Introduction

As large institutions gradually cease to exist, and contemporary policy stipulates that where possible, adults with intellectual disability (ID) who have offended should be diverted out of the Criminal Justice System (CJS) into alternative service structures, a range of pathways into services has evolved (Carson et al., 2010). These include processing and diversion at different stages of the CJS, entry into statutory and private services, or community ID services (Carson et al., 2010). Guidance stipulates that care and support strategies should be delivered in the least restrictive environment (Department of Health, 2009; Jacobson, 2008), ideally provided in the community, with multi-disciplinary team involvement, and close to the adult's home (Murphy & Clare, 2012).

Consequently, a larger number of adults with ID who have offended are likely to be referred to or remain in community services under conditions of probation or other community court disposal options. Community living is also essential for ensuring social inclusion and reducing discrimination against adults with ID. However, adults with ID and a history of or current aggressive behaviour present significant challenges to community health and social care services. The environment and infrastructure in community settings differs significantly to secure services. Within community services, risks are likely to be managed through relational and procedural policies and procedures rather than physical security and containment measures (e.g., seclusion, restraint, higher staff-to-service user ratios and close observation of service users). The environment in community services is less controlled, more fragmented and dispersed which means access to information is not as readily available and easily shared (National Institute for Health and Clinical Excellence [NICE], 2015). It could thus be argued that conducting risk assessment in

a community setting is more challenging than in secure services. Increased risk for offending is related to having greater access to the general public and lower staffing levels which mean less monitoring (NICE, 2015).

As a result of these differences in environmental conditions, it is likely that dynamic risk factors (amenable to change) might present differently and at different rates in the community compared to secure services. Therefore, risk assessment and management strategies that are employed within secure services may not be appropriate, feasible, or effective at promoting safety in community settings.

In secure settings the process of structured risk assessment is an established part of routine clinical practice, whereas in the community the process is often sporadic (Yacoub & Latham, 2012). The absence of policy and protocol specific to managing risk, difficulty with cross agency liaison and ownership of management plans, and a lack of standardized risk measures for this population (Boer, Tough, & Haaven, 2004; Lindsay, 2002; Lindsay & Beail, 2004) are likely barriers to conducting risk assessment in community settings.

Despite emerging research assessing the effectiveness of risk measures with adults with ID, uncertainty and lack of confidence in assessing risk for individuals with ID remains (Blacker, Beech, Wilcox, & Boer, 2010; Lofthouse, Lindsay, Totsika, Hastings & Roberts, 2014). To date, most studies on risk assessment in ID have been conducted in high, medium and low secure forensic settings (Drieschner, Marrozos, & Regenboog, 2013; Fitzgerald et al., 2011; Fitzgerald et al., 2013; Innett, Wright, Roberts, & Sheeran, 2014; Lofthouse, et al., 2014; Morrissey et al., 2005; Morrisey et al., 2007; O'Shea, Picchioni, Mason, Sugarman, & Dickens, 2014; Pouls & Jeandarme, 2014; Quinsey, Book, & Skilling, 2004; Steptoe, Lindsay, Murphy, &

Young, 2008), with a few extending to community ID populations (Gray, Fitzgerald, Taylor, MacCulloch, & Snowden, 2007; Gray, Taylor, & Snowden, 2011; Lindsay et al., 2008; Lofthouse, et al. 2014; Verbrugge, Goodman-Delahunty, & Frize, 2011). There is a clear need to accurately assess risk of aggression in community ID services not only for the well-being of adults with ID, but also those involved in their care and the public. Existing research shows that aggression presented by adults with ID negatively impacts on care staff psychological well being, in particular relating to elevated stress levels and burnout (Chung & Harding 2009; Hastings 2002; Hastings & Brown 2002; Hensel, Lunsky, & Dewa, 2012; Howard, Rose, & Levenson, 2009; Mills & Rose 2011). Crocker and colleagues (2006) found that verbal aggression was the most prevalent form of challenging behaviour in community ID services and often takes the form of abuse, shouting, threats, racism and generalised anger (Stewart & Bowers, 2013). Frequent verbal aggression can have a profound psychological impact on staff, affecting their job performance and functioning (Bowers et al., 2009; Sprigg, Armitage, & Hollis, 2007; Stone, McMillan, & Hazleton, 2010) while also increase the likelihood of the individual with ID being referred into secure services (Carson et al., 2010). Lindsay and colleagues (2010) proposed that pathways in to community service provision are related to the level of assessed risk. In the absence of a valid and reliable risk measure, support staff make informal evaluations and decisions about risk on the basis of dynamic factors that may or may not be related to risk. The result is likely to be an inaccurate assessment of risk that may attract unnecessary restrictions on adult's freedom or increase the potential risk to others. Research is needed to predict and prevent aggression through identification of reliable and valid risk measures. Dynamic risk factors lend themselves to the challenge of assessing the changeable nature of risk and play an important role in the emergence and

maintenance of aggressive behaviour (Crocker, Mercier, Allaire, & Roy, 2007). In addition, dynamic risk assessments enable professionals to be better informed about *when* to intervene to reduce risk, *how much* individuals respond to treatment and whether modification to supervision levels is required (Douglas & Skeem, 2005).

Within the UK, a small number of risk assessments measures have been developed specifically for adults with ID, composed of dynamic risk factors. Measures focus on predicting sexual violence (e.g., Assessment of Risk and Manageability for Individuals who Offend Sexually [ARMIDILO-S], Boer, et al., 2011, 2004; Treatment Intervention and Progress Scale for Sexual Abusers with ID [TIPS-ID], McGrath, Livingston, & Falk, 2007), and physical violence (Dynamic Risk Appraisal and Management System [DRAMS], Lindsay et al., 2004; Current Risk of Violence [CuRV], Lofthouse et al. 2014; Short Dynamic Risk Scale [SDRS], Quinsey, 2004). Evidence demonstrating the predictive accuracy of these measures is limited. Narrative and systematic reviews (Camilleri & Quinsey, 2011; Hockenhull n.d.; Pouls & Jeandarme, 2015) in the field have attempted to provide an overview of the validity of risk assessments in this area. A recent meta-analysis (Lofthouse et al., 2017) compared the efficacy of assessments to predict risk of aggression in studies using prospective and catch up longitudinal research designs. The review found no difference in the predictive accuracy between the three types of measures (actuarial, structured professional judgment & dynamic) or study design. Within the Meta analysis, eight of the fourteen studies employed a prospective design and six studies included dynamic risk assessment measures.

A paucity of research on the effectiveness of measures to assess risk in a community setting is concerning considering that the majority of adults with ID who offend or are considered risky live in community settings. There are two important

functions for risk prediction in community ID provision: 1: To predict offending behaviour (as with any other population and setting), and 2: To prevent aggressive behaviour from escalating into offending behaviour through better assessment and management.

In the current study, we aimed to explore whether the CuRV (Lofthouse et al., 2014) performs equally well with community populations, where the external environment is different and therefore dynamic risk factors might be present in different form and at different rates. Within the current community sample, participants are a combination of adults who have been discharged from secure settings and those whose behaviours have been managed long term in the community. Some of these adults may be at risk of becoming offenders if the behaviour was brought to the attention of the CJS.

A further aim of the current study is to assess the convergent validity of the CuRV through administering the SDRS (Quinsey, 2004). Due to the limited availability of ID-specific validated risk assessment for predicting aggression, we wanted to compare the CuRV to another measure in the field.

Method

Participants and Settings

Participants were a sample of 28 adults with ID, living in a variety of community settings in England and Scotland. Three participants were female, 25 were male. One participant identified as Pakistani, one black British and 25 White British. Mean age for the sample was 33 years, range 18 – 52 (n=21). Mean IQ was 62, range 53-69 (n=17;missing IQ data n=8). Where IQ score was unavailable, four

participants were considered to have a mild ID; the remaining participants were administratively defined as requiring ID services but there were no data available on the severity of the ID.

Setting one was a community home in the North of England for people with ID and additional mental health or complex care needs such as epilepsy and sensory needs. Adults presented with behaviours that challenge services in addition to having a history of such behaviour that necessitated treatment in secure settings. Nursing and support worker staff provide 24-hour support. Adults received services from psychology and occupational therapy on a needs-led basis.

Setting two was a registered charity in the North of England that provided support services in the community for adults with ID. Prior to the community placement, some service users had resided in secure settings as a result of their aggression, whilst others had been consistently managed in community settings. In the community, service users had their own tenancies, shared tenancies with other adults with ID or lived with partners, parents or carers. Level of service intervention varied in relation to service user need, ranging from 24-hour support worker input to outreach support for those living with family/alone. The service supported adults into employment and other meaningful activities. Clinical psychology input was provided on an individual needs basis.

Setting three. Provided inpatient (10 bed open unit), outpatient, and day-patient treatment and assessment within the unit and the community (only outpatient and day patients recruited for this pilot study). Most service users engaged in treatment whilst living in the community. The service covered all service users in geographical area in Scotland.

Measures

Current Risk of Violence (CuRV; Lofthouse et al. 2014)

The aim of the CuRV is to provide a brief (34 item) assessment of aggression in adults who fall in the mild to borderline range of intellectual disability, and have a history of aggressive behaviour (for details on tool development see Lofthouse et al., 2014). The CuRV includes a wide range of dynamic risk factors relating to the individual, staff and the environment (Boer et al., 2004). For example, items relevant to the individual include impulsivity, anger. Staff and environment factors include items such as knowledge of the individual, changes in staff team. Items are scored on a dichotomous 'yes' or 'no' format. In the initial validation study (Lofthouse et al., 2014) the risk of aggression was assessed among 64 participants in medium secure settings in the UK. Results demonstrated that the CuRV could significantly predict physical aggression over five months (AUC = .76, 95% Confidence Interval [CI] = .64, .88). Internal consistency (Kuder Richardson coefficient) for the total CuRV risk score in the Lofthouse et al (2014) study was high (.91, $SE = .06$).

Short Dynamic Risk Scale (SDRS; Quinsey, 2004)

The SDRS is an eight-item measure assessing the individual's presentation over the previous month. The measure contains a range of dynamic variables: accepting responsibility for behaviour, coping skills, anger expression, anxiety/frustration, hostile behaviour toward others, lack of consideration for others, poor house keeping or cooking, and poor self care/hygiene. Items are rated on a scale of $0 – 4$ (no problem to severe problem). In a field study, changes in SDRS scores were prospectively related to risk of aggression and antisocial behaviour (Quinsey, 2004). The SDRS demonstrated significant predictive value (AUC = .72, $p < .001$) for

violent incidents in a study of adults with ID across high secure settings, medium or low, and community settings (Lindsay et al., 2008).

Outcome variable

Incidents of verbal and physical aggression were recorded over a two-month period using available clinical notes. Incidents of physical and verbal aggression are recorded as part of routine clinical practice in most services, independent of the study. To be included in the present study, aggressive incidents had to meet the study's operational definition of physical or verbal aggression.

Physical aggression. Our definition of physical aggression included an act of physical violence, aggression, or force with hostility and intention to hurt or damage someone or something physically or psychologically (Yang, Wong, & Coid, 2010). Aggression may be directed at others or the environment. Attempts to hit someone or something would be considered an act of physical aggression regardless of whether a physical connection was made with the intended target and may also include the use of weapons/dangerous items. Examples of physical aggression included: hitting, punching, hair-pulling, scratching, biting, grabbing, nipping, and kicking. Damage to property or aggression directed toward the environment includes upturning furniture, throwing objects, pulling curtains down etc. Aggression that resulted in charges or convictions were included, as well as noncriminal aggression.

Verbal aggression. Our definition of verbal aggression was verbal behaviour where the content is threatening, hostile or derogatory, aimed at specific individuals that would be perceived as causing offence because of its content and/or severity/intensity. Examples included provocation, name-calling, intimidation, threats

to hit, ridiculing others and abusive comments (regarding gender, race, culture etc.), screaming and swearing directed at another individual and menacing gestures.

Procedure

Favourable ethical approval for the study was gained from the National Health Service (NHS) Research Ethics Committee. In addition, the study was reviewed and approved by University of Liverpool and sponsorship granted by the same. Site-specific permission to conduct the research was gained at each setting. A number of services were approached throughout England and Scotland to participate in the study. This included six National Health Service (NHS) Trusts responsible for the provision of community ID services, and several independent and private sector service providers.

Within each service setting that agreed to participate in the study (see above), managers of clinical services for adults with ID were contacted and provided with the rationale for the project and study criteria. Staff were asked to identify potential participants within their service who met the following inclusion criteria:

- Diagnosis of ID (meeting at least one of the following four criteria):
    1. IQ < 70, as assessed with standardised tools
    2. Significant impairments in adaptive behaviour assessed with adaptive behaviour scales
    3. Standardised assessment of IQ and adaptive functioning indicative of an ID diagnosis
    4. Administratively defined ID: currently receiving ID services
- Aged 18 and above
- In receipt of ID service in a community setting

- History of verbal or physical aggression

- Likely to be able to independently provide informed consent to participate

Once potential participants were identified, assessments were conducted with regard to capacity to independently consent to study participation. Capacity to consent was informed by an ID specific protocol developed by Arscott, Dagnan, and Kroese (1998). Each potential participant was provided with a written and verbal outline of the study using a participant information sheet. Following Mental Capacity Act (2005) guidance, this process established whether the individual could adequately understand the information presented, retain it, and use it to make a decision whether to participate in the study.

Where capacity was established, formal written consent was gained consistent with relevant professional practice guidelines (British Psychological Society [BPS], 2009). Participants were able to withdraw from the study up until the point that data had been anonymised and added to the database. Consent included permission to access records held within the service to extract demographic information and incident data relating to verbal and physical aggression. We excluded one potential participant at site two from the study because the level of IQ was too high.

Data collection

A member of direct support staff who had known the individual participant for a minimum of three months completed the CuRV and the SDRS. These staff members included Clinical Nurse Specialists, Assistant Psychologists, Ward Managers and Support Workers. The staff member scored the CuRV and SDRS for each participant and collected the demographic information (age, gender, level of ID). The remainder

of the support staff team were blind to the results of the assessments and there were no intentional changes to care plans over the follow up period.

The same member of staff who completed the initial assessments collected follow-up data for two months after the date the CuRV and SDRS were completed. Where incident data were not recorded in care notes as part of routine clinical practice, a recording sheet was provided to log incidents. Each incident that met the criteria outlined above was coded as "aggression present" for the participant. If no incidents of verbal or physical aggression were recorded, the code was "aggression absent" for that day. A member of staff at the site collected the outcome data, independent to the administration of the CuRV and the SDRS, guided by the definitions described above. The definitions of aggression were used in the previous study (Lofthouse et al., 2014) and inter-rater reliability in the previous study was good (Cohen's Kappa =.73).

Results

Measurement of the predictive accuracy of the CuRV and the SDRS

Predictive accuracy of the CuRV and the SDRS was assessed using receiver operating characteristic (ROC) analyses and the area under the curve (AUC) statistic. This approach is the preferred measure for predictive accuracy in forensic psychology (Rice & Harris, 2005) and frequently used in the mainstream and ID literature (Blacker et al., 2010; Gray et al., 2007; Lindsay et al., 2008; Lofthouse et al., 2014). The CuRV and SDRS total scores alone were used to predict aggression. AUC values are interpreted as follows: AUC equal to .5 indicates chance, between .5 and 1 indicates better than chance to perfect prediction. Rice and Harris (2005) offered

guidance on interpreting AUCs in risk prediction as small (.556), medium (.639) and

large (.714). All analyses were conducted in MedCalc® Software (Schoonjans,

Zalata, Depuydt, & Comhaire, 1995). Table 1 provides a description of the CuRV

and SDRS scores for all participants.

Table 1

Participant scores for the CuRV and SDRS assessment

	N	Minimum score	Maximum score	*Mean (SD)*
CuRV	28	00	22	9 (6.9)
SDRS	28	00	30	10 (8.5)

Predictive Validity

A total of 18 participants were verbally or physically aggressive at least once in the

two-month period following assessment using the CuRV and SDRS. Ten participants

displayed no verbal or physical aggression over the two-month period. Sixteen males

were aggressive, and two females were aggressive on at least one occasion. ROC

curves and AUCs were calculated using the CuRV and SDRS total score (see Tables

2 & 3).

Table 2

ROC analysis of the CuRV over a two-month period

Follow up month	Area Under Curve	95 % Confidence Interval	Total number of participants who were aggressive within the month
One	.88	.70, .97	14
Two	.80	.60, .92	15
Cumulative (both months)	.86	.67, .96	18

Table 3

ROC analysis of the SDRS over a two-month period

Follow up month	Area Under Curve	95 % Confidence Interval	Total number of participants who were aggressive within the month
One	.85	.67, .96	14
Two	.77	.58, .91	15
Cumulative (both months)	.78	.59, .91	18

Six AUCs were used to investigate the relationship of the CuRV and SDRS with aggressive and non-aggressive behaviour for each of the two months after the assessments were completed. For example, the analysis for month two focused on

whether or not participants had an aggressive incident in month two only and not including data from month one. A final AUC analysis investigated the relationship of the CuRV and SDRS with aggressive and non-aggressive behaviour at *any time* over the two-month period (See Figures 1 & 2).
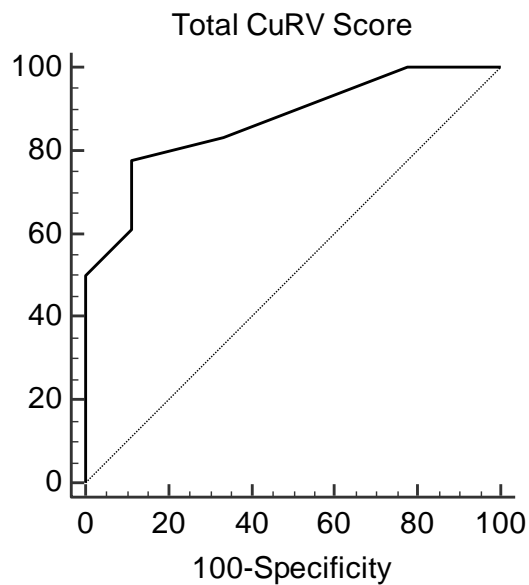

Figure 1. Receiver Operating Characteristic (ROC) Curve: Original CuRV (34 items) for aggression at any time over a 2 month period
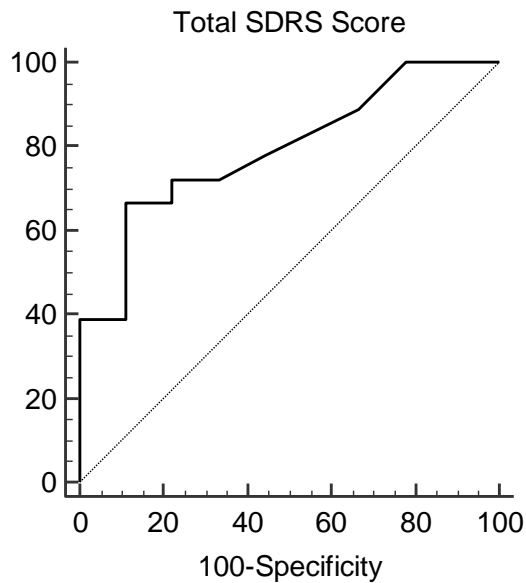
Figure 2. Receiver Operating Characteristic (ROC) Curve: Original SDRS (8 items) for aggression at any time over a 2 month period

Overall, the CuRV produced large AUCs although confidence intervals included some small to medium AUCs: month one .88, 95% CI [.70, .97] month two: .80, 95% CI [.60 .92] for each of the two months in the follow up period and the cumulative analysis over the two-month period .86, 95% CI [67, 96]. The findings suggest that the CuRV resulted in a prediction of future aggression at a level significantly better than chance. The highest predictive accuracy was found for one month following completion of the CuRV.

The SDRS also produced large AUCs although more consistently included small to medium AUCs within the confidence intervals: month one .85, 95% CI [.67, .96] month two: .77, 95% CI [.58 .91] for each of the two months in the follow up period and the cumulative analysis over the two-month period .78, 95% CI [.59, 91]. The findings suggest that the SDRS resulted in a prediction of future aggression at a

level significantly better than chance. The highest predictive accuracy was also found for one month following completion of the SDRS.

Correlation of the CuRV and the SDRS

The CuRV total score was strongly correlated with the SDRS total score $r = 0.94$, $p <.01$, $n = 28$.

Discussion

This paper outlines a pilot study to examine the predictive validity of the CuRV and the SDRS in a sample of adults with ID residing in community settings. The findings demonstrated that it is possible to predict, with a reasonable degree of accuracy, verbal and physical aggression at a level significantly better than chance when using the CuRV or the SDRS. The study provides further psychometric assessment of the CuRV; a scale that has shown promising results in secure environments (Lofthouse et al., 2014). Results from secure settings suggested that the CuRV performed with greater accuracy over a three and five-month period. In the community service, the most accurate prediction was found over one month. It may be that shorter predictive period in the community reflects the changeable and less controlled nature of community services where dynamic risk factors are likely to fluctuate and change more rapidly. As such, it would seem that for optimal risk assessment in community settings, assessments in the short term (e.g., monthly) may be effective, although more research directly comparing accuracy over different time periods is needed.

A strength of the CuRV is that it can be used frequently and reliably by most members of the support team, without lengthy training or incurring costs to the

service. The brevity of the CuRV (typically completed in 10-15 minutes) means regular assessment of risk can occur without being an administrative burden to staff and without reliance on historical notes. This is particularly salient in community settings where information relating to service users is less readily available and shared and staff often work in isolation (NICE, 2015). This in turn contributes toward effective risk management which is vital for reducing and preventing harm to the adult and others (DoH, 2007).

The results of the current study further support not only the predictive validity of the CuRV but also the potential use of the measure to guide the provision of appropriate support in the community (Wheeler, Clare, & Holland, 2014). A significant correlation between the CuRV and SDRS total score and similarities in the predictive accuracy of the CuRV and the SDRS suggest both measures are worthy of further research. We would argue that the CuRV provides a more comprehensive measure of dynamic risk factors relevant to the environment and social context of the lives of adults with ID. The CuRV, therefore, generates clinically useful data for the day-day management of aggression. Items within the CuRV that are found to be relevant to the adult with ID can be useful in clinical practice for formulating and developing an individual risk management strategy (Yacoub & Latham, 2012) and care plan. Focusing attention on the salient internal and environmental dynamic factors is likely to assist the adult with ID to develop more pro-social methods of meeting their needs, including reduced aggression, and is in line with the Good Lives Model (Ward & Stewart, 2003) of offending behaviour. The use of CuRV data to reduce risk of aggression requires direct testing in future research.

Based on feedback from clinicians consulted during the CuRV developmental process (Lofthouse et al., 2014), we intended, in the current study, to separate the

analysis for type of behaviour (verbal vs. physical aggression). However, the limited sample size and low levels of physical aggression precluded such analysis.

Recruiting adults with ID within the community proved to be extremely difficult in the current study. This was despite ethical and local approval from six NHS Trusts, three local governments and several independent service providers throughout the UK. The most frequently cited explanation for the inability to identify potential participants was lack of time, limited resources, and existing pressure on services. This is concerning given that people with an ID often do not have their voices heard and rely on others, including staff and carers, to advocate on their behalf or support to get their needs met.

Difficulties in recruiting participants may be attributable to staff concerns about capacity in the context of risk. Adults were excluded from the current study if they did not have capacity to consent, inevitably limiting participation to those with a mild or borderline ID. However, there appeared to be a reluctance to approach adults with ID if there was any doubt about their capacity to consent. This is conflict with a human rights based approach and Mental Capacity Act guidance to assume the adult has capacity until proven otherwise (Greenhill & Whitehead, 2010). Time and resource limitations may be a feasible alternative explanation for recruitment difficulties. Services may also be 'gate keeping' through a desire to protect individuals with ID (paternalistic) or a need to protect others from adults with ID (Greenhill & Whitehead, 2010). Although this may be motivated by genuine concern for adults with ID, it may also restrict opportunities, control and choice.

There are some statistical power limitations imposed by the small sample size in the present study, which impacts on the generalizability of the findings to other

community settings. In particular, no conclusions can be drawn regarding female adults with ID based on two female participants who displayed aggressive behaviour. The proportion of females in the current study does not reflect the high percentage of females referred to community services (40%) in recent research (Wheeler et al. 2009). Further studies are needed to replicate the current findings with a larger, more representative community sample. A further limitation of the present study is the absence of inter-rater reliability of CuRV and SDRS scoring and reliability of coding aggression from files/systems within services. Furthermore, the study was limited by those services with no formal incident recording system in place collecting such data using standard forms developed by the research team. Inevitably, there are issues regarding reliability and robustness of this as a method of collecting data. For example, the extra demand on staff time, tolerance of behaviours that would require coding for the purposes of this study may have led to an underreporting of incidents.

A drawback of the CuRV in its current format is the exclusion of the adult with ID in the process of assessing his or her own level of risk. There is evidence that adults with ID have the capacity and desire to be involved in the process of their own risk assessments (Hall & Duperouzel, 2011; Kilcommons, Withers, Moreno-Lopez, 2012). Moreover, inclusion in the process ensures adults are afforded their human rights and should be considered best practice (Greenhill & Whitehead, 2010). The CuRV is currently being refined and an important part of this process will be to develop a format that can include the perspective of individuals with ID.

A strength of the current study is the inclusion of three distinct services throughout the UK and Scotland that is in contrast to much of the localized and service specific research in the field (Wheeler et al., 2009). Because there is limited research assessing risk assessment in community services, the present findings are

notable. Furthermore, the prospective design of the current study is a methodological strength, such designs are considered to offer higher quality and produce more accurate results (Borenstein, Hedges, & Higginns, 2009).

If the CuRV is to become a commonly used tool for aggression risk assessment in the ID field, further research is needed by independent researchers, and with a larger sample size. Independent validation of the CuRV is a crucial step in validating the efficacy of the measure and developing the evidence base. Further research should address the psychometric properties of the measure including construct validity and internal consistency. Future development of the CuRV and other risk assessment measures should focus on examining the extent to which changes on risk factors targeted in management programs are associated with subsequent recidivism (Mann, Hanson, & Thornton, 2012). Further comprehensive testing is required at multiple time points with a longitudinal design (Wheeler et al. 2014).

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