

International Association for the
Scientific Study of Intellectual Disabilities –
11th World Congress, Seattle
1-6 August, 2000

Early intervention or early incarceration?

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*Symposium – Important issues on offenders with
intellectual disabilities*

Introduction

In many western jurisdictions, including Australia, people with an intellectual disability are significantly over-represented in the criminal justice system (Hayes and Craddock, 1992). The Standing Committee of the New South Wales (Australia) Parliament, addressing the issue of *Crime Prevention through Social Support* comments that “this alone should suggest that this group should be a key target of crime prevention efforts” (NSW Standing Committee, 1999, Chapter 8). Risk factors for children that predict later offending include – disability, low intelligence, challenging behaviour, deficits in adaptive behaviour, and poor problem solving (National Crime Prevention, 1999).

Preventing people with an intellectual disability from becoming involved in the criminal justice system requires early identification of problem behaviours and other risk factors, and availability of programs and resources to address these. The risk factors may be noticed at pre-school, school, home and work, during regular health check ups, or during social and recreational activities. Many offenders with intellectual disabilities are not clients of specialist disability agencies, however. They may have been clients during childhood or school years, but that support may have dropped away. Some have never been clients of such specialist agencies. Often, families and caregivers may have tried for a long time to access appropriate assistance for the “behaviour problem”, but to no avail. In other cases, young people with an intellectual disability have been mis-diagnosed as having attention deficit disorder or another condition which serves to exclude them from receiving specialist assistance from intellectual disability services.

Therefore, many offenders with an intellectual disability enter the criminal justice system without having received appropriate services and supports, and their disability is undiagnosed. Early and accurate identification of the presence of intellectual disability is vital within the justice system, if they are to receive appropriate services, the protections offered to this group by law, diversion from the criminal justice system when appropriate, and suitable rehabilitation programs.

Early identification of the presence of intellectual disability is important not simply to the individual offender, however, but is also to the criminal justice system itself, and for the benefit of victims and witnesses.

The system fails these individuals, and thus the public, usually because it ignores them...And routine screening would be required for identification, since persons with [intellectual disability] often try to conceal their disabilities. (Rand, 1997).

Furthermore, failure to identify the presence of disability can result in court cases having to be aborted. For example, in New South Wales, Australia, as in many other jurisdictions, police now have an obligation to provide special assistance to vulnerable suspects, during police interviewing and detention (*Crimes Amendment (Detention after Arrest) Act 1997 (NSW) and Regulation 1998*). These are important new policing requirements, and failure to comply with the requirements may have serious implications for the police case against a suspect.

As mentioned previously, the person with an intellectual disability may be a suspect, but also a witness to a crime, or a victim of crime. Clearly, it is important that police know about a person’s intellectual disability in these circumstances, too, so that the victim or witness can be interviewed appropriately. Whether or not the victim or witness is able to give reliable evidence could be an issue during the case, and police may need to obtain an expert assessment of the witness (Hayes and Craddock, 1992). The Report of the NSW Law Reform Commission into *People with an intellectual disability in the criminal justice system* (NSW Law Reform Commission, 1996) stated that:

[T]he first issue which must be addressed in any [Police] Code of Practice is guidelines for identifying whether a person being questioned, whether suspect, victim or witness, may have an intellectual disability. (pp107-108)

For a decade or more, the need for a screening test for intellectual disability in the justice system has been highlighted.

Developing and piloting the Hayes Ability Screening Index (HASI)

An instrument was required which could be useful in determining those clients in the justice system who may have an intellectual disability and need to be referred for full-scale diagnostic assessment, or who were vulnerable during police questioning or custody. The first step in development of the Hayes Ability Screening Index (HASI) was selection of a comprehensive screening battery of items and tests that could be useful. The screening battery consisted of tests such as

- Draw-A Person
- Matrix Analogies Test
- A version of the many Clock Drawing tests
- Trail Making
- Gibson Spiral Maze
- Mini-Mental State Examination items
- Literacy items
- Self-report questions about the individual's background.

The benchmark tests were the Kaufman Brief Intelligence Test, or the Wechsler Scales for adults or adolescents for cognitive functioning, and the Vineland Adaptive Behavior Scales to assess adaptive behavioural functioning. In the first phase of development, the battery, which took nearly three hours to complete, was administered by psychologists to 339 adult and adolescent, male and female inmates of correctional centres in New South Wales.

After extensive data analyses, many items and tests were deleted, and a shorter battery was devised, which was administered to a further 231 participants in legal aid offices, Juvenile Justice community offices, and a male and a female adult prison. Again, the results were compared with the same benchmark tests. The items and tests were further culled until only those which discriminated most effectively between intellectually disabled and non-disabled participants remained. The final version of the HASI takes about 5-10 minutes to administer, and consists of

- several self-report questions
- backwards spelling
- a "join the dots" puzzle
- a clock drawing sub-test

The sub-test results in the final version are **weighted** according to a formula based on regression equations and Receiver Operating Characteristic (ROC) curve analyses, a feature which increases diagnostic accuracy and sets the HASI apart from other screening instruments.

The HASI is designed to be administered by non-psychologists. The Index does not diagnose the presence of intellectual disability, but rather identifies those people who either need to be referred for further diagnostic assessment, or in a police setting, need to have implemented the protections offered to vulnerable suspects. The Index is designed to be over-inclusive, and may also identify individuals suffering from a psychiatric illness or substance abuse disorder, or who cannot speak any English. All of these groups will benefit from further assessment or special protections whilst in police custody. Furthermore, in many cases these other conditions may mask the presence of intellectual disability.

The total number of participants cooperating in the phases of development of the HASI numbered 567, and within this group were several significant sub-groups – people with an intellectual disability and non-disabled people, males and females, adults and juveniles, indigenous Australians, non-indigenous Australians, and

people born outside of Australia. (There were some missing data for individuals, and so sub-group totals may not always sum to this total; furthermore, data about indigenous background was not collected in all studies.)

Table 1. Gender and age of participants

Gender	Under 18	Over 18	Total
Male	133 23.5%	291 51.3%	424 74.8%
Female	28 4.9%	115 20.3%	143 25.2%
TOTAL	161 28.4%	406 71.6%	567 100.0%

How well does the HASI discriminate between disabled and non-disabled participants?

Operationally, intellectual disability was defined as a standard score (SS) of less than 70 on the Kaufman Brief Intelligence Test (KBIT) or Wechsler tests, and/or the Vineland Adaptive Behavior Scales (VABS). Of those who had valid scores on the relevant tests, 17.4% were below 70 on the KBIT or Wechsler, and 27.8% on the VABS.

In the under-18 group, 16.2% were below 70 on the KBIT, and 28.0% on the VABS. Statistical analyses showed no significant difference between results for juvenile and adult offenders. Both groups had higher proportions performing poorly in adaptive behaviour skill areas.

When indigenous and non-indigenous groups were compared, however, significant differences emerged on both the KBIT and the VABS. The differences between the means for each test was significant. T-test for equality of means was significant at .002 for the KBIT and .005 for VABS. Other studies (Hayes, 1993; Hayes, 1996) indicate that whilst the differences between indigenous and non-indigenous offender groups may arise partly as a result of culturally biased psychometric instruments (especially tests of adaptive behaviour), there also appears to be a real difference in prevalence and severity of disability. The few studies of disability amongst indigenous Australians which have been conducted indicate that the rate of disability is higher than for non-indigenous Australians, with developmental disability being the most frequent primary disabling condition affecting males (Thomson and Snow, 1994). The over-representation of indigenous people with intellectual (and possibly other disabilities) in the criminal justice system is not surprising, given the poor health status of indigenous Australians, and the dearth of disability services in remote rural regions which could ameliorate the likelihood of entering the justice system.

Table 2. Standard scores for indigenous and non-indigenous groups

Test	Indigenous status	N	Mean	Std. Deviation
KBIT Composite SS	Not indigenous	189	87.29	16.74
	Indigenous	114	81.31	15.80
Vineland Composite SS	Not indigenous	205	83.37	21.27
	Indigenous	120	76.88	18.18

Whilst the tests **may** be culturally biased (there is no real evidence one way or the other), if indigenous people are disadvantaged in the justice system by poor communication skills in English, or by behaviours which do not accord with the "norm" in the dominant culture, these factors should be identified so that this group is not discriminated against further.

This then is the challenge for the HASI – to discriminate between disabled and non-disabled groups of people within the criminal justice system, and to identify those who may be at risk, without being generically biased against juvenile offenders, indigenous offenders, or either of the genders.

ROC Curve Analyses

Receiver Operating Characteristic (ROC) curve analyses were used to examine the effectiveness with which the HASI discriminated between disabled and non-disabled participants, disability being assessed on the KBIT and VABS tests (Schoonjans, 1998). ROC curves are used to determine the ability of a test to discriminate “cases” from “non-cases”, that is, to make a correct diagnosis. As noted previously, the cut off point for defining the disabled group was a standard score of less than 70, compared with 70 and over for those classified as non-disabled.

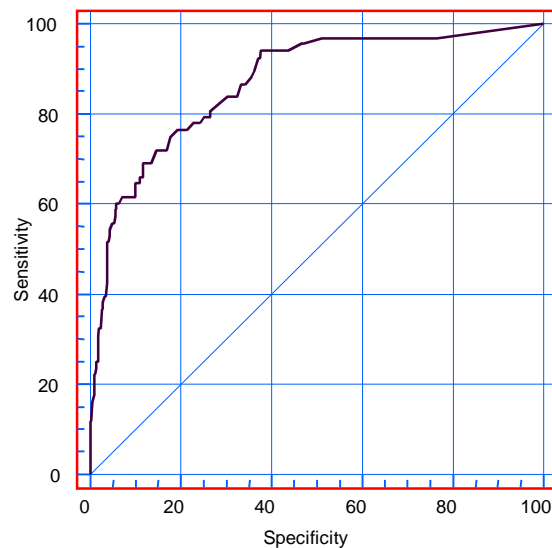
For ROC curve analyses, disease prevalence was assumed to be 3%, in accordance with population studies of intellectual disability.

The *Sensitivity* of a test is the probability that a test result will be positive when the disease is present (true positive rate, expressed as a percentage).

The *Specificity* is the probability that a test result will be negative when the disease is not present (true negative rate, expressed as a percentage).

The *Area under the ROC curve* is interpreted as follows. When a variable cannot distinguish between the cases and non-cases, the area will be 0.5 and the ROC curve is diagonal. The closer the value is to 1, the less overlap between the two distributions and the greater the differentiation between the groups.

Figure 1. Using the HASI to diagnose intellectual disability (KBIT) - total sample



The area under the ROC curve is .870, whereas a perfect diagnostic instrument would achieve an area of 1.00. A cut-off score of 85 on the HASI for the **adult** participants was found to be optimum for discriminating between the groups – those with a score of 84 or less on the HASI should be referred for full-scale diagnostic assessment, or treated as a “vulnerable person” whilst in police custody. A cut-off score of 89 was found to be optimum for **juveniles**.

Comparing the HASI, KBIT and VABS – ROC curve analyses

The following figures compare the predictive ability of the HASI with the VABS and KBIT instruments. There were no significant differences between the areas under the ROC curves when the HASI was compared with the two other tests, for the total sample and for the sub-groups. Owing to space considerations, only some of the comparative ROC curves are shown here. Further details about the HASI may be found in the Manual (Hayes, 2000).

Figure 2. Comparison of HASI and VABS in predicting KBIT - total sample

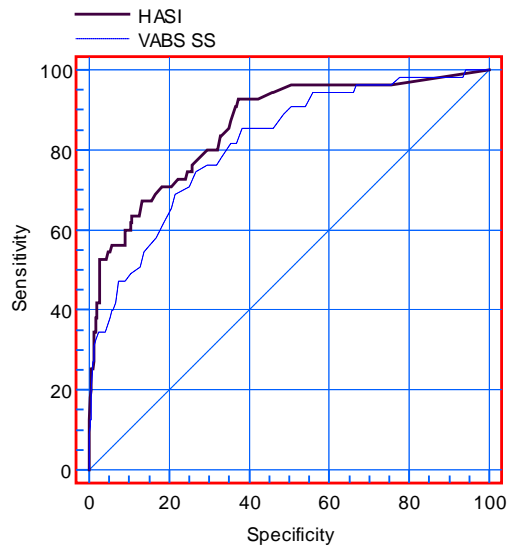


Figure 3. Comparison of HASI and KBIT in predicting VABS - total sample

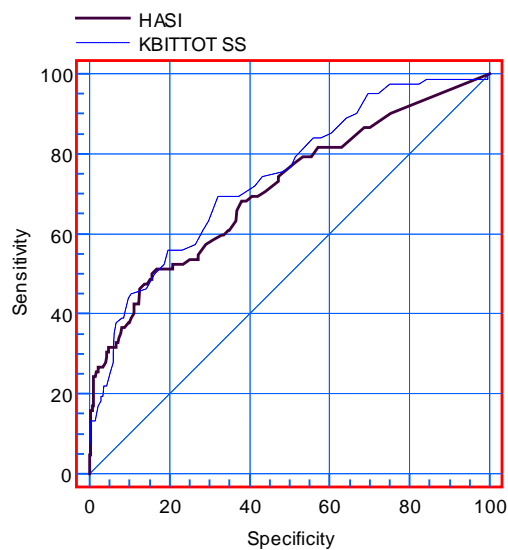


Figure 4. Comparison of HASI and VABS in predicting KBIT – indigenous sub-group

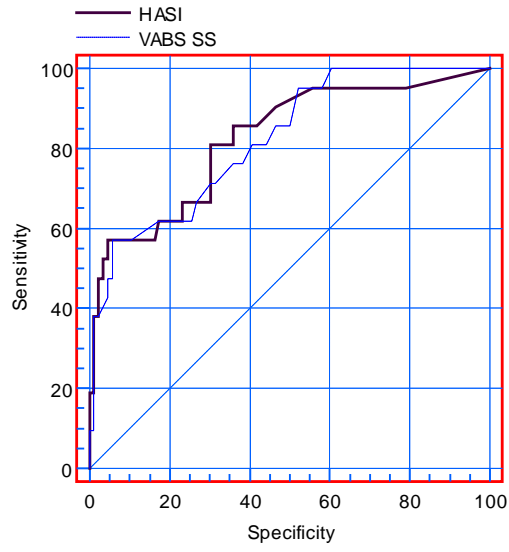
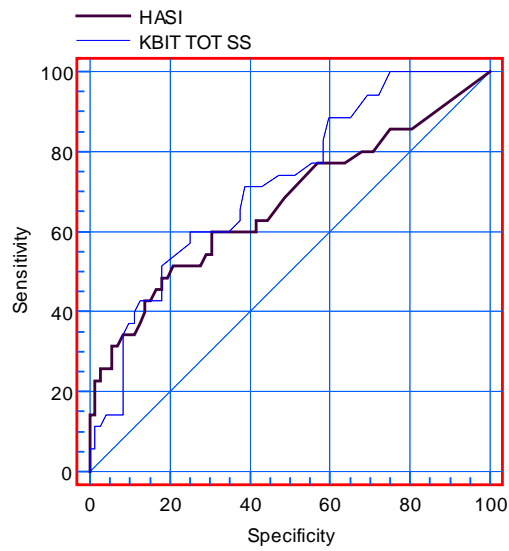


Figure 5. Comparison of HASI and KBIT in predicting VABS – indigenous sub-group



Correlating the HASI with the KBIT and VABS

Pearson 2-tailed correlation coefficients were computed between HASI, KBIT and VABS results, the results being shown in Table 3.

Table 3. Correlation of HASI with VABS and KBIT

<i>Criterion Measure and Groups</i>	<i>N</i>	<i>Correlation with HASI Score</i>
<i>Total Sample</i>		
K-BIT Composite score	410	.627*
VABS Composite score	376	.497**
<i>Adult Females</i>		
K-BIT Composite score	98	.638**
VABS Composite score	82	.606**
<i>Adult Males</i>		
K-BIT Composite score	165	.701**
VABS Composite score	138	.651**
<i>Under 18s</i>		
K-BIT Composite score	146	.500**
VABS Composite score	152	.203*
<i>Indigenous***</i>		
K-BIT Composite score	110	.631**
VABS Composite score	116	.504**
<i>ATSI***</i>		
K-BIT Composite score	81	.631**
VABS Composite score	86	.480**
<i>Adult ATSI***</i>		
K-BIT Composite score	33	.712**
VABS Composite score	35	.705**
<i>Juvenile ATSI</i>		
K-BIT Composite score	48	.506**
VABS Composite score	51	.174
<i>Juvenile Sample 1999</i>		
WISC-III full-scale IQ score	45	.404**

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

*** "Indigenous" refers to participants who stated that they were of Aboriginal, Torres Strait Islander, Maori or Pacific Islander background, whereas "Non-Indigenous" refers to those who did not belong to these ethnic groups. "ATSI" refers only to Aboriginal and Torres Strait Islander participants and does not include Maori or Pacific Islander. Data regarding ethnic background were not collected for all pilot studies.

Whilst the HASI correlates significantly with the KBIT and the VABS, the correlations are higher for the KBIT than for the VABS. This may be because there are greater variations in adaptive behaviour on the part of juveniles, as young people have wider ranges in their levels of maturity and acceptable behaviour.

The only correlation that was not significant was between the HASI and VABS for under-18 Aboriginal and Torres Strait Islander participants, possibly indicating different cultural standards of adaptive behaviour for young indigenous people.

Does the HASI work in prisons?

The HASI was trialed in a male and a female adult prison in Sydney, with the cooperation of the NSW Department of Corrective Services. A total of 159 prisoners participated in the study, and the HASI was administered by alcohol and other drug professional staff, soon after a prisoner's reception to the

correctional centre. The results indicated that the HASI was 100% successful at predicting intellectual disability as measured using the KBIT, and 82% successful on the VABS. Therefore, in this real life situation, the HASI was very good at identifying the “true positive” participants.

The true negative rate was also high. The HASI excluded 82% of those who were assessed on the KBIT as **not** being disabled, and 70% of those similarly assessed on the VABS. Thus, the HASI is cost-effective for corrective services, in identifying those prisoners who need full-scale diagnostic assessment.

Future directions

The HASI is now published and available for use by those organisations involved in the justice system that need to identify the presence of intellectual disability amongst their client group, but who may not have the resources to undertake a full-scale diagnostic assessment of **all** their clients. The HASI website can be found on - <http://www.usyd.edu.au/su/bsim/hasi>

A number of government and non-government agencies, both within Australia and internationally, have expressed interest in using the HASI. Some of these include the NSW Departments of Corrective Services and Juvenile Justice, Legal Aid Commission of NSW, the UK Association of Police Surgeons, the Federal Police Service, the NSW Police Service, the Western Australian Ministry of Justice and Legal Aid in Western Australia, as well as adolescent mental health services in Australia and the UK.

The HASI will continue to undergo revision and development. Clearly, one direction will be to make the instrument even more language and culture-fair than it already is, so that inmates from different cultural backgrounds and those with almost no English can be assessed more accurately. Pilot studies of alternative sub-tests are underway.

This instrument’s usefulness in screening for intellectual disability, or competence to give consent to medical treatment in hospital emergency rooms, will be studied. The HASI may also be a useful screening tool for social security/ welfare agencies.

The results of the many research studies undertaken during the development phase of the HASI indicate that this instrument is a valid and useful tool for screening the population of people within the criminal justice system, and discriminates well between those who may have an intellectual disability and those who are non-disabled. The HASI is useful for ensuring the optimum use of scarce psychiatric and psychological resources within the criminal justice system, whilst ensuring that the rights of people with an intellectual disability are protected.

Identification of individuals with intellectual disability in the criminal justice system is not a panacea to the difficulties facing this group, or the system itself. There must be greater emphasis on prevention, accompanying law reforms, increased professional education for police, lawyers, the judiciary, and correctional staff, more emphasis on prevention of criminal behaviour, and provision of appropriate diversionary programs. Early identification of the presence of disability can provide a lever, however, for increased awareness of the challenges of meeting the needs of this group, and obtaining more resources in specialist areas within the criminal justice system. Equally importantly, recognition of the over-representation of this group in the justice system can provide impetus for provision of more and better programs by the other societal institutions whose roles are to support and assist people with intellectual disabilities, and to prevent entry into the justice system.

Any programs, particularly early childhood intervention, which assist lower socio-economic groups in general are likely to assist in reducing the numbers of [people with an intellectual disability] involved in the criminal justice system. Crime prevention through social support has many positive outcomes, often beyond its immediate target. The over-representation of [people with an intellectual disability] in corrective services and juvenile justice is a powerful argument for the need for increased investment in early childhood intervention. (NSW Parliamentary Standing Committee on Law and Justice, 1999, Chapter 8).

References

- Hayes, S. (1993). *People with an intellectual disability and the criminal justice system: appearances before local courts. Research Report 4*. Sydney: New South Wales Law Reform Commission.
- Hayes, S. (1996). *People with an intellectual disability and the criminal justice system: two rural courts. Research Report 5*. Sydney: New South Wales Law Reform Commission.
- Hayes, S. (2000). *Hayes Ability Screening Index (HASI) manual*. Sydney: Behavioural Sciences in Medicine, University of Sydney.
- Hayes, S., & Craddock, G. (1992). *Simply criminal*. (2nd edition ed.). Sydney: Federation Press.
- National Crime Prevention. (1999). *Pathways to prevention: developmental and early intervention approaches to crime in Australia*. Canberra: National Crime Prevention, Commonwealth Attorney-General's Department.
- New South Wales Law Reform Commission. (1996). *People with an intellectual disability and the criminal justice system. Report No. 80*. Sydney: NSW Law Reform Commission.
- New South Wales Parliament Standing Committee on Law and Justice. (1999). *Crime prevention through social support - first report*. Sydney: Parliament of New South Wales.
- Rand Research Brief. (1997). Criminal justice policies toward the mentally retarded are unjust and waste money. *RB-4011*.
- Schoonjans, F. (1998). *MedCalc statistics for biomedical research software manual*. Belgium: MedCalc.
- Thomson, N., & Snow, C. (1994). *Disability and handicap among Aborigines of the Taree area of New South Wales*. Canberra: Australian Institute of Health and Welfare.