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Brief Report: Screening with young offenders with an intellectual disability

Abstract

Background: Research suggests that young offenders with an intellectual disability may not always be identified within youth justice services.

Methods: This pilot study assessed some aspects of the validity of a screening tool, the Child and Adolescent Intellectual Disability Screening Questionnaire (CAIDS-Q), in UK forensic settings, using data from 23 individuals.

Results: The CAIDS-Q had positive and negative predictive power of 100%. In addition, a significant difference was found in CAIDS-Q scores between those with and without an intellectual disability, with the latter group scoring significantly higher, indicating discriminative validity. A significant positive relationship was found between full scale IQ and CAIDS-Q score, indicating convergent validity.

Conclusion: The pilot study suggested the CAIDS-Q may represent a valid screening tool to identify those young offenders who are likely to have an intellectual disability. Limitations and implications of the pilot are discussed.

Keywords: Screening; intellectual disability; Child and Adolescent Intellectual Disability Screening Questionnaire; young offenders

Background

Evidence suggests that young people with an intellectual disability (ID) are over-represented in the criminal justice system (Frize, Kenny, & Lennings, 2008) and that the needs of many such vulnerable people are not being adequately met (Jacobson, Bhardwa, Gyateng, Hunter, & Hough, 2010; Talbot, 2010). Failing to make provision for the presence of ID can lead to a number of avoidable adverse consequences for the person, including difficulty accessing specialist services (Hall, 2000) appropriate support when undergoing legal proceedings and interventions designed to reduce recidivism (Talbot, 2010). This group may also find it hard to cope with the day to day demands of life within youth justice settings (Smith, Algozzine, Schmid, & Hennly, 1990) and may be vulnerable to exploitation and bullying (e.g. Talbot, 2008; 2010 A major issue is that these individuals are not being successfully identified (Douglas & Cuskelly, 2011).

The process of diagnosis can, however, be complex and time-consuming. To be diagnosed with having ID, a person must meet three criteria: significant impairment in intellectual functioning i.e. IQ less than 70; significant impairment in adaptive functioning and onset in childhood (British Psychological Society [BPS], 2001). The diagnostic process requires assessment in these three areas using robust and valid assessments. In particular, the assessment of intellectual functioning must be completed by an applied psychologist with the appropriate qualifications, using a properly validated and standardised assessment which is administered on an individual basis (BPS, 2001). There are a number of stages in the criminal justice process where diagnosis of ID would be crucial, such as on arrest, where the availability of applied psychologists to conduct assessment would be limited or absent, making identification of those who have ID difficult. This is in the context of more general

issues of the ability of current procedures to accommodate people with ID within the criminal justice system, such as limited training provision for criminal justice staff about ID; the lack of a coordinated system which allows the systematic sharing of information between different agencies and limited access to specialist services (Talbot, 2010).

As a result of these difficulties, there has been a call for the introduction of routine and systematic screening to facilitate the early identification of young people with an ID (e.g. Douglas & Cuskelly, 2011; Talbot 2010). While screening cannot and should not replace proper diagnostic assessment, it has been recognised by professional organisations (e.g. BPS, 2003) that screening tools can offer a practical solution in situations where psychological resources are scarce and there is a need for a quick and accurate indication of whether someone has ID or not. It is, however, crucial, as with any good assessment (Terwee et al., 2007), that a screening tool has strong psychometric properties to ensure that individuals are not misclassified. Glascoe (2005a,b) summarises some of the properties required of a good screening tool, including validity, reliability and appropriate standardisation. A crucial property, validity, is that the screening tool performs as it is meant to i.e. it accurately differentiates between those who do and do not have ID. Validity may be measured in a range of different ways, including correlating screening tool scores with measures of adaptive and intellectual functioning (convergent validity) and identifying how well the categorisation according to the screening tool agrees with the categorisation based on full diagnostic assessment (discriminative validity).

Glascoe (2005a,b) also highlights the importance of establishing the positive and negative predictive properties of a screening tool. In relation to people with ID, the former identifies the proportion of people identified by the screening tool as having ID who actually do have ID, while the latter provides the proportion of people the screening tool identifies as not having ID who actually do not have this diagnosis. Glascoe (2005b) notes that positive

predictive values are typically 50% or less, meaning that there is generally high levels of over-identification of those who are likely to have ID.

It is also important that a screening tool is standardised with the population with whom it is designed to be used and that the standardisation sample has characteristics that are representative of this population (Glascoe, 2005b). It should also be used for the purpose for which it was designed. In short, a good screening tool should, as far as possible, be as robust in its psychometric properties and as fit for purpose as any good assessment.

While a number of valid and reliable screening tools are available for use to identify with ID (McKenzie & Paxton, 2006) which have also been validated for use in forensic services (e.g. Hayes, 2002; McKenzie, Michie, Murray, & Hales, 2012) unfortunately the situation is less positive in relation to screening for children with ID. Two recent reviews concluded that there was no screening tool available at that point for identifying children and adolescents with ID that had sufficiently good psychometric properties (McKenzie & Megson, 2011; Maulik & Darmstadt, 2007). Similarly, while the Hayes Ability Screening Index (HASI: Hayes, 2000) included a number of individuals aged under 18 in the standardisation sample, an evaluation by Ford et al. (2008) of its use as a screening tool in a range of youth justice services concluded that it '..did not have adequate specificity to be helpful in identifying which young people should be referred for further assessment by specialist LD [learning disability] services' (p371). While a limited number of Youth Offending Team (YOT) staff in the UK report that they do use screening methods to try and identify individuals with ID, Talbot (2010) found that a number of the assessments were developed locally and their validity and reliability were not established. In addition, some teams were inappropriately using assessments which had not been designed to screen for ID for screening purposes. A further issue is that many screening tools have only been validated against intellectual functioning, rather than all three criteria of ID (see Ford et al. 2008 for a

discussion), limiting the extent to which they can be considered to be valid as indicators of ID. All of the above suggest that the urgent need for a valid and reliable screening tool that can be used in forensic services to identify those who are likely to have ID remains.

The implementation of standardised screening procedures may also help address the issue that the true extent of the problem of the over-representation of people with ID in the criminal justice system is not known. UK prevalence estimates have been found to range from 0% up to 23% depending on the clinical criteria used, assessment type, age group and setting (Herrington, 2009). Standardised procedures are made difficult by the absence of time efficient, validated instruments that can be used across the age range from children to adolescents.

Since the reviews conducted by McKenzie and Megson (2011) and Maulik and Darmstadt (2007) the Child and Adolescent Intellectual Disability Screening Questionnaire (CAIDS-Q) (McKenzie, Paxton, Murray, & Milanesi, 2012) has been developed. This assessment was an extension of the adult version, the Learning Disability Screening Questionnaire (LDSQ) which was successfully validated and standardised in both community (McKenzie & Paxton, 2006) and forensic settings (McKenzie, Michie et al., 2012). Comprising of seven items, scored as 'yes' or 'no' which measure areas such as literacy, relationships and self-care., the CAIDS-Q was designed to be used by a range of people without the need for a particular qualification, professional background or training and was initially standardised with clinical samples (n = 286) who were referred to National Health Service (NHS) services. Details of the development and validation of the CAIDS-Q are outlined in Mckenzie, Paxton et al. (2012). Overall the tool was found to have good face, content, criterion (convergent and discriminative) and construct validity, internal consistency and inter-rater reliability. The sensitivity and specificity of the CAIDS-Q for the clinical sample, based on cut off scores of 62 and 64 were 96.7% and 85.5% respectively for children

aged 96 to 143 months and 96.1.% and 84.8% respectively for adolescents aged 144 to 216 months. Importantly, the CAIDS-Q was validated against an independently determined clinical diagnosis of ID based on all three diagnostic criteria for ID.

The present pilot study was motivated by the need for a valid and reliable screening tool for use within criminal justice services to identify young people with ID. In this context, the paper reports on the convergent and discriminative validity of the CAIDS-Q (McKenzie, Paxton et al., 2012) in criminal justice services in the UK. The aim was to evaluate aspects of the validity of the CAIDS-Q as a screening tool for young offenders with ID.

Method

Ethical Approval

Ethical approval for the study was obtained from the local services in the participating English health boards and the associated Caldicott Guardian in the Scottish health boards.

Power analysis and sample size

Previous research with the CAIDS-Q has found large effect sizes (d= 3.09 for group differences and r=-788 for correlations: McKenzie et al., 2012). To calculate the required sample size in the present study for an independent t-test (two tailed, alpha level of 0.05) to achieve power of 0.95, the effect size of d= 3.09 was entered into G*Power (Faul, Erdfelder, Lang, & Buchner, 2007). This indicated that a minimum sample size of eight was required. To calculate the required sample for a Pearson's correlation (two tailed, alpha level of 0.05) the effect size of .788 was entered into G*Power. This indicated that a minimum sample size of eight was required to achieve power of 0.80 and a minimum sample of 11 to achieved power of 0.95.

Procedure

In order to examine the performance of the CAIDS-Q in a forensic population data were gathered from UK National Health Services These were: a Scottish community ID

forensic service; one Scottish and one English community ID child and adolescent mental health (CAMH) services with forensic provision and an English secure forensic inpatient unit for young offenders aged up 18 years. The English services provided 15 sets of data and participated as they had offered to provide an independent evaluation of the CAIDS-Q with a young offender sample. The remaining data (n=8) had been gathered during the initial evaluation of the CAIDS-Q but had been excluded from the original analysis in order to ensure a more homogeneous validation sample (McKenzie, Paxton et al., 2012).

Once approval for the study and agreement from the participating services were gained, the CAIDS-Q was completed in two ways. In the Scottish services routinely collected assessment and diagnostic information obtained from existing case-notes in conjunction with information provided by clinical psychology staff was collected. Information was gathered either by a psychology research assistant or clinical psychology staff in relation to adolescents who had been referred to the services because of forensic issues and who had received an assessment to determine whether they had ID or not. This included information on CAIDS-Q items, gender, age at the time of the last diagnostic assessment and IQ. Under the terms of the Caldicott Guardian approval for the study no information about index offence or additional diagnoses was collected to protect anonymity. Whether the individual was classified as having ID or not was determined by the clinical diagnosis in the case notes which was independently assessed by the staff in the NHS services based on the three diagnostic criteria for ID. There was no direct contact with any participants and those collecting the data were unaware at the point of data collection of the cut off score on the CAIDS-Q that indicated that a person was likely to have ID. The most commonly used assessment for determining intellectual functioning was the Wechsler Intelligence Scales for Children – fourth edition (WISC IV: Wechsler, 2003). A range of assessments and different versions of assessments were used to determine adaptive functioning, including the Vineland

Adaptive Behaviour Scales – Second Edition (Vineland II: Sparrow, Balla, & Chicchetti, 2005) and the Adaptive Behaviour Assessment System – Second Edition (ABAS-II: Harrison & Oakland, 2003).

In the English services, the process was similar with the exception that the CAIDS-Q was completed directly with participants by a psychology assistant as part of the assessment process. Assessment of intellectual functioning and adaptive functioning and diagnosis of whether the individual had ID was made by clinical psychology staff. None of those involved in the English services were aware of the cut-off score on the CAIDS-Q which was indicative of having ID at the time the assessment was administered and scored. All those who were being supported by the included services at the time of the study and who were considered able to give informed consent, were invited to participate and all of those who were invited agreed to participate.

Participants

Data were initially obtained for 24 participants, however one set was omitted as information on full scale IQ was not available. Of the remaining 23 eight met the diagnostic criteria for ID and 15 did not. Information for two of the participants was obtained from community ID forensic services, for eight from CAMH services with forensic provision and for 13 from a secure forensic inpatient unit for young offenders. Seven of the participants with ID had at least one additional diagnosis, including attention deficit hyperactivity disorder (ADHD), attachment disorder, conduct disorder, language disorder, epilepsy and personality disorder. Six of those without ID had a diagnosis noted including Autism Spectrum Disorder, language disorder, post traumatic stress disorder, conduct disorder and ADHD. Table 1 illustrates the demographic information for each group. Due to the range of assessments used to determine adaptive functioning and the difference in scoring methods of each, it was not possible to

determine an overall range or mean score or to validate the CAIDS-Q directly using adaptive behaviour scores. All participants had, however, been assessed as having a diagnosis of ID or not on the basis of all three diagnostic criteria, including adaptive functioning and the CAIDS-Q was validated against this overall diagnostic classification.

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No significant differences were found between the two groups in relation to gender, however, those with ID were found to be significantly older than those without (t(19)=2.95, p=.008).

Measures

Intellectual functioning

Information about intellectual functioning was provided from the Wechsler Intelligence Scales for Children – fourth edition (WISC IV: Wechsler, 2003) or the Wechsler Adult Intelligence Scales- third edition (WAIS III: Wechsler, 1997) depending on the age of the participant at assessment, both of which have good reliability and validity (Groth-Marnat, 2000).

Screening for Intellectual Disability

The screening tool used in the pilot was the CAIDS-Q (McKenzie, Paxton et al., 2012). This is a 7 item questionnaire that yields a percentage score and which has been found to have good face, construct and criterion validity, inter-rater reliability and developmental sensitivity when used to screen for children and adolescents aged 96-216 months for probable ID (Ibid). It is designed to be used by a range of people, with minimal instruction and does not require specialised training or qualifications to use.

Data analysis

The data were used to examine the convergent and discriminative validity of the CAIDS-Q in the young offender population.

 Results

Convergent validity:

A Pearson's correlation illustrated a significant positive relationship between CAIDS-Q scores and full scale IQ, (r (23) = .76, p = .01), supporting the convergent validity of the scale. Significant correlations were also found between the CAIDS-Q score and Verbal Comprehension (r (21) = .54, p = .012), Perceptual Reasoning (r (21) = .65, p = .002), Working Memory (r (20) = .52, p = .018) and Processing Speed (r (20) = .74, p = .001). All of the correlations had a large effect size (Cohen, 1992).

Discriminative validity

The ability of the CAIDS-Q to discriminate between those with and without an ID was measured in three ways:

Comparison of CAIDS-Q scores

A significant difference was found between the CAIDS-Q scores of those with (mean = 37.9, SD = 18.1) and without ID (mean = 84.7, SD = 12.8), using an independent t test (t(21)= -7.23, p <0.001), with the latter being significantly higher (large effect size: *d*=2.98).

Positive predictive power

Positive predictive power was calculated as the number of young offenders with ID who were correctly identified by the CAIDS-Q as such (N=8) divided by the overall number

of positives, both correct and incorrect, that the CAIDS-Q identified (N=8). This resulted in a positive predictive power value of 100%.

Negative predictor power

Negative predictive power was calculated as the number of young offenders who did not have ID who were correctly identified as such by the CAIDS-Q (N=15) divided by the overall number of negatives, both correct and incorrect, that the CAIDS-Q identified (N=15).This resulted in a negative predictive power value of 100%.

Internal consistency

Internal consistency indicates whether the items on a scale are measuring the same construct. The extent to which the individual items on the CAIDS-Q intercorrelated was measured using Cronbach's alpha. Good internal consistency was indicated by a Cronbach's alpha value of .723 (Terwee et al., 2007).

Discussion

Research has indicated that young people with ID appear to be over-represented at various stages of youth justice procedures (Frize et al., 2008); that many are subject to disadvantage and discrimination within the system and that screening assessments are often used sporadically and inappropriately, with information about their validity and reliability frequently being unknown (Talbot, 2010). Failure to identify and appropriately meet the needs of young offenders with ID, places services at risk of breaching human rights and equality legislation, as well as limiting the life chances of the young person (Ibid)

All of this indicates an urgent need for the introduction of a routine and standardised screening and assessment process, using valid and reliable tools. It was in this context that the

present pilot study aimed to explore the convergent and discriminative validity of the CAIDS-Q as a screening tool in a young offender population.

The study found that both the convergent and discriminative validity of CAIDS-Q were supported in the settings evaluated. Convergent validity measures the relationship between two related constructs, in the present study this was the relationship between CAIDS-Q scores, full scale IQ and composite scores. In relation to this, positive relationships were found between full scale IQ, the four composite scores and CAIDS-Q scores, all with large effect sizes. This is consistent with the first diagnostic criterion of ID, significant impairment of intellectual functioning (American Psychiatric Association [APA], 2000), illustrating that the higher the full scale IQ and composite scores of the young offender, the greater his/her CAIDS-Q score is likely to be, and vice versa.

The study also supported the discriminative validity of the CAIDS-Q. A significant difference was found between those young offenders with and without ID, with the former having significantly higher CAIDS-Q scores, again with a large effect size. Importantly, in contrast to a number of screening tools (see Ford et al., 2008) the CAIDS-Q was validated against an independently determined diagnosis of ID based on all three diagnostic criteria. Both positive and negative predictive power are also useful indicators of the discriminative validity of a screening tool (Glascoe, 2005a,b) as they illustrate the ability of a tool to correctly identify true positives and true negatives respectively. The present study found that the CAIDS-Q had 100 % positive predictive and negative predictive power, accurately discriminating between all of the young offenders with and without ID in the present study. The latter is higher than typical positive predictive values demonstrated by screening tools (Gladcoe, 2005b). This indicates that the CAIDS-Q will not over-identify people who are likely to have ID, which is important in terms of ensuring that: subsequent diagnostic assessment is targeted at those who are most likely to have ID; resources and support are

focused on those who are likely to need them most; and those who do not have ID are not subject to the unfortunate negative consequences of being considered to have ID, such as stigma (Paterson, McKenzie & Lindsay, 2011).

The results, while positive, must be treated with some caution due to a number of limitations of the study. As a pilot study, the numbers involved were relatively small and were derived from different settings in the UK. This situation arose for a number of reasons. It was extremely beneficial to have the opportunity to have an independent evaluation of the CAIDS-Q in English services which had no previous connection with the authors of the CAIDS-Q, however unfortunately this did not yield a sufficient sample size on its own to achieve statistical power for the analyses. As a result additional data were included from Scottish health service forensic services for young people. Unfortunately, in common with other areas (Hall, 2000) the number of such services that provide input to young people with ID is extremely limited. This necessitated combining data from four different services in order to achieve a suitable sample size. This approach has been taken in other studies evaluating screening tools in forensic settings (e.g. Ford et al., 2008) however the extent to which this impacts on the performance of the screening tools under investigation is unknown.

A second related limitation was that the pilot was restricted to health services, whereas there are a number of stages in the criminal justice process where it would be important to screen for ID, including on arrest, prior to court proceedings and at reception in prison or young offender units.

Thirdly, the present sample was a purposive one, targeted at services which were highly likely to include young people with ID. As such the incidence of ID found in the pilot is unlikely to represent the prevalence of young people with ID in criminal justice services more widely.

An additional limitation was that, due to a number of different adaptive assessments being used to assess the adaptive functioning diagnostic criterion for ID, it was not possible to determine the convergent validity of the CAIDS-Q as compared with a single measure of adaptive functioning. Despite this, the discriminative validity of the CAIDS-Q was established in relation to an independently determined diagnosis of ID based on all three criteria of ID, including adaptive functioning.

Further research with larger sample sizes in a range of settings is, therefore, required before the results can be generalised with confidence. Despite this the study had sufficient power and yielded both significant results and large effect sizes.

It also needs to be emphasised that a screening assessment, while invaluable in giving some indication of the potential vulnerabilities of a young offender, should just be one step in a coordinated and integrated process that provides a full assessment of the person's support needs during his/her stay in, and after leaving, youth justice services (Talbot, 2010). Unfortunately the number and availability of specialist services for young offenders with ID is limited (Hall, 2000) and increasingly recommendations have focused on the need for increasing the knowledge and skills of youth justice staff and developing robust local systems which coordinate service provision between specialist ID and youth justice services (Talbot, 2010). .

Conclusions

The pilot study indicated support for the discriminative and convergent validity of the CAIDS-Q in the young offender settings studied and as such, may offer a suitable screening tool for identifying young offenders who are likely to have ID. In particular, it may offer an alternative in services that currently use unvalidated screening tools or tools that were not

designed for screening for ID. Further research is needed before the results of the study can

be generalised with confidence.

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Table 1: Demographic information about the participants

	Age (months)		Gender		Full Scale IQ		Verbal Comprehension		Perceptual Reasoning		Working Memory		Processing Speed	
Group	**Range**	**Mean (SD)**	**M (%)**	**F (%)**	**Range**	**Mean (SD)**	**Range**	**Mean (SD)**	**Range**	**Mean (SD)**	**Range**	**Mean (SD)**	**Range**	**Mean (SD)**
Intellectual Disability	191-218	202.7 (10.4)	6 (75)	2 (25)	54-69	62.7 (6.7)	59-83	69.5 (7.8)	56-84	68.6 9.9	62-77	70.9 (5.6)	53-85	66.1 (11.2)
No Intellectual Disability	130-206	177.2 (22.9)	11 (73)	4 (27)	70-102	80.4 (9.7)	73-112	87.4 (15.1)	73-112	87.4 (11.8)	56-102	79.5 (12.2)	74-97	86.6 (7.8)