurately identify severe physical aggression, a cut-off score on the AVS was used to split the sample into those who were severely physically aggressive, and those who were not. Based on the distribution of scores, severe physical aggression was defined as an AVS severity score of 3 or 4 on the physical aggression subscale. Again, the majority of participants were not severely physically aggressive in the follow up period, with just five (9.4%) of the fifty-three participants being severely physically aggressive within the time period.

Due to the small numbers in the sample, it was not possible to analyse any differences in base rate of physical, property and verbal aggression across the different CLDTs.

The descriptive statistics for the predictor variables, the RAPID, the VRAG and the Risk Rating, and the outcome measures of frequency and severity of physical aggression, property aggression and verbal aggression were analysed to establish if they met the assumptions required to utilise parametric statistics (Field, 2000). None of the predictor variables or the outcome measures met the assumptions as they were not normally distributed. Given the very large skew (see Figure 1) in the data, no transformation was able to resemble that of a normal distribution. Therefore non-parametric statistics were employed throughout.

3.3 Ease of scoring the RAPID

As the RAPID is intended to be used as a screening tool, it should be easy to score, with little training. Therefore, one of the aims of the study was to establish how easy the RAPID is to score. Items were deemed easy to score if the description of the item was easy to understand; provided clear criteria on how to score the item and the required information was readily available. Subjectively, the majority of the RAPID items were easy to score. The required information was available for all of the items through a brief review of participants' files and also talking with the participant's care co-ordinator. Items 7 and 8 were more difficult to score based on the item description. Item 7 intends to capture antisocial, negative attitude and behaviour towards authority. For quite a few participants it was possible to identify behaviour in line with the item description, but it was more difficult to be clear if individuals' intentions were in line with the item description. Item 8 measures compliance with treatment. Quite a few participants were noted in the file information to behave in a non-compliant way, but the description of non-compliant behaviour did not always fit with the item description. Therefore, subjectively, these items were more difficult to score than the other items of the RAPID.

For a subset of participants (n = 17), the RAPID was scored by the researcher and a second rater, to enable an evaluation of the reliability of the RAPID. The two raters, who scored RAPIDs, each completed a questionnaire regarding the ease of scoring each of the RAPID items. The questionnaires were completed independently, without discussion. Ease of scoring was judged out of 10, with 10 being the easiest to score. Figure 2 illustrates the subjective judgement of ease with which each item of the RAPID could be scored, for the two raters.

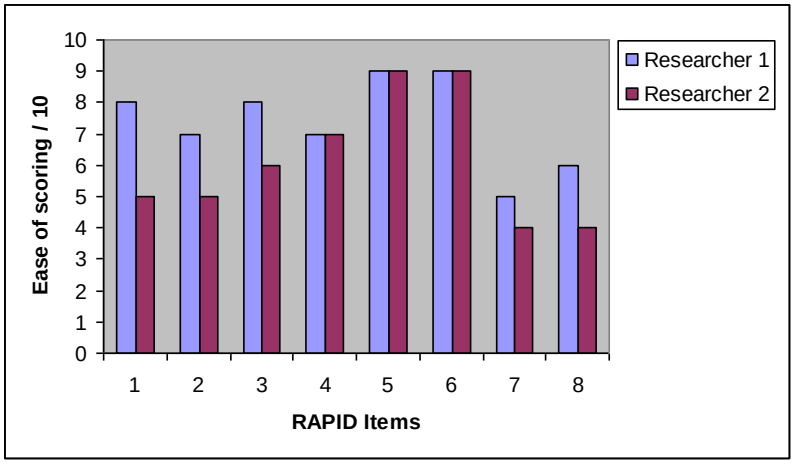

Figure 2: Rater's subjective judgement of ease of scoring the RAPID items

The results of this questionnaire support the subjective judgement of the researcher. The pattern of which items were easier to score and which were more difficult, is similar across the two raters. Both raters found Items 5 and 6 easiest to score and both raters found Items 7 and 8 most difficult to score. Overall, rater one seemed to find the RAPID items easier to score than rater two. Rater one is the author of the RAPID (Fitzgerald, 2008) and so it follows that they would find it easier to score the RAPID items.

Ease of scoring is also indicated by the number of items omitted from a risk assessment instrument. RAPID items are scored as 'yes' if there is evidence to support the presence of the item. If there is no evidence to support the presence of the item then the item is scored as 'no'. Therefore, it was not necessary to omit any items from the RAPID. Conversely, for the VRAG it was necessary to omit a number of items. For each item of the VRAG, the number of participants for which it was necessary to omit the item, is outlined in Table 9.

Table 9: *Number of participants with missing data on the items of the VRAG*

VRAG Item	Participants for which item omitted
1	0
2	1
3	0
4	0
5	0
6	0
7	43
8	44
9	43
10	0
11	0
12	47

It was not possible to complete every item of the VRAG for any of the participants. For six participants it was not possible to complete the VRAG as it was necessary to omit more items than permitted for a valid score. For the majority of participants, for whom it was possible to score a VRAG (n = 43/47, 91.5%), it was necessary to omit the maximum four items. As can be seen from Table 9, the most difficult items to score were items 7, 8, 9, and 12. These analyses suggests that it is difficult to score the VRAG in this sample.

3.3.1. Reliability analysis

Two raters completed a subset of RAPIDs (n = 17). The second rater received no training on the RAPID, other than a brief explanation by rater one. Scoring of the items of the RAPID were not discussed between the two raters. RAPIDs were scored from reading participant's health and / or social services files and by interviewing the participant's care co-ordinator for any additional information relating to the RAPID

items. Both raters independently read the same files. Due to the time constraints of care co-ordinators, it was only possible to conduct one interview with both raters present. Therefore the two raters had access to exactly the same information for scoring the RAPID. Consequently, the ability of the raters to obtain the relevant information for the RAPID items is only partially reflected in the reliability analysis.

Intra-Class Correlations (ICC) were run on the RAPID total scores for the two raters, and produced a significant ICC of 0.76 (p <.01). This suggests that the RAPID can be reliably scored by two raters. Reliability analyses were also conducted for each item of the RAPID. As the items are the RAPID are scored 'yes' or 'no' and so are categorical data, it was necessary to use the Kappa statistic to analyse this data. Kappa Statistics are outlined in Table 10.

Table 10: *Reliability analyses for the items of the RAPID*

RAPID Item	Reliability
1	0.87**
2	-
3	-
4	-
5	-
6	1.00**
7	-0.13
8	-0.06
Total[a]	0.76**

[a] This analysis was an ICC, not a Kappa.
* p <.05

It was not possible to complete reliability analyses for RAPID items 2, 3, 4 and 5. For these items either one of the raters provided all 'yeses' or all 'nos' and so there was no variance in the data to allow an analysis to be run. Where it was possible to run the analyses, for items 1 and 6, raters scores were significantly,

positively, correlated. The reliability analyses indicate poor agreement between the two raters on items 7 and 8. There was a negative association between raters' scores for these items. This supports the subjective judgement of the two raters that these items were more difficult to score.

3.4 Concurrent validity of the RAPID

One of the aims of the study was to establish the concurrent validity of the RAPID, compared to a risk assessment instrument that has established validity in this population, the VRAG. The extent to which the RAPID total score correlates with the VRAG total score, was analysed to provide a indication of the concurrent validity of the RAPID.

As stated above, the descriptive statistics for the RAPID total scores and the VRAG total scores did not meet parametric assumptions and so non-parametric statistics, Spearman's *rho*, were employed. Cohen (1992) states that a *rho* of 0.10 is a small effect size, *rho* = 0.30 is a medium effect size and *rho* = 0.50 is a large effect size. The RAPID total score significantly, positively, correlated with the VRAG total score (*rho* = 0.56, N = 47, $p < .01$, two-tailed). This suggests that the RAPID total scores increased in line with VRAG total scores, so someone who had a high score on the VRAG, would also have a high score on the RAPID. This suggests that the RAPID has concurrent validity.

3.5 Construct validity: predictive validity of the RAPID items

The predictive validity of the individual items of the RAPID were also analysed. The AUCs are outlined in Table 11. The ROC analyses for the RAPID items suggests that Items 1 and 2 were significantly able to predict any physical aggression and severe physical aggression, with large effect sizes. Item 2, violent behaviour in childhood or adolescence being the most predictive of all of the RAPID

items. However, Item 3, childhood deprivation, maltreatment and abuse, and Item 7, rule breaking, problems with authority, or lack of respect, produced AUCs that were a medium effect size. It is interesting that although the earlier reliability analysis suggests that this is one of the more difficult items to reliably score, Item 7 may have potential predictive validity in this population. None of the other RAPID items significantly predicted any physical aggression, or severe physical aggression. The three items (4, 6, 8) that did not produce an AUC different to chance levels, had less variance in the predictor variable, which may account for the poor predictive efficacy of these items.

Table 11: *AUCs and Standard Errors (SEs) for the items of the RAPID, predicting severe physical aggression and any physical aggression*

	Severe physical aggression		Physical aggression	
RAPID Item	AUC	SE	AUC	SE
1. Adult violent behaviour	0.77*	0.76	0.75*	0.74
2 Violent behaviour in childhood or adolescence	0.81*	0.11	0.80*	0.09
3. Childhood deprivation, maltreatment and abuse	0.67	0.13	0.60	0.10
4. Childhood delinquency	0.45	0.13	0.44	0.09
5. Drug or alcohol abuse and related problems	0.48	0.13	0.58	0.10
6. Enduring problems of personality	0.58	0.15	0.52	0.10
7. Rule breaking, problems with authority, or lack of respect	0.67	0.13	0.65	0.10
8. Compliance with treatment and management	0.44	0.12	0.54	0.10

*p <.05, ** p <.01, *** p <.001

3.6 Predictive validity of the RAPID, the VRAG and the Risk Rating

The main aim of the study was to establish if the RAPID has predictive validity in adults with LD in CLDTs.

3.6.1. Correlational analyses

In order to maintain the continuous nature of the predictor variables (the RAPID, the VRAG and the Risk Rating), and the outcome measures (the AVS

subscale scores) and so maximise statistical power, a simple correlation between the RAPID, the VRAG, and the Risk Rating with physical aggression, property aggression and verbal aggression frequency scores were calculated. These were repeated with the AVS physical aggression, property aggression and verbal aggression severity scores. The scores on both the predictor variables and the outcome measures were not normally distributed. Therefore non-parametric statistics, Spearman's *rho*, were employed. As above, a *rho* of 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).

The correlations between the RAPID, the VRAG and the Risk Ratings with the AVS subscale frequency scores, are outlined in Table 12, and the correlations with the AVS severity scores are outlined in Table 13.

Table 12: *Correlations between predictor variables, the RAPID, the VRAG and Risk Ratings and frequency of physical, property and verbal aggression.*

Risk scale	Physical Aggression	Property aggression	Verbal aggression
RAPID	0.39**	0.41**	0.35*
VRAG	0.19	0.41**	0.14
Risk Rating Physical aggression	0.41**	-	-
Risk Rating Property aggression	-	0.41**	-
Risk Rating Verbal aggression	-	-	0.40**

Note. $n = 53$ for all analyses, except for analyses involving VRAG where $n = 47$

*$p < .05$, ** $p < .01$, *** $p < .001$

Table 13: *Correlations between predictor variables, the RAPID, the VRAG and Risk Ratings and severity of physical, property and verbal aggression.*

Risk scale	Physical aggression	Property aggression	Verbal aggression
RAPID	0.38**	0.47**	0.38**
VRAG	0.21	0.39**	0.18
Risk Rating Physical aggression	0.43**	-	-
Risk Rating Property aggression	-	0.47**	-
Risk Rating Verbal aggression	-	-	0.46**

Note. n = 53 for all analyses, except for analyses involving VRAG where n = 47

*p <.05, ** p <.01, *** p <.001

As can be seen from Table 12 and Table 13, the RAPID is significantly, positively, correlated with frequency of physical, property and verbal aggression, with medium effect sizes. Similarly, the RAPID is significantly, positively, correlated with severity of physical, property and verbal aggression, with medium effect sizes.

In the main, the VRAG was related to frequency of physical, property and verbal aggression with small effect sizes. An exception being property aggression, where the VRAG was significantly, positively correlated with both frequency of and severity of property aggression with medium effect sizes. The VRAG analyses may have had reduced statistical power, as fewer participants were included in these analyses. However, it is unlikely that reduced statistical power explains the lower AUCs for the VRAG, as there was sufficient power in the property aggression analyses to produce a significant effect and the sample size in the VRAG analyses was the same across the different outcome measures.

The Risk Rating significantly, positively, correlated with all outcome measures, with medium effect sizes. The correlations between the Risk Rating and frequency of, and severity of, physical, property and verbal aggression were of the largest magnitude of all of the independent variables.

3.6.2. Signal Detection Theory

Signal Detection Theory (SDT; Green & Swets, 1966) was employed to assess if the RAPID is able to accurately identify those who were physically aggressive, severely physically aggressive, aggressive towards property and verbally aggressive, in the present sample. SDT is a non-parametric statistic, which was necessary as the predictor variables and the outcome measures did not meet the assumptions required to employ parametric statistics. In addition, SDT is relatively immune to base rates in the outcome measure, and so the small number of people who were severely physically aggressive should not unduly influence the analyses. 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).

SDT requires that the outcome variable is dichotomised. Therefore the frequency scores on the subscales of the AVS were coded into physically aggressive or not, aggressive towards property or not and verbally aggressive or not. As above, 11 (20.8%) participants were physically aggressive in the follow up period; 15 (28.3%) were aggressive towards property and 26 (49.0%) participants were verbally aggressive. Of greatest interest is the ability of the predictor variables to predict physical aggression and so this analysis was considered in more detail. In order to evaluate if the predictor variables were able to accurately identify severe physical aggression, a cut-off score on the AVS severity scores was used to split the sample

into those who were severely physically aggressive, and those who were not, defined as an AVS severity score of 3 or 4 on the physical aggression subscale. Five (9.4%) participants were severely physically aggressive in the follow up period. The SDT analyses for the RAPID, the VRAG and the Risk Rating predicting any physical aggression, severe physical aggression, property aggression and verbal aggression are outlined in Table 14.

Table 14: *The Area Under the Curve (AUC), Standard Error (SE) and number (n) for the RAPID, the VRAG and Risk Rating, predicting all outcome measures*

	Severe physical aggression		Physical aggression		Property aggression		Verbal aggression	
Risk scale	AUC	SE	AUC	SE	AUC	SE	AUC	SE
RAPID	0.76[a]	0.98	0.77**	0.83	0.77**	0.73	0.66*	0.75
VRAG	0.61	0.13	0.64	0.96	0.74*	0.85	0.54	0.86
Risk Rating Physical aggression	0.91**	0.57	0.76**	0.94	-	-	-	-
Risk Rating Property aggression	-	-	-	-	0.77**	0.78	-	-
Risk Rating Verbal aggression	-	-	-	-	-	-	0.72**	0.73

Note. $n = 53$ for all analyses, except for analyses involving VRAG where $n = 47$

[a] This AUC was approaching significance, $p = .055$

*$p < .05$, ** $p < .01$, *** $p < .001$

The ROC analyses are largely in line with the correlation analyses. The RAPID was able to predict severe physical aggression with a large effect size and to

significantly predict any physical aggression with a large effect size. The RAPID was also able to significantly predict property aggression with a large effect size and verbal aggression with a medium effect size.

The VRAG did not perform as well as the RAPID and only significantly predicted aggression with property, but did so with a large effect size. The other AUCs produced by the VRAG were a medium effect size, aside from the AUC predicting verbal aggression which was little over chance levels.

Again, the Risk Ratings were effective in predicting the relevant outcome measures of aggression. The Risk Rating for physical aggression significantly predicted severe physical aggression and any physical aggression with large effect sizes, and did particularly well at predicting severe physical aggression. Similarly, the Risk Rating for property aggression significantly predicted any property aggression with a large effect size. As too did the Risk Rating for verbal aggression, predicting any verbal aggression.

Due to the small numbers in the sample, it was not possible to analyse any differences in predictive validity of the RAPID across the different CLDTs.

3.6.3. Which risk assessment instrument?

A further analysis was completed to ascertain if any one of the predictor variables, the RAPID, the VRAG or the Risk Rating of physical aggression, were significantly better than the others at predicting any physical aggression or severe physical aggression. The aim of this analysis was to inform if the RAPID added incremental validity to care co-ordinator's professional judgement of risk. This analysis could also potentially highlight which, if any, of the risk assessments could be best recommended for predicting physical aggression with adults with a LD in CLDTs. For the sake of completeness any differences in the RAPID and the VRAG

were also analysed, as well as any difference between the VRAG and the Risk Rating. A series of paired z-score comparisons (Hanley & McNeil, 1992) revealed no significant differences between the RAPID, the VRAG or the Risk Rating in predicting any physical aggression or severe physical aggression.

Chapter 4
Discussion

4.1 Summary of findings

4.1.1. Descriptive statistics

Approximately a fifth of the sample were physically aggressive during the month long follow up period. Fewer, nearly 10%, were severely physically aggressive. In line with this, the risk of physical aggression, as rated by the Risk Assessment Protocol for Intellectual Disabilities (RAPID; Fitzgerald, 2008), the Violence Risk Appraisal Guide (VRAG; Harris et al. 1993) and the risk rating made by participants' care co-ordinators (Risk Rating), was relatively low.

As might be expected, the rate of verbal aggression was greater than physical aggression. Nearly half of the sample were verbally aggressive in the follow up period. Almost a third of participants were aggressive towards property during the follow up period.

4.1.2. Predictive validity of the RAPID, the VRAG and Risk Rating

The RAPID was able to significantly predict incidents of any physical aggression with a large effect size, and to predict severe physical aggression with a large effect size that was approaching statistical significance[11]. The RAPID produced larger AUCs than the VRAG, which predicted both any and severe physical aggression with medium effect sizes, though these AUCs were not significant. The Risk Rating of physical aggression performed well and significantly predicted any physical aggression with a large effect size and severe physical aggression with a (very) large effect size.

[11] $p = .055$

The RAPID significantly predicted property aggression with a large effect size. The VRAG significantly predicted property aggression with a large effect size, and the Risk Rating of property aggression significantly predicted property aggression with a large effect size. The RAPID significantly predicted verbal aggression with a medium effect size. The VRAG produced an AUC at chance levels when predicting verbal aggression and the Risk Rating of verbal aggression significantly predicted verbal aggression with a large effect size.

These findings were mirrored in correlational analyses. The RAPID performed well across all outcomes measures, being significantly related to physical aggression, property aggression and verbal aggression, for both frequency and severity scores, with medium effect sizes. The VRAG produced small correlations with physical aggression and verbal aggression, for both frequency and severity scores, but was significantly correlated with property aggression frequency and severity scores, with medium effect sizes. The Risk Ratings were significantly associated with physical aggression, property aggression and verbal aggression, for both frequency and severity scores, with medium effect sizes.

4.1.3. Concurrent, incremental and construct validity

The RAPID was highly correlated with the VRAG, a risk assessment instrument with established validity in forensic psychiatric patients with a LD, and in community LD populations. This suggests that the RAPID has concurrent validity. It was not possible to establish that the RAPID has incremental validity above the VRAG or the Risk Rating in this sample. There were no significant differences between the predictive efficacy of the RAPID, the VRAG or the Risk Ratings, predicting any or severe physical aggression.

The majority of the RAPID items predicted any and severe physical aggression above chance levels, though some of the items had greater predictive efficacy than others. The items that significantly predicted any physical aggression and severe physical aggression were Item 1, a history of violence and Item 2, violent behaviour in childhood or adolescence. These results suggest that some of the items of the RAPID have construct validity in this population, a community sample of adults with a LD.

4.1.4. Reliability and ease of scoring the RAPID

The RAPID was found to have good inter-rater reliability when scored by two independent raters. The two raters also judged how easy it was to score the items of the RAPID. They agreed that Items 7 and Item 8 (for the vast majority of participants) were more difficult to score than the other items. The VRAG was difficult to score and it was necessary to omit the maximum number of items permitted for the VRAG. It was not necessary to omit any items of the RAPID, for any of the participants.

4.2 Interpretation of findings

4.2.1. Interpretation of findings: Descriptive statistics

In the present study, 20.8% of participants were physically aggressive in the follow up period and 9.4% were severely physically aggressive. This is in line with the research literature on the prevalence of physical aggression in community samples of adults with a LD, which reports prevalence rates of physical aggression between 14% – 23% (Bhaumik et al., 1997; Deb et al., 2001; McBrien et al., 2003; Tyrer et al., 2006). These studies took measurements of physical aggression across a range of follow up periods. In the present study, 9.4% were severely physically aggressive. This prevalence rate is slightly higher than those reported in previous studies (3 –

4.9% (Crocker et al., 2006; Crocker et al., 2007; Tenneij & Koot, 2008). It is difficult to compare the prevalence rate found in the present studyto the existing literature, due to differences in methodology between this and previous studies, and also across previous studies reported in the research literature (Benson & Brooks, 2008; Darrow et al., 2011; McClintock et al., 2003). However, the slightly higher rate of severe physical aggression is probably related to the definition of severe physical aggression in this and previous studies. In the present study, severe physical aggression refers to the highest score obtained on the AVS physical aggression severity subscale in the present study; hitting others causing mild injury such as cuts or bruises. In previous studies, severe physical aggression included physical aggression that caused severe injury (Crocker et al., 2006; Crocker et al., 2007; Tenneij & Koot, 2008). Previous studies also reported that severity of physical aggression followed a linear pattern, with more severe physical aggression being less frequent. Therefore, it would be expected that the slightly less severe, severe physical aggression reported in the present study may be more frequent than the more severe, severe physical aggression reported in previous studies.

4.2.2. Interpretation of findings: Predictive validity and reliability

This is the first study to test the predictive validity of the RAPID in a community sample of adults with a LD. Prior to this study, the predictive validity of the RAPID had only been tested on the construction sample, on a validation sample, and in a pilot study which drew participants from forensic psychiatric LD populations. Therefore the findings of this study, that the RAPID has predictive validity in a community sample of adults with a LD, adds a unique contribution to the research literature and provides evidence to support the use of the RAPID in CLDTs.

In the construction of the RAPID, it was found to predict long-term reconvictions in the community, in forensic psychiatric patients with a LD discharged from medium secure hospitals into the community. In addition, in an independent sample of forensic psychiatric patients with a LD, the RAPID predicted shorter-term physical aggression in a medium secure setting (Fitzgerald, 2008). However, in these development studies the items of the RAPID were not scored in line with the final scoring criteria for the items, but were scored based upon information obtained for other risk assessment instruments, the VRAG and the HCR-20. The findings of the present study add to this initial data and suggest that the RAPID has predictive validity when scored in accordance with the RAPID scoring criteria, with information obtained from a brief file review and interview with participants' care co-ordinators.

This is the first study to test the reliability of the RAPID and so the finding that it was possible to obtain good inter-rater reliability between two independent raters is again a unique contribution to the research literature and provides support for the clinical utility of the RAPID in CLDTs.

4.2.3. Interpretation of findings: Concurrent validity

The VRAG was included in the study to provide a comparison for the RAPID, with a risk assessment instrument that has established predictive validity in community samples of adults with a LD. The RAPID was found to be highly correlated with the VRAG. This suggests that the RAPID has good concurrent validity. However, in the present study, the VRAG did not perform as well as the RAPID or the Risk Rating, predicting physical aggression. The VRAG predicted any physical aggression and severe physical aggression with medium effect sizes, whereas the RAPID and the Risk rating produced large effect sizes.

In the present study, it was necessary to omit a large number of items of the VRAG. For six of the participants it was not possible to complete the VRAG, because five items needed to be omitted due to a lack of information, and it is only possible to omit four items of the VRAG and obtain a valid score (Quinsey et al., 1998). It was necessary to omit the maximum four items for 43/47 of the remaining participants and it was not possible to complete all items of the VRAG for any of the participants. It is likely that the large number of omitted items impacted on the predictive efficacy of the VRAG. Perhaps most importantly, it was necessary to omit the PCL-R item for all participants. This is the most heavily weighted item of the VRAG, and omitting it is likely to have had the greatest impact on its predictive efficacy.

This is supported by the pattern of findings in previous studies that have evaluated the predictive efficacy of the VRAG in community samples of adults with a LD (Camelleri & Quinsey, 2011; Quinsey et al., 2004). In line with the present study, Quinsey et al. also report the negative impact of missing data on the predictive validity of the VRAG in this population. In a sample of adults with LD discharged from institutions into the community, Quinsey et al. also found it difficult to score the PCL-R item and replaced it with the Childhood Adolescence Taxon (CAT: Quinsey et al., 1998). Quinsey et al. found that the VRAG was significantly related to incidents of physical aggression, with a medium effect size. This is in line with the findings of the present study.

Camelleri and Quinsey (2011) tested the VRAG in a very large sample of adults with a LD in the community, from the MacArthur database (Monahan et al. 2001). They reported that the VRAG predicted incidents of physical aggression with a large effect size. The MacArthur database records a very large number of clinical

variables, including the PCL-SV, and so it should not have been difficult for the authors to complete this item of the VRAG for participants in their study.

The pattern of results across this and previous studies, suggest that the VRAG has excellent predictive efficacy in this population, when scored in full, including the PCL-R and its variants. However, the findings of the present study along with the findings of Quinsey et al. (2004) suggest that it can be difficult to score the VRAG in full in community samples of adults with a LD. This missing information, especially the omission of the PCL-R, negatively impacts upon the predictive efficacy of the VRAG in this population.

4.2.4. Interpretation of findings: Incremental validity

There were no significant differences between the RAPID, the VRAG or the Risk Rating, predicting any physical aggression or severe physical aggression. However, the Risk Rating produced very large AUCs when predicting these outcome measures. The Risk Ratings were provided by participants' care co-ordinators, who were allocated the care of the participant, or who had recently reviewed their care. Therefore the care co-ordinators knew the participants well. In these circumstances, there is no evidence to suggest that the RAPID significantly adds to the care co-ordinator's professional judgement of risk.

It is tempting to conclude, therefore, that there is no need for the RAPID, as staff's judgement regarding risk of harm to others, is just as effective. However, the aim of the RAPID, is to be a screening tool that could be used by CLDTs to quickly and easily assess the risk of physical aggression when they receive a new referral to the team. Under these conditions there is not necessarily a member of staff with an intimate knowledge of the patient to provide a Risk Rating. It would be interesting to compare the ability of the RAPID to a professional judgement of risk of physical

aggression, when a new referral is made for someone who is not already known to the CLDT. For example, at the point of transition from children's services. It would be useful to establish if it is easy to score the RAPID for new referrals, and if there are any differences in the predictive efficacy of the RAPID and a professional judgement of risk, at this stage in an individual's care.

In addition, any risk assessment of physical aggression should be evidence based (e.g. Andrews et al., 2006; WAG, 2005). A professional judgement of risk of harm to others, based on judgement alone, is more difficult to defend than a professional judgement that has been developed with the support of a validated risk assessment instrument. And so, even if service users are well known to the team, the RAPID could be used to support a professional judgement of risk, with a screening tool that has been validated for use in CLDTs.

4.2.5. Interpretation of findings: Construct validity

In the present study, the RAPID items, a history of violence, and violent behaviour in childhood, significantly predicted any physical aggression and severe physical aggression. Not all of the items significantly predicted physical aggression, with Item 3, childhood delinquency; Item 5, drug and alcohol abuse and related problems, and Item 8, compliance with treatment and management, producing AUCs no different to chance levels. The other items, childhood deprivation, maltreatment and abuse; enduring problems of personality and rule breaking, problems with authority, lack of respect, all produced AUCs that were small (enduring problems of personality) to medium effect sizes. The poor predictive efficacy of some of the items of the RAPID (childhood delinquency; drug and alcohol abuse and related problems; compliance and treatment with management), may be due to insufficient statistical variance in the predictor variables. The descriptive statistics for these items suggest

that few participants scored 'present' for these items, which may well have resulted in a lack of statistical variance for these predictor variables. The low number of participants who scored 'present' for these items may indicate in itself that these items do not have construct validity when applied to a community sample of adults with a LD. However, it would be beneficial to replicate this finding in a larger sample, before drawing any conclusions about this.

The RAPID was developed in a forensic psychiatric LD population and so the items of the RAPID were included based upon their ability to predict physical aggression in this population along with support from the research literature to include the item. See Appendix C for the research literature relating to each item of the RAPID. In summary, review of this research literature suggests that forensic psychiatric patients with a 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, et al., 2006; Puri et al., 2000; Woods & Mason, 1998). The findings of the present study suggest that perhaps individually, these risk factors are less applicable to adults with a LD supported by CLDTs.

It is difficult to compare the predictive efficacy of the items of the RAPID to the research literature on risk factors for physical aggression in adults with a LD in the community. It is not possible to consider the research literature on risk factors for physical aggression in CLDTs collectively, due to differences in research design. Studies use different selection procedures, different measurements of physical aggression and measurements of LD, and it is difficult to compare across studies which makes it difficult to know if study samples and reported risk factors are

representative of CLDTs (Benson & Brooks, 2008; Darrow et al., 2011; McClintock et al., 2003). Based on the findings of the present study alone and the inconclusive research literature, it is difficult to establish if the items of the RAPID have construct validity in a community sample of adults with a LD. Further research, with a larger sample may be beneficial to investigate this further.

4.2.5.1. Comparison to previous item analysis

Lindsay et al. (2011), in a forensic psychiatric LD population, measured the ability of the items of the RAPID to predict the need for police involvement with incidents of physical aggression. In this analysis, five of the eight RAPID items predicted police involvement, but three failed to produce AUCs different to chance levels. The three items were Item 1, a history of violence; Item 6, enduring problems of personality and Item 8, compliance with treatment and management. Taken together, the findings of the present study and the findings of Lindsay et al. could be interpreted to suggest that Item 8 (compliance with treatment and management) does not have sufficient predictive efficacy to be included in the RAPID. However, the samples employed in the present study and by Lindsay et al. (2011) are relatively small (n = 53 and n = 21 respectively), and so it would be beneficial to replicate these findings in larger samples before drawing any conclusions from this data. In addition, the present study and Lindsay et al. employed samples from different populations. The evidence base for the risk factors for physical aggression in those who are supported by CLDTs is inconclusive and the evidence base for the risk factors in forensic psychiatric LD populations is also somewhat limited. Therefore, it is not possible to compare across these populations and be clear on how risk factors might be expected to overlap or be different.

However, differences in samples may explain the difference in the predictive efficacy of Item 1 ‘a history of violence’, in the present study compared to the

Lindsay et al. (2011) study. The present study sample was drawn from CLDTs and those in the Lindsay et al. study were drawn from a forensic LD population, where all participants had a history of violence. This would have resulted in a lack of statistical variance for the analysis in the Lindsay et al. study. This is supported by the findings of Fitzgerald (2008), in a similar population of forensic psychiatric LD patients, where all participants had a history of violence. Fitzgerald, in the construction of the RAPID, found that Item 1produced an AUC of 0.58. The present sample was drawn from CLDTs where almost exactly half of the sample had a history of violence. This base rate of physical aggression would be expected to have more statistical variance. This increased variance may explain the improved predictive efficacy of this item in the present study.

The finding that a history of violence and a history of violence in childhood or adolescence predicted physical aggression, is in line with the research literature in forensic psychiatric LD populations (e.g., Fitzgerald et al., 2011; McMillan et al., 2004), mentally disordered offender populations (e.g., Bonta et al., 1998) and general offender populations (Grendeau et al., 1996), when those with a history of violence were compared to those with no history. In the research literature pertinent to adults with a LD in the community, it is unclear if a history of physical aggression predicts future physical aggression. As previously stated, the evidence base pertinent to risk factors in this population is inconsistent, due to poor methodological rigour (Benson & Brooks, 2008; Darrow et al., 2011; McClintock et al., 2003). However, the findings of the present study suggest that this risk factor may also have relevance for adults with a LD in community samples.

4.2.6. Predictive validity of the RAPID items compared to RAPID total score

Items 1 and 2 significantly predicted any and severe physical aggression with large effect sizes. The AUCs were comparable to the AUC for the RAPID total score. This suggests that perhaps Items 1 and 2 could be taken in isolation from the other RAPID items to predict physical aggression in this population. However, it is necessary to consider the measurement of physical aggression in the present study, as well as the aims of a screening tool in this population, to interpret this finding fully.

In the present study, the relatively short follow up period of one month means that the outcome measure of physical aggression is likely to capture physical aggression that occurs fairly frequently in this sample. In addition, the outcome measure of severity of physical aggression was restricted in range and the maximum severity score obtained on the physical aggression subscale of the AVS was 4/10. This represents hitting another person, causing minor injury such as cuts and bruises. Therefore, the outcome measure of physical aggression, and severe physical aggression, represents physical aggression that occurs frequently and is, relatively, not very severe.

In the research literature, where studies have differentiated between any physical aggression and more severe physical aggression that has caused others injury, the prevalence rate for severe physical aggression is predictably lower and ranges from 3% to 4.9 % (Crocker et al., 2006; Tenneij & Koot, 2008). This small number of people, whose behaviour is less common, but who are responsible for more severe incidents, will be more difficult to identify and also more difficult to manage. Arguably, it is most important for a screen for risk of physical aggression to identify this subgroup of people, as it is these people that would benefit most from completing

a full risk assessment of harm to others. Further research is required to establish if a history of violence and violence in childhood and adolescence, are sufficient as a screen for more severe physical aggression, which occurs less frequently.

4.2.7. Interpretation of findings: Relation to wider risk assessment instrument literature

The finding that the RAPID, as a screening tool, has predictive validity in a community sample of adults with a LD adds to the evidence base for risk assessment instruments in this population. There are two studies that have evaluated the ability of a risk assessment instrument, namely the VRAG, to predict physical aggression in community samples of adults with LD; Camelleri and Quinsey (2011) and Quinsey et al. (2004).

Some studies (Fitzgerald et al., 2011; Gray et al., 2007), have evaluated the ability of risk assessment instruments to predict long-term reconvictions in the community. However, the vast majority of the research literature that has evaluated the ability of risk assessment instruments to predict harm to others in LD samples, has been in in-patient forensic psychiatric LD populations. There is also some evidence for the use of other risk assessment instruments, the OGRS (Fitzgerald et al., 2011), the DASA (Barry-Walsh et al., 2011), the SDRS (Lindsay et al., 2008) and the DRAMS (Steptoe et al., 2008). However, the evidence base is most extensive for the VRAG and the HCR-20 in these populations (Camilleri & Quinsey, 2011; Gray et al., 2007; Fitzgerald et al., in press; Lindsay et al., 2008; Quinsey et al., 2004).

The VRAG and the HCR-20 are resource intensive and require a full review of a service users' files, a lengthy clinical interview and completion of the PCL-R. The PCL-R and the HCR-20 both require extensive training. Indeed, the findings of the present study, in combination with previous studies that have validated the VRAG in

community LD populations (Camelleri & Quinsey, 2011; Quinsey et al., 2004), highlight the difficulty of scoring the VRAG in this population and the subsequent impact on its predictive efficacy. Therefore, the addition of evidence to support the use of the RAPID as a screening tool to compliment these existing risk assessment instruments, where the predictive efficacy is well established, adds to the research literature on risk assessment tools in LD populations.

4.3 Clinical implications of findings

4.3.1. The RAPID can be used as a screen for risk of physical aggression

The Welsh Assembly Government strategic framework (2005) states that a risk assessment of harm to others should be completed for every service user in Wales. Due to the large caseloads that CLDTs support (Emerson et al., 2010), meeting this objective by completing a VRAG and a HCR-20, which are resource intensive, for all service users would place an unmanageable workload on CLDTs. The RAPID has been found to have good predictive validity, good concurrent validity and good reliability in a sample of adults with a LD recruited from CLDTs. Therefore, the findings of the present study support the use of the RAPID as a screen for risk of physical aggression in this population. It is possible that the RAPID could be used to support services to make decisions about risk assessment of physical aggression. As a screening tool, the RAPID is designed to be quick and easy to use and to identify service users who may be at increased risk of being physically aggressive, and so who may benefit from a full risk assessment of harm to others, using a validated risk assessment instrument such as the HCR-20 or the VRAG. Therefore, the findings of the present study suggest that the RAPID can support CLDTs to meet this Welsh Assembly Government objective.

As a screen, the RAPID necessarily focuses on a small number of risk factors and is not designed to inform services about all of the possible risk factors that might be important for an individual. Also, it is not envisaged that the RAPID could be used to develop a formulation about risk of physical aggression, or to develop a risk management plan to try and minimise any risk of physical aggression. Indeed, there is no evidence from this, or any other studies, that the RAPID could be utilised in this way. However, if the RAPID can support services to make informed decisions about which service users may benefit from a full risk assessment of physical aggression, then this could help services to target their limited resources to identify which service users to complete such risk assessments for.

The HCR-20 can be used to develop a formulation about risk of harm to others that is grounded in the evidence base. From this, risk management plans can be developed and implemented. Whittington et al. (2007) state that risk management of service users should be proportionate to the risk of harm to others that they pose. Risk assessments and formulation about risk of harm to others can highlight the appropriate level of support or risk management strategies needed to safely manage an individual's risk. If it is not known how 'risky' an individual is, then services are required to be cautious. Indeed, Langan and Lindow (2004) suggest that services are more often criticised for taking positive risk decisions, than for restricting a service user. Therefore, in the absence of a risk assessment or a formulation about risk, services will be less able to take positive risk decisions, but will necessarily have to restrict service users in order to safely manage any risk of harm to others.

A comprehensive risk management plan, as well as enabling services to make informed decisions about risk, also enables services to develop interventions such as positive behaviour support (PBS) guidelines (Allen, James, Evans, Hawkins, &

Jenkins 2005), to try and reduce the risk of harm to others. This is supported by Ball, Bush and Emerson (2004), who state that interventions to manage risk of harm to others should be proactive, such as psychological interventions, and not reactive, such as control and restraint. Proactive, psychological interventions, such as PBS guidelines, should be person centred and based in a formulation about the risk an individual may pose to others (Greenhill et al., 2008). The RAPID could potentially support CLDTs to develop intervention plans by identifying service users who may benefit most from such interventions, via a full risk assessment and risk formulation. The RAPID could support CLDTs to be pro-active in developing psychological interventions for individuals, where there is a risk of physical aggression.

4.3.2. Clinical application of the RAPID

How the RAPID might be integrated into services needs to be considered. With the Mental Health Measure that is shortly to be introduced within Wales it is likely that adults with a LD who have mental health problems and receive input from secondary care services will be required to have a Care and Treatment Plan (CTP). As part of this process, a risk assessment of harm to others should be completed. In Wales, the Welsh Government has directed all mental health services to complete a 'WARRN' (Wales Applied Risk Research Network) to collate information regarding risk in the first instance. It may be beneficial to think with services about how the RAPID may be incorporated into any existing policies and procedures such as the WARRN and the CTP.

In the development of the RAPID (Fitzgerald, 2008) the possibility of recommending a cut-off score, as an indication of the need for a full risk assessment of risk of physical aggression, was explored. In the forensic psychiatric LD population upon which the RAPID was developed an analysis of the positive

predictive value (PPV) and negative predictive value (NPV) of each score of the RAPID was conducted. PPV is the proportion of participants correctly identified as being physically aggressive and NPV is the proportion of participants correctly not identified as being physically aggressive, calculated for a given base rate of physical aggression. This analysis suggested that, in the forensic psychiatric LD population, a cut-off score of six / eight might be a useful cut-off to indicate a need for a full risk assessment. As such analyses are influenced by the base rate of the target behaviour, in the present study, the relatively small sample size means that any PPV or NPV analysis would likely be unduly influenced by the small number of incidents of physical aggression. It would be useful to conduct this analysis in a larger sample of adults with a LD in CLDTs, to explore if a cut-off score on the RAPID could be identified in this population.

4.3.3. Location of risk

Utilising risk assessment instruments to identify and assess risk of harm to others places the onus of risk on individual service users. Such assessments are based upon the assumption that the individual 'possess' risk factors that increase or decrease the risk of harm that they pose to others. In line with this, the RAPID, as a screen for risk of physical aggression, does not measure the impact of the environment or of interactions with others, on risk. This again suggests that the risk factors are located within the individual. Adults with a LD are already at risk of being excluded from society (DoH, 2006; DoH, 2008; Greenhill et al., 2008), and this emphasis may increase potential exclusion and stigmatisation. Further, Totsika et al. (2008) and Crocker et al. (2007) highlighted that environmental factors are important in relation to difficult to manage behaviours in adults with a LD in the community. In different settings, people will be exposed to different environmental factors and this may

differentially influence the prevalence of physical aggression. Further, in different settings responses to frustration or difficulties that may trigger physical aggression may also differ in type, in quality and in consistency (Embregts et al., 2009). These factors would be important to understand through a comprehensive functional analysis which would then be used to develop PBS guidelines (Allen et al., 2005). Although the RAPID doesn't measure the impact of the environment, the HCR-20 and PBS guidelines do consider the impact of environmental and contextual factors on an individual's level of risk. Therefore, if the RAPID were used in conjunction with other risk assessment instruments and psychological interventions to develop a formulation and intervention plan regarding risk, then this would allow for a more comprehensive, and possibly less stigmatising, assessment to be completed.

4.3.4. Service user involvement in using the RAPID

It is important to consider the ability of service users to be involved in the process of completing a risk assessment of physical aggression. Greenhill and Whitehead (2010) state that completing a risk assessment of harm to others, without involving service users in the process, is a violation of human rights. To try and support service users to be involved in the process of risk assessment and risk management, Lee, Kaur, Cookson and Greenhill (2008) have developed the 'Keeping Me Safe and Well' (KMSAW) screen. Similarly, Greenhill et al. (2008) have developed the Human Rights Joint Risk Assessment and Management Plan (HR-JRAMP). The KMSAW and the HR-JRAMP outline a process of risk assessment for multiple risks, (risk of harm to self, harm to others and harm from others). These tools are written in clear language, with the use of pictures and a traffic light system to facilitate service user's understanding of the process and content of the risk assessment. Although these are not risk assessment instruments that have been

validated in LD populations, there is some initial evidence that the KMSAW screen enables service users to be involved in the process of risk assessment and developing a risk management plan (Hall & Duperouzel, 2011). In considering how the RAPID may be implemented by services, it is useful to consider the principles of good practice highlighted by the KMSAW screen and the HR-JRAMP. As it stands, the RAPID has not been developed specifically to facilitate the process of service user involvement. The RAPID was developed from research conducted in forensic psychiatric LD populations. Consequently, the language used in the RAPID is in line with the language used in forensic psychiatric services. For example, the term violence is used as opposed to physical aggression. It may be beneficial to discuss the face validity of the RAPID with CLDTs and think further about its clinical application in this population.

4.4 Limitations of study

4.4.1. Sample

The aim of the study was to evaluate the predictive efficacy of the RAPID in adults supported by CLDTs. In line with this, participants were recruited for the study based on the service provision that they received. If they were supported by the CLDT, then it was assumed that they had a LD, and they were included in the study. This is a very broad, non-specific, definition of LD. In addition, due to the constraints of the ethical permission provided for the study (see Appendix F), it was only possible to recruit participants deemed to have the capacity to provide informed consent to take part. Therefore the sample was not representative of all people with a LD, ranging from mild, moderate, severe and PMLD.

Due to time constraints, no independent measure of LD, or any measure of participant's intellectual or adaptive functioning, were taken for the purposes of the

study. Further, it was not always possible to obtain a measure of LD from participants' files. IQ tests are not routinely administered in CLDTs, but are only completed if clinically relevant. Indeed, IQ data and diagnoses were only available for a minority of participants (4/53; 7.5% and 8/53; 15.1%, respectively). An indication of level of LD was obtained by asking care co-ordinators what level of LD they believed participants had. This provided a consistent measure of possible level of functioning that could be obtained for all participants. However, this is not a formal measure of LD and it was not possible to evaluate the validity or reliability of this rating. The lack of measurement of LD makes it difficult to accurately describe the sample recruited. In the absence of a tight time frame, it would have been beneficial to have completed a measure of intellectual functioning, such as the Wechsler Abbreviated Scale of Intelligence - Second Edition (Wechsler, 2011) and a measure of adaptive functioning, such as the Adaptive Behaviour Scale – Residential and Community (Hatton et al., 2001).

The sample recruited was a random sample of service users who accessed four CLDTs in one local health board. A random sample has advantages and can ensure that the sample is not biased. Participants were accessed via supported accommodation providers, which were recommended for inclusion in the study by the CLDT. This resulted in a random sample, recruited through a process of convenience, rather than service users being targeted in any way. For example, service users who may be more likely to be physically aggressive were not targeted. Given the base rate of physical aggression in this population (14 - 23% in the UK; Bhaumik et al., 1997; Deb et al., 2001; McBrien et al., 2003; Tyrer et al., 2006), and of severe physical aggression (3 - 4.9 %; Crocker et al., 2006; Crocker et al., 2007; Tenneij & Koot, 2008) coupled with the short follow up period of a month, recruiting a random sample

possibly resulted in a lack of incidents of physical aggression. Ideally a random sample would be recruited, but it would be large enough and the follow up period long enough, to ensure that sufficient outcome data could be collected.

The sample was recruited from across four different CLDTs and ten different supported accommodation providers. Due to the sample size, it was not possible to evaluate any differences across these teams or providers in terms of predictor variables, or base rate of physical aggression. However, in different teams it's possible that there were differences in the information available for the scoring of the RAPID and the VRAG. And there may be differences in the professional judgement of risk given by care co-ordinators. Similarly, the reporting of physical aggression may have been different across different supported accommodation providers. It would have been beneficial to have been able to evaluate the predictive validity of the RAPID across teams. A larger sample would enable such analyses.

4.4.2. Outcome measure

The outcome measures of physical aggression, property aggression and verbal aggression were obtained by interviewing staff who supported participants in their home. Interviewing staff to identify any incidents of aggression means that the outcome measures of aggression are likely to have been restricted by the reliability with which staff recalled incidents. Staff were interviewed frequently to reduce the need to rely on memory, however it remains possible that different staff would report incidents differently. In addition, it was the subjective experience of the researcher that on occasion, staff minimised incidents of difficult to manage behaviour. The supported accommodation providers included in the present study were all independent sector providers. Therefore, providers charge the local authority to provide support and care to service users. It is possible that staff were motivated to

present their care of a service user in a positive light and so minimise any difficult to manage behaviours. In future research studies, it may be beneficial to try and obtain a more objective measure of physical aggression.

4.4.3. Reliability analysis

The method employed for the reliability analysis meant that the two raters had access to exactly the same information for scoring the RAPID. Both raters read the same file information and due to the time constraints of care co-ordinators, it was only possible to conduct one interview with both raters present. Consequently, the ability of the raters to obtain the relevant information for the RAPID items is only partially reflected in the reliability analysis. Ideally, both raters would have read the file information and interviewed staff separately. However, had this been the case, it would be more difficult to explain the likely reason for any poor reliability. The finding that the RAPID has good inter-rater reliability in the present study suggests that when two raters have access to the same information, the scoring criteria enables a consistent score to be reached when completing the items of the RAPID. It may be beneficial to see if good inter-rater reliability is retained if both raters are required to acquire all of the relevant information.

4.5 Future directions

In the present study, when care co-ordinators who provided the risk rating knew participants well, little difference was found between the predictive efficacy of the RAPID and the Risk Rating. It would be beneficial to repeat this comparison in a sample of new referrals to a CLDT. It is anticipated that the RAPID, as a screen for risk of physical aggression, would be used for such referrals. It may be that the RAPID has greater utility in identifying potential risk of physical aggression in individuals who are not well known to a service. To test this further, a sample of

people who are in transition from child services to adult services could be recruited. In such a study it would be beneficial to try and score the RAPID from a brief file review and to ask a member of staff in the team accepting the referral, and so who are responsible for managing any risk of physical aggression, to provide a professional judgement of risk of physical aggression.

It would be beneficial to replicate the findings of the present study, that the RAPID has good predictive validity in a sample of adults who access CLDTs, with a larger sample, over a longer follow up period. This would enable more detailed analyses to be run. For example, it may be possible to compare the predictive validity of the items of the RAPID, with the RAPID total score. It may be possible to compare the predictive efficacy of the RAPID across different CLDTs. It may be possible to obtain a greater range of incidents of physical aggression, which would enable an analysis of the ability of the RAPID, and the items of the RAPID, to predict more severe incidents of physical aggression.

In the present study, the RAPID was found to have concurrent validity with the VRAG, a risk assessment instrument that has established predictive efficacy in community samples of adults with a LD. In practice, the HCR-20 is more likely to be employed by the CLDT if a full risk assessment of harm to others is deemed necessary. The HCR-20 is a structured clinical guide and so enables clinical teams to formulate the risk of harm to others and to devise a risk management plan, rooted in the risk assessment. The VRAG, as an actuarial risk assessment, provides a statistical prediction of risk of harm to others and is good at providing a base line propensity for long-term violence. It was not possible to compare the RAPID to the HCR-20 in the present study, as completing the HCR-20 is time consuming and there was insufficient time. Therefore, it would be beneficial to compare the concurrent validity

of the RAPID with the HCR-20 in a sample of adults with a LD, recruited from CLDTs.

4.5.1. Summary of clinical application

The findings of the present study provide evidence to support the use of the RAPID in CLDTs. The RAPID could be used to complement existing risk assessment instruments, already validated in this population, such as the VRAG and the HCR-20. These risk assessment instruments could then be used to develop formulations about risk of physical aggression and subsequent risk management plans and psychological interventions, such as PBS guidelines (Allen et al., 2005). It would be useful to establish if the RAPID has any face validity in CLDTs. Focus groups with staff could highlight any issues in the clinical application of the RAPID into CLDTs. For example, the language used in the RAPID is in line with the language used in forensic psychiatric services. CLDTs tend to have an ethos that tries to reduce stigma and promote inclusion (DoH, 2006; DoH, 2008; Greenhill et al., 2008). It would be good to establish if the RAPID, as it stands, fits in with this ethos, or if it requires some changes. Similarly, Greenhill et al. (2008) highlight how it is important to obtain service users perspective on the applicability and implementation of risk assessments in services and in the development of individual care plans. Therefore, research into how this might be achieved, would be beneficial.

4.6 Conclusion

The present study provided evidence that the RAPID, a screen for risk of physical aggression, has predictive and concurrent validity, and good inter-rater reliability, in a sample of adults with a LD who access CLDTs. The present study also provided some evidence for the construct validity of the RAPID, though this needs further exploration and developments in the research literature on risk factors

for physical aggression, for this to be better understood. The predictive efficacy of the RAPID was found to be comparable to a professional judgement of risk of physical aggression, where professional judgement was made by a care co-ordinator who knew the participant well. The RAPID was found to be easier to score, and to be more predictive of physical aggression, in adults with a LD in community samples, than an existing validated risk assessment instrument, the VRAG.

The findings of the study suggest that the RAPID could be used to support CLDTs to make informed decisions about the completion of risk assessment instruments, risk management plans and interventions that aim to reduce the risk of physical aggression. It would be useful to explore further how the RAPID may be integrated into clinical practice within CLDTs.

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Appendix A: Outline of literature search

The combination of search terms and resulting articles are outlined in Table A1:

Table A1: *Search terms used to search for relevant research literature*

Search terms:			**Articles (*k*)**
Learning Disabilities	Challenging Behaviour	Prevalence	90
Intellectual disabilities	Challenging Behaviour	Prevalence	157
Developmental Disabilities	Challenging Behaviour	Prevalence	74
Mental Retardation	Challenging Behaviour	Prevalence	124
Learning Disabilities	Aggression	Prevalence	42
Intellectual disabilities	Aggression	Prevalence	63
Developmental Disabilities	Aggression	Prevalence	43
Mental Retardation	Aggression	Prevalence	91
Learning Disabilities	Aggression	Risk	15
Intellectual disabilities	Aggression	Risk	63
Developmental Disabilities	Aggression	Risk	31
Mental Retardation	Aggression	Risk	32
Learning Disabilities	Violence	Risk	37
Intellectual disabilities	Violence	Risk	47
Developmental Disabilities	Violence	Risk	51
Mental Retardation	Violence	Risk	80

Search process:
Articles were excluded from the review if they investigated the prevalence of or risk factors for challenging behaviour, without delineating different types of challenging behaviour. Articles were excluded if they related to children, or to a combination of adults and children. Articles were excluded if they were conducted in institutional settings prior to de-institutionalisation. This process excluded 667 articles. Nine were included and a further three were identified by reading these articles. This resulted in a final 12 studies being included in the literature review regarding prevalence of physical aggression in adults with a LD in the community.

Studies regarding risk assessment of physical aggression in adults with a LD were excluded if they did not specifically evaluate risk assessment of violence in adults with a LD. Some of the papers relating to risk assessment in adults with a LD pertained to adults with a LD in forensic settings ($k = 8$). Although this was not the population of interest, there were so few articles about risk assessment in community settings ($k = 2$), for adults with a LD in community settings, it was necessary to review the relevance of these articles in the section of the literature review relating to risk assessment instruments. This process resulted in the identification of 10 studies directly relevant to risk assessment of physical aggression in adults with a LD. These articles were reviewed in detail in the literature review.

Appendix B: Rank order of AUCs of the items of the VRAG and HCR-20 predicting violent and general re-convictions 5 years post-discharge.

Table B1: *The AUCs for the items of the VRAG 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
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
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
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

Item	AUC	SE	*p*	CI Lower	CI Upper	*n*
HCR-20 History 2 Young age at first violent incident	0.62	0.08	0.21	0.46	0.77	105
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
VRAG 7 Age at index offence	0.59	0.09	0.36	0.42	0.76	84
HCR-20 History 4 Employment problems	0.58	0.09	0.37	0.41	0.75	95
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
HCR-20 Clinical 4 Impulsivity	0.56	0.10	0.55	0.37	0.74	107
HCR-20 History 3 Relationship instability	0.52	0.10	0.81	0.33	0.72	99
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 B2: *The AUCs for the items of the VRAG 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
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
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
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
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

Item	AUC	SE	*p*	CI Lower	CI Upper	*n*
VRAG 3 History of alcohol problems	0.60	0.08	0.20	0.44	0.76	98
VRAG 2 Elementary school maladjustment score	0.60	0.08	0.17	0.45	0.75	99
HCR-20 Clinical1 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
HCR-20 History 4 Employment problems	0.56	0.07	0.38	0.43	0.70	95
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
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
HCR-20 Risk-management 5 Stress	0.42	0.07	0.31	0.28	0.56	95

Appendix C: The Risk Assessment Protocol for Intellectual Disabilities

Rationale for the inclusion of the items in RAPID:

Adult violent behaviour[12]

A history of violence is repeatedly reported in the mentally disordered offender literature to predict future violence. For example, in forensic psychiatric inpatients, Amore et al. (2008) reported that the single best predictor of future violence was a history of violence. Bonta, Law and Hanson (1998), in a meta-analysis of risk factors for offenders with mental health problems, report that a violent history significantly predicted both violent and general recidivism. A history of violence has also been shown to be a robust predictor of future violence in offenders with LD (Lindsay, Elliot & Astell, 2004; Quinsey, Book & Skilling, 2004). McMillan, Hastings and Coldwell (2004) report that a simple measure of a history of violence over a six month period (in hospital) significantly predicted future violence in hospital over the subsequent six month period.

Violence in childhood and adolescence

It is not uncommon for children to be aggressive at some point during their childhood or adolescence and measuring this behaviour may be of little predictive value for violence in adult offenders with LD. Rather, this item is trying to capture those children or adolescents who are frequently and severely aggressive. The propensity for violence at a young age (in childhood and adolescence) has been shown to be indicative of future violence as an adult. Olweus (1979) showed a large correlation between early aggressive behaviour in childhood and adolescence and aggression as an adult. The findings of Olweus (1979) have been replicated many times in longitudinal studies (e.g. Farrington, 1994; Loeber et al., 1989; Tremblay et al., 1991). There are no studies that have directly measured this variable in offenders

[12] Note. The item 'history of violence' was not included in the screening tool based upon the signal detection theory analysis (Fitzgerald, 2008). However it is felt important to test this as an additional item of the screening tool in non-forensic samples. In the sample of offenders with LD (Fitzgerald, 2008) this item was redundant as all clients had a history of violence which resulted in a lack of statistical variance. In non-forensic samples the base rate of a history of violence would be expected to be more variable and so this item should have good predictive value.

with LD. However, Fitzgerald (2008) found that there were no differences in the risk factors for offending in offenders with LD compared to offenders with other mental health problems. In addition, 'young age at first violent incident' as measured by the HCR-20 was found to consistently predict general and violent recidivism in the community in a LD group at five years post-discharge from a Medium Secure Unit.

Childhood deprivation, maltreatment and abuse

This item considers evidence of the maltreatment as a child or adolescent resulting in the individual not having the benefit of positive socialisation in childhood and so not having the opportunity to develop their personality and emotional adjustment.

A number of studies have linked family problems in childhood to general and violent recidivism in adulthood (e.g. Gunn, Robertson, Dell & Way, 1978; Harris, Rice & Cormier, 1993; Klassen & O'Connor, 1988, 1989; Russo, 1994). Others have linked childhood maltreatment to adult anti-social behaviour (Fergusson & Lynskey, 1998; Smith, Ireland, Thornberry & Elwyn, 2008). Harris, et al. (1993) found that separation from parents at a young related to violence in adulthood (following discharge from forensic psychiatric services). Puri, Lekh and Treasaden (2000) found (independently for offenders with and without LD) that just over half of clients in medium secure services had been separated from their biological parents during childhood and adolescence.

Childhood delinquency

This item considers whether the person has victimised others in childhood or adolescence or shows evidence of generalised delinquency as a child or adolescent. Bonta et al. (1998) found that juvenile delinquency predicted violent and general recidivism as an adult. Harris et al. (1993) found that behavioural problems at school were related to violence in adulthood (following discharge from forensic psychiatric services). Winter, Holland and Collins (1997) report that offenders with LD were more likely than non-offenders with LD (matched on age, gender and IQ level), to have had behavioural problems at school.

Drug and alcohol abuse and related problems

When considering drug and alcohol abuse both evidence of abuse or dependence of a substance and evidence of functional impairment in the areas of health, employment, social, or relationships due to alcohol or substance abuse are important to consider. For example, is there evidence that the individual has been violent whilst under the influence of drugs or alcohol; do they have charges or convictions for substance related offences; do they self-report health or social problems (e.g. not being able to get or hold down a job); or relationship problems due to alcohol or drug abuse?

There is an abundance of literature that has found a relationship between illicit drug abuse / alcohol abuse problems and violence in psychiatric populations (both civil and forensic; e.g., Bonta et al., 1998; Steadman et al., 1998; Swanson, Holzer, Ganju & Tsutomu, 1990). The evidence is no different in offenders with LD. Hayes (1996) found that 50% of offenders with LD in the court and prison system in the UK report a problem with alcohol abuse. Lindsay, Steele, et al. (2006) report on sub-groups of offenders with LD had a greater problem with alcohol abuse compared to male sex offenders, but female offenders with LD had a higher prevalence of alcohol problems compared to males. The same was true for drug/solvent abuse. Winter et al. (1997) in their comparison of offenders with LD to non-offenders with LD found that the offending group were more likely than the non-offender group to use illicit substances. Fitzgerald (2008) found that a history of drug abuse and a history of alcohol abuse were both significantly related to criminal re-conviction two years post-discharge in offenders with LD.

Enduring difficulties of personality

This item is intended to indicate longstanding personality problems. The types of behaviours that feature in personality disorder diagnoses (such as anger, hostility and impulsivity) have often been linked to violence and offending (e.g. Bonta et al., 1998; Nestor, 2002). Philipsee et al. (2006) report specifically on the importance of cluster B (erratic/dramatic) personality disorders. Indeed, a history of antisocial behaviour and violence is included in some of the diagnostic criteria for Cluster B personality disorders.

Torr (2008) reported that a diagnosis of personality disorder in offenders with LD was associated with being placed in higher levels of security, with longer placements and with more serious and repeat offending. Alexander et al. (2006) found that clients with a co-morbid diagnosis of personality disorder were nine times more likely to re-offend compared to those without a diagnosis of personality disorder (as indexed by post-discharge arrest, charge or conviction).

In addition, the literature suggests that the prevalence of personality disorder in offenders with LD is greater than what would be expected compared to the general psychiatric population (2-30%, DSM-IV-TR, 2000) and ranges from 23 to 59% (Alexander, Piachaud, Odebiyi & Gangadharan, 2002; Crossland, Burns, Leach & Quinn, 2005; Hogue et al., 2006; Lindsay, Hogue, et al., 2006; Quinsey, et al. 2004). Gray et al. (2007) and Puri et al. (2000) report that those people with LD resident in medium secure units were significantly more likely to have a diagnosis of personality disorder compared to offenders with mental illness also in medium secure units. In addition, Fitzgerald (2008) found that the HCR-20 item 'personality disorder' significantly predicted general and violent recidivism in offenders with LD.

Rule breaking, problems with authority and lack of respect

The purpose of this item is to establish whether the individual has been a management problem: are they antagonistic? Do they comply with treatment and the rules of the unit or socially accepted behaviours in the community? It is important to consider the client's attitude to authority and rules and regulations. Do they respect staff? If the individual's needs are not met will they act in an aggressive or hostile manner? Does the individual respect authority or are they likely to resist decisions made regarding their care? Bonta, et al. (1998) in their meta-analysis of risk factors in offenders with mental health problems found that institutional adjustment and compliance predicted both violent and general recidivism. Hostility has been shown to be positively associated with the number of re-admissions to hospital in both in-client and out-client settings (Bartels, Drake, Wallach & Freeman, 1991; Haywood, Kravitz, Grossman, Cavanaugh, Davis & Lewis, 1995) and has also been linked with a change from verbal aggression to physical aggression (Amore, et al., 2008). Fitzgerald (2008) found that the HCR-20 items 'negative attitude' and 'compliance with remediation attempts' predicted general and violent recidivism in offenders with LD.

Compliance with treatment and/or management

This item is conceptually similar to 'rule breaking' but is intended to specifically capture the individual's ability to comply with treatment and management by the criminal justice or mental health system. Non-compliance with formal supervision or treatment plans in-client settings considers the individual's ability to follow the policies and procedures of the institution. Examples of failures to comply include smuggling prohibited items or weapons into the hospital; non-compliance with medication or psycho-social therapy regimes; breaching agreed conditions of leave; scamming therapy; and escape attempts. In the community individuals may fail to attend appointments with community mental health teams or the probation service, default on medication, or may fail to comply with conditions of bail set by the courts. They may also have charges or convictions for breaches.

Harris, Rice and Cormier (2006) summarise the literature that has evaluated the success of forensic psychiatric clients post-discharge (in Canada, America and the UK) and report that wherever it has been measured an escape history is consistently linked to higher rates of recidivism. Philipse et al. (2006) in a forensic psychiatric sample measured static and dynamic risk factors for recidivism and report that absence without leave whilst under the supervision of the Dutch justice system was among one of only four significant predictors for criminal recidivism (along with cluster B personality disorder, a diagnosis of substance abuse disorder at admission, and psychosis at admission). Fresan, Apiquian, Nicolini and Garcia-Anaya (2007) report that in in-patients with mental illness non-adherence to treatment contributes to violent behaviour (along with inadequate management of illness from family and care givers). Fitzgerald (2008) found that a previous breach of conditional release significantly predicted general re-conviction at two years post-discharge in all offenders with mental health problems (those with and without LD).

Risk Assessment Protocol for Intellectual Disabilities (RAPID).

Demographic information

Name: Participant number:

Gender: Date of birth:

Date of completion: Date of 3 months follow up:

Staff interviewed: Files read:

Diagnosis of Learning Disability:
Note any diagnoses of LD in the files.

Co-morbid diagnoses:
Note any co-morbid mental health diagnoses noted in the files.

IQ scores
Record IQ score reported in files. Please report all assessments in files

Please note any other relevant information from files:

Risk Assessment Protocol for Intellectual Disabilities (RAPID).
Scoring criteria

1. Adult violent behaviour:

If the individual has any history of violence (up to and including the day of assessment), since the age of 16. Violence is defined as *any deliberate or reckless harm caused to a person including contact sexual violence and any form of physical violence outside of the normative culture (e.g. minor fights in childhood or physical aggression in sport would not be included).* Verbal aggression, degrading comments or threats are not included in this definition. Violence to animals and violence to the self is also not included.

- If there is evidence of any incidents of violence (as defined above) in the individual's past (since the age of 16) score 'yes'.
- If there are no incidents of violence (as defined above) in the individual's past (since the age of 16), score 'No'.
- Presume all individuals are scored a 'No' unless there is evidence to the contrary.
- If there is reference to 'challenging behaviour' in the individual's case notes, but this behaviour is not defined, do not include as violence. If there is reference to challenging behaviour in the individual's file along with a separate description of the behaviour that fits with the above definition of violence, then include in the scoring of this item.

Please provide your evidence for scoring this item:
Please include the account from the client's notes verbatim.
Also note who the source is (e.g. staff nurse, client's mother, etc.)

Please tick:

No	Yes

2. Violence in childhood and adolescence:

If the individual was frequently or severely violent as a child or adolescent. Violence is defined as *any deliberate or reckless harm caused to a person including contact sexual violence and any form of physical violence outside of the normative culture (e.g. minor fights in childhood or physical aggression in sport would not be included).* Verbal aggression, degrading comments or threats are not included in this definition. Violence to animals and violence to the self is also not included.

Childhood and adolescence is defined as age 15 and below. Any violence aged 16 and above should be scored under the item 'adult violent behaviour'.

- If the individual has any incidents of violence (defined as above), age 15 and below, score 'Yes'
- If the individual has no incidents of violence (defined above) age 15 and below, score 'No'.
- Presume all individuals are scored a 'No' unless there is evidence to the contrary.

Please describe your evidence for scoring this item:
Please include the account from the client's notes verbatim.
Also note who the source is (e.g. staff nurse, client's mother, etc.)

Please tick:

No	Yes

3. Childhood deprivation, maltreatment and abuse:

If the individual was deprived, maltreated or abused as a child or adolescent (defined as age 15 and below). This includes neglect (of basic care or of love and emotional care), emotional abuse (being subjected to behaviour that is psychologically harmful), physical abuse or sexual abuse. Also note if the individual was exposed to family problems as a child or adolescent. Family problems include separation from parents before age 16, domestic violence (witnessing arguments or physical aggression of parents or extended family) and substance abuse of parents or siblings.

- If there is evidence of neglect, emotional abuse, physical abuse, sexual abuse, if there is evidence of exposure to family problems whilst a child or adolescent, score 'Yes'.
- If there is no evidence of neglect, emotional abuse, physical abuse, sexual abuse, or evidence of exposure to domestic violence or substance abuse in the family as a child or adolescent, score 'No'.
- Presume all individuals are scored a 'No' unless there is evidence to the contrary.

Please describe your evidence for scoring this item:
Please include the account from the client's notes verbatim.
Also note who the source is (e.g. staff nurse, client's mother, etc.)

Please tick:

No	Yes

4. Childhood delinquency:

If there is evidence of delinquency in childhood or adolescence (defined as age 15 and below). Delinquency includes non-contact sex offending, arrests, charges or convictions (for non-violent offences, e.g. theft), truancy, expulsion from school. Short-term suspension from school not included, only expulsion.

- If there is evidence of delinquency (defined as above) as a child or adolescent (age 15 and below), score 'Yes'.
- If there is no evidence of delinquency (defined above) as a child or adolescent (age 15 and below), score 'No'.
- Presume all individuals are scored a 'No' unless there is evidence to the contrary.

Please describe your evidence for scoring this item:
Please include the account from the client's notes verbatim.
Also note who the source is (e.g. staff nurse, client's mother, etc.)

Please tick:

No	Yes

***5.* Drug and alcohol abuse and related problems:**

If the individual has current or past problems with drugs (both illicit or prescribed medication) or alcohol.

'Problems' are defined as a diagnosis of substance abuse or dependence or a related health or social problem due to drug or alcohol abuse. For example, if the individual repeatedly gets arrested for drug or alcohol related offences; if the individual's drug or alcohol abuse is related to incidents of violence; if their drug or alcohol abuse causes them problems with employment or with relationships; drug or alcohol abuse related health problems.

- If the individual has current or past problems with drugs or alcohol, score 'Yes'
- If the individual has no current or past problems with drugs or alcohol, score 'No'.
- Presume all individuals are scored a 'No' unless there is evidence to the contrary.

Please provide your evidence for scoring this item:
Please include the account from the client's notes verbatim.
Also note who the source is (e.g. staff nurse, client's mother, etc.)

Please tick:

No	Yes

6. Enduring difficulties of personality:

If the individual has problems of personality consistent with a formal classification scheme (e.g. Diagnostic and Statistical Manual, Text-Revised, American Psychiatric Association, 2004; International Classification of Diseases, World Health Organisation, 1992).

- If a psychiatrist or a psychologist has noted a diagnosis of personality disorder in the client's files or if a psychiatrist or a psychologist has noted 'personality disorder traits', score 'Yes'.
- If a psychologist has completed a psychometric assessment of personality (e.g. Personality Assessment Inventory; PAI, Morey, 2001; Millon Clinical Multiaxial Inventory-II; MCMI-II, Millon, 1985) and reports results indicative of personality disorder problems, score 'Yes'
- If there is a high Psychopathy Checklist-Revised (PCL-R; Hare, 1991; 2003) score (20+) score 'Yes'.
- If there is no evidence in the individual's file of a diagnosis of personality disorder or personality disorder traits (made by a psychiatrist or a psychologist), score 'No'
- Presume all individuals are scored a 'No' unless there is evidence to the contrary.

Please describe your evidence for scoring this item:
Please include the account from the client's notes verbatim.
Also note who the source is (e.g. staff nurse, client's mother, etc.)

Please tick:

No	Yes

7. Rule breaking, problems with authority and lack of respect:

This item attempts to measure an overt aggressive or negative attitude of refusal to follow rules. Is the individual a management problem or has problems with authority or does not respect authority. For example:

Does the individual break the rules?

Does the individual not adhere to policies and procedures (e.g. as an in-patient or in a place of work or study, or a day centre).

Does the individual push boundaries with individuals in positions of authority?

Is the individual frequently disrespectful or confrontational to staff/other people in authority, e.g. swearing or being aggressive towards them).

- If the individual has any of the above behaviours, or there is evidence of the client being a management problem, score 'Yes'
- If the individual has none of the above behaviour and there is no evidence of the client being a management problem, score 'No'
- Presume all individuals are scored a 'No' unless there is evidence to the contrary.

Please provide your evidence for scoring this item:
Please include the account from the client's notes verbatim.
Also note who the source is (e.g. staff nurse, client's mother, etc.)

Please tick:

No	Yes

8. Compliance with treatment and management:

This item attempts to measure compliance with all forms of treatment or management. If the individual has breached conditions determined by the criminal justice system or the mental health system (e.g. conditions of bail, a probation order, a guardianship order or a treatment order), either in the community or in an in-client setting.

- If the individual has charges or convictions for a breach of bail; has absconded from hospital when admitted under a section of the mental health act; or has made a serious escape attempt; has previously failed to attend a police station as a condition of bail, or treatment defined by a treatment order, or failed to attend meetings specified by a probation order, a guardianship order or a treatment order, score 'Yes'
- If the individual has previously accessed prohibited items (e.g. weapons, drugs, mobile telephones) in an in-client setting or in custody, score 'Yes'
- If the individual is no management problem and complies with supervision and treatment, score 'No'
- Presume all individuals are scored a 'No' unless there is evidence to the contrary.

Please provide your evidence for scoring this item:
Please include the account from the client's notes verbatim.
Also note who the source is (e.g. staff nurse, client's mother, etc.)

Please tick:

No	Yes

Risk Assessment Protocol for Intellectual Disabilities (RAPID).

Scoring summary:

Item:	Please tick:	
Adult violent behaviour	No	Yes
Violent behaviour in childhood or adolescence	No	Yes
Childhood deprivation, maltreatment and abuse	No	Yes
Childhood delinquency	No	Yes
Drug or alcohol abuse and related problems	No	Yes
Enduring problems of personality	No	Yes
Rule breaking, problems with authority, or lack of respect	No	Yes
Compliance with treatment and management	No	Yes

Assign all scores of 'Yes' a score of 1 and all scores of 'No' a score of 0.

Add all scores of 'yes' for total score.
Maximum score = 8.
If you have no information for an item, please tick 'No'

Total score:

Appendix D: The Violence Risk Appraisal Guide

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 E: Aggression Vulnerability Scale

VERBAL AGGRESSION

Patient's Name: _____ Date:_____ Time:_____
Location (ward/ garden etc): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident Please tick only one box on this sheet, specifying the most severe behaviour.

	Please circle the relevant box	
	Singular	Repetitive
Insulting remarks or swear words to others	1	2
Shouting insulting words or swear words	2	3
Threatening violence to self	3	4
Threatening violence to others (including sexual violence)	4	5
Threats to kill	5	6

***Only rate verbal aggressive behaviour. Aggression is defined as hostile or destructive behaviour that is likely to cause physical or psychological harm, or is intended to cause such harm.**

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.

AGGRESSION AGAINST PROPERTY

Patient's Name: _____ Date:_____ Time:_____
Location (ward/ garden etc): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident Please tick only one box on this sheet, specifying the most severe behaviour.

	Please circle the relevant box	
	Singular	Repetitive
Minor incident, such as banging table, stamping on floor, slamming door, etc	1	2
Throwing objects, ripping of clothes, kicking tables/chairs, etc	2	3
Causing damage to objects, urination onto objects smearing faeces, etc	3	4
Throwing of objects in a potentially dangerous way (e.g. towards a person)	4	5
Setting fire to objects (minor damage), using objects as a weapon, etc	5	6
Serious arson attempt	6	7

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.

PHYSICAL AGGRESSION AGAINST OTHER PEOPLE

Patient's Name: _____ Date:_____ Time:_____
Location (ward/ garden etc): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident Please tick only one box on this sheet, specifying the most severe behaviour.

	Please circle the relevant box	
	Singular	Repetitive
Makes menacing, threatening or sexual gestures to staff or patients	1	2
Grabs/pushes/pulls people and/or clothing (including in a sexually aggressive way e.g. rubbing up against staff)	2	3
Hits, kicks, scratches, pulls hair etc. of staff or patients causing mild injury (e.g. minor cuts, bruises, scratches etc)	3	4
Indecent assault (e.g. digit penetration)	4	5
Abduct/ keep staff or patient hostage	5	6
Attacks other in attempt to commit serious sexual assault. Attempt prevented by staff, victim or others.	6	7
Attacks others causing serious injury, loss of teeth, fractures, deep cuts, etc	7	8
Attacks other in attempt to cause fatal/ near fatal injury. Attempt prevented by staff, victim or others.	8	9
Attacks others resulting in serious sexual assault.	9	10
Attacks other resulting in death/ coma etc.	10	11

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.

SELF HARM OR SUICIDE ATTEMPT

Patient's Name: _____ Date:_____ Time:_____
Location (ward/ garden etc): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident Please tick only one box on this sheet, specifying the most severe behaviour.

	Please circle the relevant box	
SELF-HARM	Singular	Repetitive
Verbally threatening violence to self	1	2
Hits self with no injury	2	3
Scratches self, pulls out hair, throws self onto floor etc with no, or slight, injury	3	4
Bangs head, inflicts minor cuts, bruises, burns, etc, to self	4	5
Serious injury to oneself without the intention to die, causing large cuts, fractures, head injury etc	5	6
SUICIDE ATTEMPT		
Suicide attempt (attempt unlikely to succeed if undiscovered by staff)	6	7
Serious suicide attempt (attempt likely to succeed if undiscovered by staff) e.g. overdose, electrocution etc	7	8
Completed suicide	8	9

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.

SELF NEGLECT

Patient's Name: _____ Date: _____ Time:_____
Location (ward/ garden etc): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident Please tick only one box on this sheet, specifying the most severe behaviour.

	Please circle the relevant box	
	Singular	Repetitive
Poor personal hygiene, (e.g. scruffy, dirty, etc)	1	2
Failure to maintain safe living conditions (e.g. leaving front door open at night, extreme neglect of personal space, hoarding objects leadig to cluttered living space.)	2	3
Refusing to eat or drink or deliberate vomiting in the context of an eating disorder	3	4
Incontinence of urine or deliberate urination, without appropriate actions to remedy the situation	4	5
Inadequate diet with evidence of weight loss (not due to deliberate dieting done healthily)	5	6
Reckless behaviour potentially leading to an accident (e.g. using the stairs when partially sighted despite being told not to)	6	7
Inadequate fluid intake with evidence of dehydration (e.g. impaired renal function, dry mouth, poor elasticity of skin)	7	8
Faecal incontinence or deliberate defecation, without appropriate actions to remedy the situation (in the absence of acute illness)	8	9

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.

VICTIMISATION OR EXPLOITATION

Patient's Name: _____ Date:_____ Time:_____
Location (ward/ garden etc): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident Please tick only one box on this sheet, specifying the most severe behaviour.

	Please circle the relevant box	
	Singular	Repetitive
Acts of omission by carers (e.g. are neglected despite stating they require assistance with day-to-day activities, personal care or medication)	1	2
Victim of bullying or verbal harassment (e.g. victim of verbal threats, intimidation, minor sexual harassment/ touching, etc)	2	3
Theft of their property, possessions, medication or money (e.g. taking possessions when person not present)	3	4
Victim of minor violence (e.g. pushing, scratching, pulling hair, etc)	4	5
Robbery of their property, possessions, medication or money (e.g. taken by means of intimidation or violence)	5	6
Victim of moderate violence (e.g. punching, kicking, threats with a weapon)	6	7
Personal exploitation (e.g. led into criminal activity, such as prostitution or drug dealing, by intimidation or violence)	7	8
Victim of sexual attack/ rape	8	9
Victim of major violence (e.g. any use of weapon, repeated punching, kicking)	9	10

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): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident Please tick only one box on this sheet, specifying the most severe behaviour.

	Please circle the relevant box	
	Singular	Repetitive
Lack of clothing or sexually inappropriate dress (e.g. flys undone, shirt/ blouse undone)	1	2
Sexually inviting conversation or sexual innuendo (not aggressive verbal comments)	2	3
Attempting to kiss other patients or staff/ allowing others to kiss them/ attempting to touch other patient's or staff's non-erogenous zones/ allowing others to touch them	3	4
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 sexual touching of other patients/staff or allowing others to touch them	5	6
Masturbating in public	6	7
Non-aggressive attempts to have sex (including oral sex, heavy petting, sexual intercourse)	7	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 that is likely to cause physical or psychological harm, or is intended to cause such harm.

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.

ABSCONDING BEHAVIOUR

Patient's Name: _____ Date:_____ Time:_____
Location (ward/ garden etc): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident Please tick only one box on this sheet, specifying the most severe behaviour.

	Please circle the relevant box	
	Singular	Repetitive
Returning late from unescorted leave (under 30 minutes late)	1	2
Returning late from unescorted leave (greater than or equal to 30 minutes)	2	3
Deliberately not returning from leave until re-apprehended	3	4
Attempt/actual escape from an open ward	4	5
Attempt/actual escape during escorted leave	5	6
Attempt/actual escape from a secure ward (e.g. climbing over secure perimeter)	6	7
Aggressive attempt to abscond (e.g. attacking a member of staff in order to escape)	7	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 that is likely to cause physical or psychological harm, or is intended to cause such harm.

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.

NON-COMPLIANT BEHAVIOUR

Patient's Name: _____ Date:_____ Time:_____
Location (ward/ garden etc): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident

Please tick only one box on this sheet, specifying the most severe behaviour.

Please circle the relevant box

	Singular	Repetitive
Actions to prevent observations (e.g. blocking peep-hole into room)	1	2
Threatening non-compliant behaviour (e.g. threatens to refuse attendance at sessions, threatens to refuse food, or to be assessed etc.)	2	3
Refusing to be assessed/ talk to staff/go to therapy group	3	4
Deliberately providing false information to staff for the purpose of self gain.	4	5
Encouraging staff to collude with the patient (e.g. in undermining other staff members or for self gain)	5	6
Smuggling in food or drink (e.g. coffee, sweets)	6	7
Non-compliance with medication	7	8
Stealing minor items (e.g. cigarettes)	8	9
Breaching conditions of leave (e.g. drinking alcohol when prohibited, taking illegal/ non-prescribed drugs)	9	10
Smuggling in alcohol/ drugs/ mobile phones	10	11
Coercion/ victimisation of other patients (e.g. advising them not to co-operate with staff or enticing difficult behaviour in others)	11	12
Barricading self into a room	12	13
Stealing items that could be used as a weapon (e.g. fork, knife, razor blade)/Smuggling in/hiding weapons or potential weapons (e.g. razor blade)	13	14

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 that is likely to cause physical or psychological harm, or is intended to cause such harm.

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.

ACCIDENT OR OTHER INCIDENT OF NOTE

Patient's Name: _____ Date:_____ Time:_____
Location (ward/ garden etc): _____
Name of Person Completing Form: _____

Description of incident: (ABC analysis)

What caused the incident:

What happened (where, when, why and to whom):

What were the consequences (e.g., patient was transferred, given medication etc.)

Nature of Incident Please tick only one box on this sheet, specifying the most severe behaviour.

	Please circle the relevant box	
	Singular	Repetitive
Accident or incident causing minor injury not requiring further attention (e.g., bruises etc.)	1	2
Accident or incident causing minor injury that requires some treatment (e.g., cuts etc.)	2	3
Accident or incident causing major injury that requires medical attention/visit to hospital (e.g., broken bones etc.)	3	4
Accident or incident causing life threatening situation (e.g., heart attack, laceration of an artery, serious head injury, etc.)	4	5
Accident or incident resulting in death	5	6

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.

Appendix F: Ethical Approval

NRES Committee London - Queen Square
Room 4W/12, 4th Floor West
Charing Cross Hospital
Fulham Palace Road
London
W6 8RF

Tel: 020 331 17287
Fax: 020 331 17280

29 November 2011

Dr Suzanne Fitzgerald
South Wales Doctorate in Clinical Psychology
Archway House
77 Ty Glas Avenue
Llanishen, Cardiff
CF14 5DX

Dear Dr Fitzgerald

Study title: **Evaluation of the predictive validity of the Risk Assessment Protocol for Intellectual Disabilities (RAPID) in community service for adults with Learning Disability (LD).**
REC reference: **11/LO/1143**
Amendment number: **AM01**
Amendment date: **13 October 2011**

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee noted the changes included in Version 2.1.

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Participant Consent Form	2.1	15 September 2011
Participant Consent Form	2	15 September 2011
Participant Information Sheet	2	15 September 2011
Participant Information Sheet	2.1	15 September 2011
Notice of Substantial Amendment (non-CTIMPs)		13 October 2011
Covering Letter		01 November 2011

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

11/LO/1143: Please quote this number on all correspondence

Yours sincerely

Dr Lorraine Ludman

Alternate Vice-Chair

E-mail: adriana.fanigliulo@imperial.nhs.uk

Enclosures: *List of names and professions of members who took part in the review*

Copy to: *Professor Nick Craddock, Cardiff and Vale University Health Board Research and Development*

NRES Committee London - Queen Square

Attendance at Sub-Committee of the REC meeting on 17 November 2011 (in correspondence)

Name	*Profession*	*Capacity*
Dr Simon Eaton	Senior Lecturer in Paediatric Surgery and Metabolic Biochemistry	Expert
Dr Lorraine Ludman	Chartered Psychologist	Lay

Also in attendance:

Name	*Position (or reason for attending)*
Ms Adriana Fanigliulo	REC Co-ordinator

Appendix G: Approval from Research and Development

Research & Development
Research Scrutiny Committee
Tel: 01633 234768

Ms Suzanne Fitzgerald
Trainee Clinical Psychologist
South Wales Doctorate in Clinical Psychology
Archway House
77 Ty Glas Avenue
Llanishen
Cardiff
CF14 5DX

Ref: RSC.34.11
9th August 2011

Dear Ms Fitzgerald,

Evaluation of the predictive efficacy of the Risk Assessment Protocol for Intellectual Disabilities (RAPID)
Researcher: Ms Suzanne Fitzgerald
Reg: RD/986/11

The Research Scrutiny Committee reviewed your project at their meeting on the 3rd August 2011.

It was agreed the project be approved.

You will now need to transfer the information from the ABHB R&D Project Registration Form that you submitted to the Research Scrutiny Committee onto the IRAS form https://www.myresearchproject.org.uk/Signin.aspx **once this has been completed you will need to send the IRAS form and all relevant documents to** NISCHR.PCU.allwales@wales.nhs.uk

We will also require the amended documents you mention at the meeting on Aneurin Bevan Health Board headed paper.

Please note that no substantial changes or amendments can be made to the protocol without notifying the Trust Research & Development Office.

Kind regards

Professor Sue Bale
Chairman
Research Scrutiny Committee

GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Caerdydd a'r Fro
Cardiff and Vale University Health Board

Ysbyty Athrofaol Cymru
University Hospital of Wales

Heath Park,
Cardiff, CF14 4XW
Phone 029 2074 7747
Fax 029 2074 3838
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Caerdydd, CF14 4XW
Ffôn 029 2074 7747
Ffacs 029 2074 3838
Minicom 029 2074 3632

Eich cyf/Your ref
Ein cyf/Our ref
Welsh Health Telephone Network 1872
Direct line/Llinell uniongyrchol

Tel: 029 20746986
Fax: 029 20745311
CAV_Research.Development@wales.nhs.uk

From: Professor JI Bisson
R&D Director
R&D Office, 2nd Floor TB2
University Hospital of Wales
Cardiff
CF14 4XW

16 December 2011

Miss Suzanne Fitzgerald
Trainee Clinical Psychologist
Archway House
71 Ty Glas Avenue
Llanishen
Cardiff

Dear Miss Fitzgerald

Project ID : 11/MEH/5161 : Evaluation Of The Predictive Efficacy Of The Risk Assessment Protocol For Intellectual Disabilities (RAPID) In Community Service For Adults with Learning Disability (LD)

Further to recent correspondence regarding the above project, I am now happy to confirm receipt of:

- Evidence of favourable opinion from the relevant NHS Research Ethics Committee
- Revised documentation as required by the REC in order to obtain favourable opinion

The following amended documentation is approved for use with this study:

Document	Version	Date
Favourable Opinion Letter from NRES Committee London		29 November 2011
Protocol	2.0	12 August 2011
Participant Information Sheet	2.0	15 September 2011
Participant Information Sheet	2.1	15 September 2011
Participant Consent Form	2.0	15 September 2011
Participant Consent Form	2.1	15 September 2011
Risk Assessment Protocol for Intellectual Disabilities (RAPID)	2.02	24 January 2011

Please accept this letter as confirmation of sponsorship by Cardiff and Vale UHB and permission for the project to begin.

May I take this opportunity to wish you success with the project, and to remind you that as Principal Investigator you are required to:

- Ensure that all members of the research team undertake the project in accordance with ICH-GCP and adhere to the protocol as approved by the Research Ethics Committee
- Inform the R&D Office if any external or additional funding is awarded for this project in the future
- Inform the R&D Office of any amendments relating to the protocol, including personnel changes and amendments to the actual or anticipated start and end dates
- Complete any documentation sent to you by the R&D Office or University Research and Commercial Division regarding this project
- Ensure that adverse event reporting is in accordance with the UHB adopted Cardiff and Vale NHS Trust Policy and Procedure for Reporting Research-Related Adverse Events (refs 164 & 174) and Incident Reporting and Investigation (ref 108)
- Ensure that the research complies with the Data Protection Act 1998
- Ensure that arrangements for continued storage or use of human tissue samples at the end of the approved research project comply with the Human Tissue Act, 2004 (for further information please contact Sharon Orton, HTA Coordinator OrtonS@cf.ac.uk).

If you require any further information or assistance, please do not hesitate to contact staff in the R&D Office.

Yours sincerely,

Professor Jonathan I Bisson
Cardiff and Vale University Local Health Board R&D Director

CC R&D Lead, Prof Nick Craddock

Appendix H: Letter to Social Services managers

SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY
CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL

Dear [insert name]

My name is Suzanne Fitzgerald and I am currently undertaking a research study within Aneurin Bevan Health Board (ABHB) under the supervision of Dr Chris O'Connor (Consultant Clinical Psychologist and Clinical Director of Adult Learning Disability Services). The study has been approved by the London Queen Square Research Ethics Committee and ABHB Research and Development committees.

I enclose a copy of the study protocol for your information. In summary, the aim of the study is to establish the validity and reliability of a brief risk assessment tool (the RAPID), to see if it can be used with people with a LD to predict future risky behaviours such as physical aggression or aggression to property. If the RAPID is found to be valid and reliable it could potentially be beneficial in a number of ways: it's quick to complete and could be used to screen individuals when they are first referred to a community LD team; and it could support staff to identify which individuals may benefit from a more detailed risk assessment.

There is no active involvement of service users. However, we will obtain informed consent from service users to have access to their files and to interview their care co-ordinator. The service user, the researcher and a member of staff (acting as a witness) will sign the consent form as a record of this consent. A copy will be given to the care co-ordinator so that it can be kept on file. Service users will be fully supported (verbally and visually to complete this process). Please see the enclosed protocol, information sheet and consent form for further information. If a service user does not provide informed consent they will be excluded from the study. Further, if a service

user is deemed not to have the capacity to provide informed consent they will be excluded from the study.

The research project involves interviewing service user's care co-ordinator to obtain the information required to complete the RAPID. This should take very little time (approximately 5 - 15 minutes). We would then interview house managers or senior support workers, whoever is felt to be more relevant for each service user, to find out if individuals have been aggressive or not. We will then evaluate how well the RAPID score is able to predict the nature and frequency of any incidents of aggression. We will of course be led by team managers on how to best conduct the study within their team, for example, reading any guidelines on how to read clinical files.

I would be grateful if you could give me permission to conduct the study within [insert name] local authority. If you have any questions about the study please do not hesitate to contact me on Fitzgeralds@cf.ac.uk or 07779119741 or Chris O'Connor on Chris.O'Connor@wales.nhs.uk or 01633 623625.

Yours sincerely

Dr Suzanne Fitzgerald
Trainee Clinical Psychologist

Dr Chris O'Connor
Consultant Clinical Psychologist and
Clinical Director of Adult LD Services

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

1st Floor, Archway House 77 Ty Glas Avenue Llanishen Cardiff CF14 5DX
Ty Archway, 77 Ty Glas Avenue, Llanishen, Caerdydd CF14 5DX
Tel/Ffon 029 2020 6464 Fax/Ffacs 029 2019 0106
Email/Ebost deborah.robinson2@wales.nhs.uk

NHS CYMRU WALES

Appendix I: Approval from Local Authority Social Services Managers

Social Services Directorate / Cyfarwyddiaeth Gwasanaethau Cymdeithasol
Liz Majer, Director of Social Services / Cyfarwyddwr Gwasanaethau Cymdeithasol

T: (01495) 354680 355261
F: (01495) 355285 355285

Cyngor Bwrdeisdref Sirol
Blaenau Gwent
County Borough Council

Our Ref./Ein Cyf. LM/JLC/SF.164
Your Ref./Eich Cyf.
Contact:/Cysylltwch â: Mrs Liz Majer
Date:/ Dyddiad: 27th September 2011

Dr Suzanne Fitzgerald
Trainee Clinical Psychologist

Dr Chris O'Connor
Consultant Clinical Psychologist and Clinical
Director of Adult LD Services

Anuerin Bevan Health Board
Learning Disabilities Service
Alders House
Llanfrechfa Grange
Cwmbran
Torfaen NP44 8YN

Dear Dr Fitzgerald / Dr O'Connor

Re: Evaluation of the Predictive Efficacy of the Risk Assessment Protocol for Learning Disabilities

Thank you for your letter dated 21st September 2011 of which the contents of your letter were noted.

This is to confirm that I agree to the research study proposal to be undertaken within Blaenau Gwent County Borough Council, Social Services Directorate as outlined in Dr Fitzgerald's protocol paper.

Yours sincerely

Liz Majer

LIZ MAJER
DIRECTOR OF SOCIAL SERVICES

c.c. Damien McCann Service Manager

Mail Message

Reply Read Later

Mail Properties

From: "O'Leary, David" <DavidOLeary@monmouthshire.gov.uk> Monday - October 10, 2011 12:18 PM
To: "fitzgeralds@cf.ac.uk" <fitzgeralds@cf.ac.uk>
CC: "Self, Keith M." <KeithSelf@monmouthshire.gov.uk>
Subject: Permission to conduct study in Monmouthshire
Attachments: ABHB - study 21.9.11.pdf (464756 bytes) [View] [Save As]
Mime.822 (646957 bytes) [View] [Save As]

Dear Dr Suzanne Fitzgerald,

Simon Burch Chief Officer Social Care and Housing has asked me to respond giving you his permission to conduct the study within Monmouthshire as requested. He also suggests you liaise Keith Self Social Work Team Manager.

I have copied Keith into this email – keithself@monmouthshire.gov.uk

Kind regards

David

David O'Leary

Mail Message

Reply Read Later

Mail Properties

From: "Street, Dave" <STREED@CAERPHILLY.GOV.UK> Monday - October 17, 2011 8:56 AM
To: <Fitzgeralds@cf.ac.uk>
CC: <chris.oconnor@wales.nhs.uk>
Subject: Research Study
Attachments: Mime.822 (7271 bytes) [View] [Save As]

Dr. Fitzgerald,

Please accept my apologies for the delay in responding to you.

The Directorate will be very happy to support you with your research study into RAPID. If you would like to give me a ring I'll provide you with the details of an appropriate contact point in the Directorate.

I look forward to hearing from you.

Dave Street
Assistant Director, Adult Services

Tel: 01443 864611

Mail Message

Reply Read Later

Mail Properties

From: "Chris OConnor (Aneurin Bevan Health Board - Psychology)" <Chris.OConnor@wales.nhs.uk> Monday - October 17, 2011 10:43 AM
To: Suzanne Fitzgerald <fitzgeralds@Cardiff.ac.uk>
CC: "Julia Jones (Aneurin Bevan Health Board - Learning Disabilities)" <Julia.Jones4@wales.nhs.uk>
Subject: FW: Research Letter
Attachments: Mime.822 (15442 bytes) [View] [Save As]

Dear Suzie
Julie's had this confirmation that Stuart is happy with the research in Newport - great news!
Chris

Ju
Thanks for following this up - really helpful
C

From: Julia Jones (Aneurin Bevan Health Board - Learning Disabilities)
Sent: 17 October 2011 10:25
To: 'Sue Morgan'
Cc: Chris OConnor (Aneurin Bevan Health Board - Psychology)
Subject: RE: Research Letter

Hi Sue

Great news. Many thanks again for your time.

Mail Message

Reply Read Later

Mail Properties

From: Turner Helen <Helen.Turner@torfaen.gov.uk> Monday - October 17, 2011 11:15 AM
To: "'Fitzgeralds@cf.ac.uk'" <Fitzgeralds@cf.ac.uk>
CC: "Julia Jones (Aneurin Bevan Health Board - Learning Disabilities) (Julia.Jones4@wales.nhs.uk)" <Julia.Jones4@wales.nhs.uk>
Subject: FW: Research Letter to Sue Evans
Attachments: Mime.822 (21483 bytes) [View] [Save As]

Hello Suzanne

Apologies for not responding sooner. Sue Evan's has asked me to confirm that she is happy for you to conduct this study within the Torfaen Locality and she fully supports this. Would it be possible to resend me the consent form and I'll fill it in for you?

Regards
Helen

Helen Turner
Personal Assistant to the Locality Director, Social Care, Housing & Health
Cynorthwyydd Personol - Cyfarwyddwr Ardal, Gofal Cymdeithasol, Tai ac Iechyd
Social Care and Housing/Tai a Gofal Cymdeithasol
Torfaen County Borough Council/Cyngor Bwrdeistref Sirol Torfaen

Phone/Ff ôn: *01633 648616 (internal 8616)*
Fax/Ffacs: *01633 648746 (internal 8746)*
www.torfaen.gov.uk

Save a tree...please don't print this e-mail unless you really need to

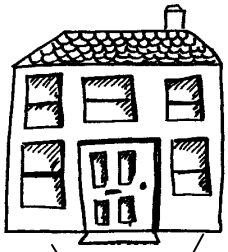
Appendix J: RAPID study leaflet

SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY
CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL

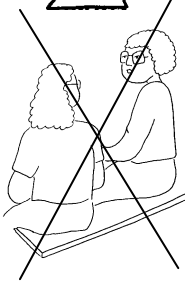
Hello! My name is Suzie Fitzgerald

.

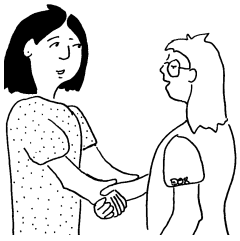
I am doing a research project



I would like to come to your house to talk to you about my research project



If you do not want to talk to me, that is OK. Just tell the staff.



If you would like to talk to me, I look forward to meeting you soon!

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

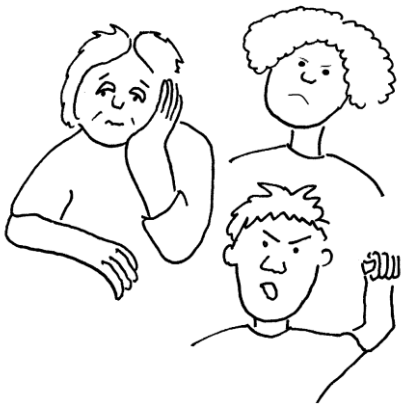
1st Floor, Archway House 77 Ty Glas Avenue Llanishen Cardiff CF14 5DX
Ty Archway, 77 Ty Glas Avenue, Llanishen, Caerdydd CF14 5DX

Tel/Ffon 029 2020 6464 Fax/Ffacs 029 2019 0106
Email/Ebost deborah.robinson2@wales.nhs.uk

NHS CYMRU WALES

Appendix K: Participant Information Sheets

SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY
CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL



Suzie's Project: Information Sheet

My name is Suzie and I am doing a research project. I would like to ask you to take part in the study. Before you decide I would like to tell you about it and why we are doing it.

I will go through the information sheet with you and answer any questions. You might also want to talk to others about it.

Why am I doing the project?

We have written some questions. We want to see if these questions will tell us if someone is going to get upset and hit other people. We want to see if the questions will work for people with a learning disability.

If the questions are good, it might be able to help staff. It might also help people with a learning disability.

Why have you been invited to take part?

We are asking lots of people with a learning disability if they would like to take part.

Do you have to take part?

No. It is up to you if you take part.

What will happen if you take part?

You do not have to do anything and nothing will happen to you. 3 things that will happen if you say yes.

1) Suzie will read some of your files.

2) Suzie will talk to your care co-ordinator about you. This might be your nurse or social worker.

3) Suzie will also talk to the staff where you live.

This means I will know some things about you. I am not allowed to tell anyone about any of the things I read or am told.

What will happen if you change my mind?

It is OK if you change your mind. If you change your mind, tell a member of staff.

Will it be kept private?

Yes. Only Suzie will know what the staff tell her or what is in your files. Suzie is not allowed to tell anyone else what she knows.

What happens to the results?

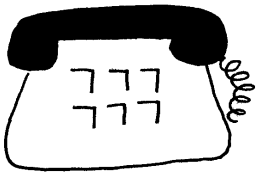
Suzie will write a report about the project. No names will be put in the report.

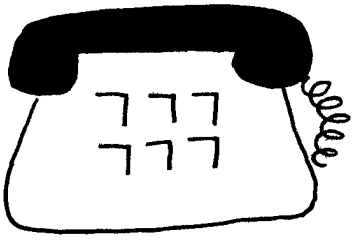
What are the good things about taking part?

If you say yes it will help me with my project. This might help staff to know who might get upset and hit out at others.

What are the bad things about taking part?

Nothing bad will happen to you if you take part.





What if there is a problem?

If you are not happy with the project then you can speak to me about it and I will try and help you. My number is 029 2020 6464

You can call me or my boss. He is called Chris. His number is 01633 623625

Who is running the project?

I work for Cardiff and Vale University Health Board. They have checked the study and are happy with it.

Who has checked the research?

A Research Ethics Committee have checked the study and say that it is OK.

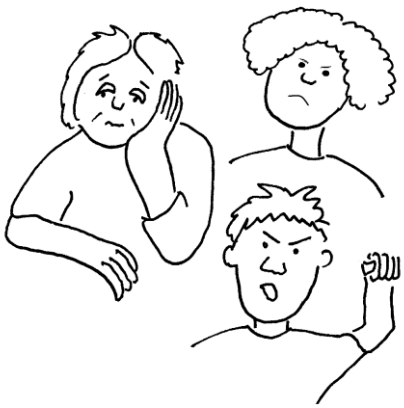
More information

If you would like to know any more you can call me, Suzie.

My number is 029 2020 6464.

1st Floor, Archway House 77 Ty Glas Avenue Llanishen Cardiff CF14 5DX
Ty Archway, 77 Ty Glas Avenue, Llanishen, Caerdydd CF14 5DX
Tel/Ffon 029 2020 6464 Fax/Ffacs 029 2019 0106
Email/Ebost de
Deborah.robinson2@wales.nhs.uk

SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY
CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL



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We have written some questions. We want to see if these questions will tell us if someone is going to get upset and hit other people. We want to see if the questions will work for people with a learning disability.

If the questions are good, it might be able to help staff. It might also help people with a learning disability.

Why have you been invited to take part?

We are asking lots of people with a learning disability if they would like to take part.

Do you have to take part?

No. It is up to you if you take part.

What will happen if you take part?

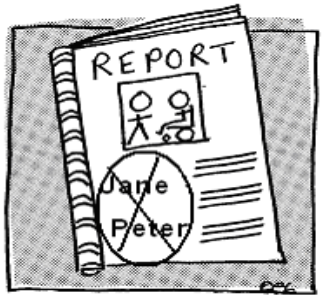
You do not have to do anything and nothing will happen to you. 3 things that will happen if you say yes.

1) Suzie and her colleague Caitlin, will read some of your files.

2) Suzie and Caitlin will talk to your care co-ordinator about you. This might be your nurse or social worker.

3) Suzie and Caitlin will also talk to the staff where you live.

This means we will know some things about you. We are not allowed to tell anyone about any of the things we've read or been told.



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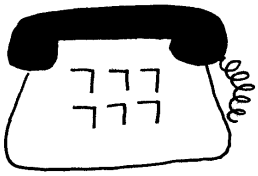

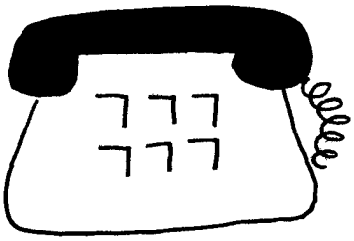

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More information

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My number is 029 2020 6464.

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Ty Archway, 77 Ty Glas Avenue, Llanishen, Caerdydd CF14 5DX
Tel/Ffon 029 2020 6464 Fax/Ffacs 029 2019 0106
Email/Ebost deborah.robinson2@wales.nhs.uk

Appendix L: Consent Forms

SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY
CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL

Suzie's Project: Consent form

Suzie has read me the Information Sheet Version 2		
I understand what it says		
I have had the chance to ask questions		
I know that I can stop taking part in the study at any time and this will not change the care I get		
I understand that the people whose job it is to check the project may see the information that Suzie collects about me.		
I agree for Suzie to read my files		
I agree for Suzie to talk to staff about me		

???

I agree to take part:

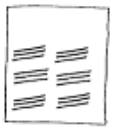
Name	Date	Sign
…….	……...	…….
Staff name	Date	Sign
…….	……...	…….

1st Floor, Archway House 77 Ty Glas Avenue Llanishen Cardiff CF14 5DX
Ty Archway, 77 Ty Glas Avenue, Llanishen, Caerdydd CF14 5DX

Tel/Ffon 029 2020 6464 Fax/Ffacs 029 2019 0106
Email/Ebost deborah.robinson2@wales.nhs.uk

SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY
CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL

Suzie's Project: Consent form



Suzie has read me the Information Sheet Version 2.1

I understand what it says

???

I have had the chance to ask questions

I know that I can stop taking part in the study at any time and this will not change the care I get

I understand that the people whose job it is to check the project may see the information that Suzie collects about me.

I agree for Suzie and Caitlin to read my files

I agree for Suzie and Caitlin to talk to staff about me

I agree to take part:

Name	Date	Sign
…….	……...	…….
Staff name	Date	Sign
…….	……...	…….

1st Floor, Archway House 77 Ty Glas Avenue Llanishen Cardiff CF14 5DX
Ty Archway, 77 Ty Glas Avenue, Llanishen, Caerdydd CF14 5DX

Tel/Ffon 029 2020 6464 Fax/Ffacs 029 2019 0106
Email/Ebost deborah.robinson2@wales.nhs.uk

Appendix M: Glossary of acronyms in thesis

Acronym	Full Title
ABHB	Aneurin Bevan Health Board
APA	American Psychiatric Association
AUC	Area Under the Curve
AVS	Aggression Vulnerability Scale
CAT	Childhood Adolescence Taxon
CBC	Challenging Behaviour Checklist
CLDTs	Community Learning Disability Teams
CTP	Care and Treatment Plan
DAS	Disability Assessment Schedule
DASA	Dynamic Assessment of Situational Aggression
DoH	Department of Health
DRAMS	Dynamic Risk Assessment and Management System
DSM-IV-TR	Diagnostic and Statistical Manual-Fourth Version, Text Revised.
HCR-20	History, Clinical, Risk-Management 20
HR-JRAMP	Human Rights Joint Risk Assessment and Management Plan
ICC	Intra-Class Correlation
ICD-10	International Classification of Diseases 10
IQ	Intelligence Quotient
KMSAW	'Keeping Me Safe and Well'
LD	Learning Disability
MI	Mental Impairment

MOAS	Modified Overt Aggression Scale
NHS	National Health Service
NPV	Negative Predictive Value
OGRS	Offender Group Reconviction Scale
PBS	Positive Behaviour Support
PCL-R	Psychopathy Checklist-Revised
PCL-SV	Psychopathy Checklist Screening Version
PMLD	Profound and Multiple Learning Disability
PPV	Positive Predictive Value
RAPID	Risk Assessment Protocol for Intellectual Disabilities
ROC	Receiver Operating Characteristic
SDRS	Short Dynamic Risk Scale
SD	Standard Deviation
SDT	Signal Detection Theory
SE	Standard Error
SOAS-R	Staff Observation Aggression Scale- Revised
VRAG	Violence Risk Appraisal Guide
WAG	Welsh Assembly Government
WARRN	Wales Applied Risk Research Network
WHO	World Health Organisation