

# A pilot study assessing initial psychometric properties of “the risk insight scale”

Gareth Hickman and Antonia Morris

## Abstract

**Purpose** – This paper aims to report on the development of a psychometric measure of insight, *The Risk Insight Scale*. This measure is intended to assess the insight and understanding of individuals with intellectual disabilities (ID) who engage in offending and/or risky behaviour. The measure assesses insight in two domains: insight into offending and/or risky behaviours and insight into the need for treatment for offending and/or risky behaviours.

**Design/methodology/approach** – Forty secure inpatients with ID were assessed using the measure. Preliminary data are presented on inter-rater and test-retest reliability, internal consistency and validity.

**Findings** – The data demonstrate that the new tool has good internal consistency, good inter-rater reliability and good test-retest reliability.

**Research limitations/implications** – The psychometric measure must be completed by someone who is familiar with the patient. More data is needed to validate the measure at this stage. Further discussion is provided regarding insight as a construct and its role in risk assessment.

**Practical implications** – The psychometric measure is both of potential benefit in clinical settings with regard to informing risk assessment and case management and may also serve as an effective tool in intervention outcome evaluation and academic research trials.

**Originality/value** – The generation of new tool to support and enhance risk assessment, specifically in supplementing assessment of insight in individuals with ID with offending and/or risky behaviour.

**Keywords** Intellectual disabilities, Insight, Risk, Offending behaviour, Psychometric assessment

**Paper type** Research paper

Gareth Hickman and Antonia Morris are both based at the Department of Secure Services, Coventry and Warwickshire Partnership NHS Trust, Coventry, UK.

## Introduction

Clinical observations of adult offenders with intellectual disabilities (ID) within a regional secure service have highlighted that despite objectively recorded reductions in offending and “challenging behaviours” in service users, often, standardised outcome measures demonstrate negative patterns of self-reported outcomes. For example, following social and interpersonal problem-solving interventions, relationship enhancement programmes or anger management therapy, outcome measures (such as the Social Problem-Solving Inventory, SPSI, D’Zurilla *et al.*, 2001, or the Novacco Anger Scale and Provocation Inventory, NAS-PI, Novacco, 2003) show increases in self-reported perceived clinical difficulty. Put simply, despite objective evidence to the contrary, it would appear that the initial difficulties have worsened following intervention according to the service users’ self-report.

It is understood that outcome assessment with individuals with ID can be confounded by multiple factors, for example, level of intellectual impairment, level of understanding, retention, acquiescence, suggestibility, response biases, the level of adaption provided by different assessors, impression management, effort and motivation to list a few; all of which can impact the reliability and validity of the obtained scores. However, a common hypothesis in ID services is that the initial self-report demonstrated an under-estimation of

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*Implications for practice:* Development of a new psychometric measure for insight into offending and treatment need.

Potential benefit in clinical settings to inform risk assessment and case management with individuals with both mild and moderate ID.

May serve as an effective tool in intervention outcome evaluation and academic research trials.

difficulty and an over-estimation of coping ability or skills on behalf of the service user, and that through intervention, the individual develops a greater insight and understanding into their difficulties, and therefore, at post-intervention, the individual is better placed to offer a more accurate appraisal of their difficulty. To date, there is no formal measure of insight into offending and/or challenging behaviour for adults with ID available to explore this hypothesis more thoroughly. As such, the current research sets out to address this.

Offending behaviour can be considered as behaviour that violates a given rule or commonly the law. However, it is also recognised that some individuals in health and social care services may have offending, pre-offending or offence paralleling behaviour that has not led directly to a conviction. In addition, some individuals may display behaviours that would not constitute offending or cause any contact with the criminal justice system; however, it does cause concern to others. Such behaviour is often identified as challenging behaviour. A commonly cited definition of challenging behaviour is offered by [Emerson and Bromley \(1995\)](#): “Behaviour of such intensity, frequency and duration that the physical safety of the person or others is placed or 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 access to ordinary community facilities, services and experiences”.

However, it is commonly considered that challenging behaviour has at its core a “communicative intent”, whereas offending behaviour has at its core “a criminal intent” ([Doyle, 2004](#); [Boer and Iyer, 2020](#)). It is this behaviour that the current research focuses on, and as such, will define such pre-offending or offence paralleling behaviour that has not led directly to a conviction as “risky behaviour”. It is therefore insight into offending and/or risky behaviour that the current psychometric tool is developed to assess.

Lack of insight has long been regarded as an important feature of mental ill health ([Kraepelin, 1919](#); [McEvoy, 1989](#)), with significant research specifically focusing on schizophrenia. Generally, models of insight suggest that it is a multidimensional construct that occurs on a continuum ([Amador and David, 1998](#); [David et al., 1992](#)). The contemporary approach focuses on the patient’s awareness (or more accurately the unawareness) of several attributes. For example, do the patients recognise:

- that they are suffering from a mental illness;
- that their symptoms are pathological;
- that they need treatment; and
- that the cause or source of their symptoms is an illness? ([Beck et al., 2004](#))

A number of psychometric measures of insight into mental health exist (e.g. ITAQ, [McEvoy, 1989](#); Beck Cognitive Insight Scale, [Beck, 2004](#); Self-Appraisal of Illness Questionnaire, SAIQ, [Marks et al., 2000](#)).

At this point, it is relevant to address the validity of insight as a construct. Concepts such as mental illness, risk, symptomatology, the nature and causes of symptoms of “illness” or risk have large subjective components in their social construction. Arguably, attempts at measuring insight may indeed reflect measurements of “agreement with professionals”. Does measured understanding or insight reflect true insight and understanding or simply the degree to which the evaluatee agrees with the perceptions of the evaluator? It is anticipated that the development of the current tool will allow assessors to identify an individual’s understanding of the nature of their risks and the contributory factors, which may contribute to the validity of the insight construct.

A number of historical and more recent tools have been developed that focus on some aspects of insight measurement more specifically related to offending. For example, [Woods, Reed and Robinson \(1999\)](#) developed the *Behavioural Status Index (BSI)*, which is a classification instrument offering practical approaches to assessment and therapy

surrounding social “risk”, rather than insight *per se*. They report that personal insight and communicative and social skills are relevant to violent and dangerous risk behaviours. *The sex offender treatment rating scale* developed by [Anderson et al. \(1995\)](#) was intended as a potential process and outcome measure for cognitive/behavioural sex offender treatment and consists of six clinical item-categories, amongst which is insight, or understanding of personal offence motives, beliefs and attitudes. The ratings are combined to produce a single treatment progress score. [Timmerman et al. \(2001\)](#) published *The forensic inpatient observation scale (FIOS)*, a 78-item scale designed for use in secure settings. This scale is designed to assess the non-offending functioning of forensic patients. Within this scale, four items relate specifically to insight into behaviour. Lastly, more recently, [Cai et al. \(2014\)](#) developed *The rating scale of criminal responsibility for mentally disordered offenders (RSCRs)*. The scale includes 18 items. Amongst these is assessment of impairment of insight. However, this is only one aspect of the wider measure. All these tools focus on mainstream populations and a range of wider self-awareness factors and do not specifically relate to insight into offending, risk and treatment needs.

To date, a measure of insight into risky behaviour in individuals with ID is yet to be developed. In addition, insight into offending behaviour, which is a key to recidivism and risk reduction and is rated on formal structured professional judgement tools assessing risk (e.g. Historical Clinical and Risk Management R-20, [Douglas et al., 2013](#)), is yet to be developed in this population, or a general offender population.

The current research seeks to develop a measure of insight for individuals with ID who engage in offending and/or risky behaviour. This measure expands the assessment of insight into offending behaviour to assessing insight into risky behaviour more widely to increase the utility and application of the tool.

The aim of the current research is, therefore, to assess the preliminary statistical properties of a new psychometric measure of insight. This measure is intended to assess the insight and understanding of individuals with ID who engage in offending and/or risky behaviour. The measurement scale aims to assess insight in two domains:

1. insight into offending and/or risky behaviours; and
2. insight into the need for treatment for offending and/or risky behaviours

The measure, which has been developed through clinical practice and following guidance outlined by other authors ([Germain and Tejada, 2012](#); [Tay and Jebb, 2017](#)), aims to be suitable for assessing insight into offending behaviour; however, it recognises that some individuals may have offending, pre-offending or offence-paralleling behaviour that has not led directly to a conviction. As such, the wording permits assessment of behaviours that may cause problems or lead to an individual getting into trouble. The scale can therefore be used to assess an individual’s insight into “risky behaviour” or behaviour that may cause problems (by omitting the word “offending”) in those who do not demonstrate behaviour that would necessarily constitute “offending”. The measure is primarily designed for use with inpatient populations; however, it can be used in community services. The measure is designed for use with adults with ID, although there is no specified age range. The only criterion for administration is that individuals assessed are able to consent to the assessment and have sufficient cognitive ability to understand the concepts and language of the scale.

The Risk Insight Scale (RIS) was developed using an inductive approach and followed a three-stage process: domain identification, content validation and pilot testing. In the first stage, a series of items were generated by a small group of multi-disciplinary professionals (psychologists, allied health professionals). These items were refined and simplified; however, they follow a 5Ps formulation approach ([Macneil et al., 2012](#)) to the insight concept. Therefore, the measure asks questions to identify if a person has insight into their

offending and treatment by asking questions about insight into their current presentation and the factors that predispose, precipitate and perpetuate their problems. They are also asked about their insight into their protective factors. The initial series of items was reviewed by a small group of service users for representativeness, comprehensiveness and clarity (Grant and Davis, 1998). Content validation was facilitated by review of the adapted measure and elimination of items, and by seeking review from local university experts and service users. Lastly, the measure was piloted with the target group of service users and items and content refined.

### *Aims*

The exact aims of the study were as follows:

- to develop the insight measure;
- to test the hypothesis that the scale has acceptable inter-rater reliability, test–retest reliability and internal consistency;
- to test the hypothesis that verbal IQ is not related to higher insight scores;
- to compare the current insight scale with clinician rated insight scores on the historical clinical and risk management-20 (HCR-20); and
- to compare scores on the insight scale with stage of treatment pathway to assess if those nearer the end of the treatment pathway had higher levels of insight.

### *Method*

#### *Ethics*

The researchers submitted the research through the NHS Integrated Research Application System (IRAS), and ethical approval was granted by the Coventry and Warwickshire Research Ethics Committee.

#### *Participants*

Forty male adults with mild ID were recruited via a method of self-selection from a regional medium and low secure service in Birmingham, UK. All service users were subject to hospitalisation under the Mental Health Act (1983/2007) and had histories of offending behaviour and were considered to present with ongoing risk of offending and/or risky behaviour.

Participants were identified initially through MDT discussions with the clinical team to identify those eligible. The primary inclusion criteria were that individuals were aged 18 or more years, had a previously assessed mild-moderate ID, were inpatients as stated above, had the ability to speak and understand English and had capacity to give or withhold consent to take part in the study. Only individuals deemed mentally well/stable enough to take part in research by health-care clinicians working with them were eligible to participate. The study was advertised and discussed with those eligible, and they were invited to volunteer.

It was clearly stated and emphasised in all participation communications that the individuals were able to opt-in or opt-out of the research at any time, and that their participation decisions had no effect on their care plan or the treatment they received. It was imperative that participants understood that their participation in this research had no influence on their individual assessment of risk and/or their detention under the Mental Health Act. The current research was subject to full ethical review and approval by the West Midlands – Coventry and Warwickshire Research Ethics Committee (Health Research Authority, HRA).

## Design

The study made use of a simple correlational and a repeated-measures design to examine test–retest reliability and questionnaire validity. A single group of adults with ID were recruited from the inpatient secure service, and completed measures on two occasions, separated by two weeks, to allow for assessment of the test–retest reliability of the measure.

## Instruments

*The Risk Insight Scale* This was developed and used within the current study to obtain specific information regarding insight into offending and/or risky behaviours, eight items for Scale A; and insight into the need for treatment for offending and/or risky behaviours, six items for scale B. Items are scored: 0, no indicated insight; 1, partial/possible insight; 2, good/full insight. Scores on the scale have the following range: Scale A 0–16; Scale B 0–12; total score 0–28. At present, there are no identified cut-off scores; therefore, higher scores indicate higher levels of insight. Examples of questions for insight into offending and/or risky behaviours include “What things led to you to do your offences/behaviours?” and “What might make you more likely to do offences/behaviours that cause problems or get you in trouble in the future?” Examples of questions for insight into the need for treatment for offending and/or risky behaviours include “When you first came to this service, did you need treatment to stop doing offences/behaviours that caused problems?” and “Can treatment help to stop you doing offences/behaviours that cause problems?”

*Historical clinical and risk management-20* (Douglas et al., 2013). The HCR-20 risk assessment is in three sections: historical (H), clinical (C) and risk (R), which correspond to variables from the past, present and future. It provides a standardised schedule for the assessment of risk of future violence. Within this scale, insight is considered a dynamic variable and is clinician evaluated in three areas on item: C1 mental disorder, violence risk and need for treatment. On this assessment, clinician assessors rate the presence of problems with insight using the following scoring: 0, not a problem; 1, possibly/partially a problem; 2 present problem. The HCR-20 is only scored numerically for the purposes of research. In clinical practice, as per the manual and guidance of the authors, it is interpreted qualitatively.

## Procedure

All service users meeting the inclusion criteria were eligible to participate in the study and nominated themselves through MDT discussions. Two assessors reviewed the participants' most recent HCR-20 risk assessment to (re)familiarise themselves with the service user, their risks, offending/risky behaviour and treatment pathway. Data was gathered from clinical histories, including age, Wechsler Adult Intelligence Scale (WAIS) IQ testing and stage in treatment pathway. The secure service in which the current pilot study took place operates a seven-stage treatment pathway from pre-admission through to discharge; these stages can be seen in [Table 1](#). As the researchers were part of the individual's current clinical team, they had prior knowledge of all patients through clinical MDT discussions. The assessors then met with the participant together and one assessor administered the measure. Both assessors recorded responses independently and independently scored the tool. This procedure was repeated, separated by two weeks, to allow for examination of the test–retest reliability of the scale.

## Results

Using data from the 40 participants, the internal consistency, test–retest and inter-rater reliability were calculated for the RIS. The RIS consisted of 14 items (good internal consistency ( $\alpha = 0.88$ )). The insight into violence subscale contained eight items ( $\alpha = 0.77$ ),

| Table 1 Demographic information                |             |
|------------------------------------------------|-------------|
| Mean age (SD)                                  | 33.2 (10.2) |
| Mean FSIQ                                      | 61.4        |
| Mean VIQ                                       | 66.5        |
| Level of security                              |             |
| Medium                                         | 20          |
| Low                                            | 20          |
| Seven stages in treatment pathway              | N           |
| 1: Pre-admission                               | 0           |
| Activity undertaken prior to admission         |             |
| 2: Admission                                   | 10          |
| Initial admission and entrance to service      |             |
| 3: Getting started                             | 3           |
| Stabilisation, assessment, formulation         |             |
| 4: Doing the work                              | 16          |
| Active intervention and treatment phase        |             |
| 5: Doing it for myself                         | 3           |
| Consolidation and independent risk management  |             |
| 6: Getting ready to move on                    | 8           |
| Discharge planning                             |             |
| 7: Discharge                                   | 0           |
| Activity undertaken to discharge from hospital |             |

and insight into treatment need contained nine items ( $\alpha = 0.87$ ). There was good test-retest ability over a two-week period. A Pearson correlation coefficient was computed to assess the test-retest ability over a two-week period. There was a high degree of correlation between the ratings at the two time intervals  $r(29) = 0.90$ ,  $p = <0.001$ . Cohen's  $\kappa$  was run to determine if there was agreement between the two raters' judgements on the RIS. There was fair agreement between the scores given by the two raters,  $\kappa = 0.212$  (95% CI, 0.073 to 0.351),  $p < 0.001$ . A high degree of reliability was found between the raters' scores. The average measure ICC was 0.964, with a 95% confidential interval from 0.931 and 0.981 ( $F(39,39) = 27.477$ ,  $p < 0.001$ ).

There were missing data points for the HCR-20 scores of six participants, which were not included when considering the relationship between the RIS and HCR-20 insight scores. A  $\chi^2$  test of independence was performed to examine the relation between HCR-20 C1b and C1c scores and the RIS Total A and Total B scores. The relation between Total A RIS score and HCR-20 C1b scores was not significant,  $\chi^2(24, N = 34) = 30.21$ ,  $p = 0.178$ . The relation between Total B and HCR-20 C1c scores was significant,  $\chi^2(18, N = 34) = 31.79$ ,  $p = 0.023$ .

There were missing data points for the IQ scores of ten participants, which were not included when considering the relationship between IQ and RIS scores. IQ score was measured using the WAIS Version 4. A Spearman's rank-order correlation was calculated to determine the relationship between patient IQ score and RIS score. There was a negligible correlation between IQ score and RIS scores ( $r_s(19) = 0.238$ ,  $p = 0.030$ ).

There was a non-significant correlation between Total RIS score and stage in treatment pathway ( $r_s(21) = 0.753$ ,  $p = 0.221$ ), refer to [Table 2](#).

| Table 2 Total RIS score and stage in treatment pathway/FSIQ |      |                         |      |               |      |
|-------------------------------------------------------------|------|-------------------------|------|---------------|------|
| Total RIS score                                             |      | Treatment pathway stage |      | Full-scale IQ |      |
| M                                                           | SD   | M                       | SD   | M             | SD   |
| 9.76                                                        | 6.00 | 3.76                    | 1.79 | 61.43         | 5.24 |

## Discussion

The current study paper set out with five key aims outlined in the introduction. To this end, a tool has been developed that is designed to assess the insight and understanding of individuals with ID who engage in offending and/or risky behaviour, and we have sought to establish some of its initial psychometric properties. Specifically, the measure assesses insight into offending and/or risky behaviours and insight into the need for treatment for these behaviours. The data demonstrate that the new measure has good internal consistency, good inter-rater reliability and good test–retest reliability.

The data also demonstrate that there was no significant correlation between FSIQ and insight score. This can be understood as demonstrating that having a lower level of intellectual and verbal ability does not preclude someone from demonstrating good levels of insight on this measure. This is a positive finding and may support people with a moderate LD to have their insight explored more accurately with the support of the RIS when conducting risk assessments.

The current research also compared attained insight scores on the new measure to the existing attained scores of each participant using the HCR-20 risk assessment items C1b) Insight into violence risk and C1c) Insight into need for treatment. On this assessment, clinician assessors rate the presence of problems with insight using the following scoring: 0, not a problem; 1, possibly/partially a problem; 2, present problem. Whilst the scores were not significantly similar, there was a general trend where people who scored present for insight on the HCR-20 also scored poorly on the RIS measure. More data may be able to clarify this relationship. Although it was not significant, it may be helpful for clinicians to gather information for risk assessments qualitatively from the RIS. For insight into treatment, the RIS and HCR-20 scores were more agreeable on presence vs non-presence than on where there may be partial insight problems. This could indicate that by evaluating insight in a more comprehensive structured manner, a better assessment is achieved for the HCR-20 scoring and more generally.

Furthermore, attained insight scores on the new measure were compared to where service users are along their treatment pathway. The results indicate that those individuals who are in the early stages of their treatment pathway demonstrate lower levels of insight than those at the end of the treatment pathway and closer to discharge; however, this correlation was not significant. This lends some support to the validity of the measure in accurately assessing treatment gains whilst also highlighting how insight can fluctuate across the treatment pathway and is not the only measure of treatment gains.

Wider debate of course exists regarding the concept of insight in general. At this stage, it is recognised that effective evaluation using this tool requires some pre-existing knowledge of the service user/respondent and their needs and risks. In this regard, it could be argued that what is measured here is “agreement with professionals”. Do attained ratings reflect true insight levels or the degree to which the evaluatee’s responses agree with the perceptions of the evaluator? This is of course a criticism that can be targeted at any assessment using this structured interview approach, clinician evaluator approach rather than self-report scales. Previous research has established that a moderate correlation exists between several researcher-rated and self-report insight scales in mental health, and [Young \*et al.\* \(2003\)](#) have explored this further suggesting that evaluator–evaluatee interactions are likely to involve a bias that impacts scores. This research is from the field of psychosis, however, and uses participants with normative intellectual functioning. Self-report scales in ID populations are limited in use due to the literacy demands of such measures, which the current tool seeks to address.

A further wider question relates to the role of denial in assessment of insight into offending risk. It is possible that low insight scores, in reality, reflect high denial scores. Therefore, respondents may have high levels of insight into their risk, but simply deny this for socially

desirable or related reasons. It is believed that constructs such as guilt, shame and anxiety are associated with denial (Tangney *et al.*, 2011), and therefore, accurate assessment of these concepts alongside the assessment of insight is likely to be required as part of a comprehensive assessment.

A final point of consideration relates to the nature of insight as predictive of risk of future violence and recidivism. Some authors (Forde, 2017; Coid, 2011; Bjørkly, 2006) have pointed to a lack of strong evidence for this variable being associated with a higher risk of violent re-offending. This measure may assist in evaluating this further, by generating greater accuracy in assessment of insight.

### *Clinical application*

The development of the current tool provides promising first steps in the development of an additional psychological assessment of insight into offending and/or risky behaviours and insight into the need for treatment for these behaviours. With caution, it is envisaged that this tool could have a potential future range of clinical and research applications. This could include being a supplement to risk assessments using structured professional judgement tools (such as the HCR-20), as part of an assessment of treatment need, evaluation of treatment progress, as part of capacity assessments or in the context of research or evaluation trials. It may also have a potential clinical use in a range of settings, such as inpatient, community or custodial. It is also possible that the use of this tool may also be expanded beyond ID populations. It is acknowledged, however, at this stage, more research is required to establish the reliability and validity of the measure particularly given the important implications for risk assessment and impact on clients, such as increasing or decreasing risk levels, supervision and restrictions.

### *Limitations*

There are a number of limitations that require addressing. Firstly, outcome assessment with individuals with IDs can be confounded by multiple factors, e.g. level of intellectual impairment, level of understanding, retention, acquiescence, suggestibility, response biases, the level of adaptation provided by different assessors, impression management, effort and motivation, to list a few; all of which can impact the reliability and validity of the obtained scores and should be borne in mind when considering this assessment approach. This measure requires that the assessor is familiar with the individual being assessed so that a judgement can be made on the level of assessment they present with. It is not possible for a truly independent rater to do this without familiarity with the person and their offending behaviour and need for treatment. In addition, it is acknowledged that this is a relatively homogenous and small sample size with some missing and incomplete data sets, e.g. in regard to available IQ data. There was a non-significant relationship between RIS score and HCR-20 score. An increase in sample size across different sites could investigate this further.

### *Future steps*

Given the promising first steps, the next phase of research will need to focus on further establishing the reliability and validity of the measure, particularly the construct and content validity. However, expanding the trial to a larger more heterogeneous sample will be an appropriate next step.

While higher scores were indicative of higher levels of insight, at present, the RIS does not provide sufficient data to allow us to establish predictive scores or cut-offs that can reliably be used in clinical practice; with the collection of further data, this will be more possible. In addition, it will be useful to explore its use as an evaluative outcome measure for treatment

pathways and interventions. Lastly, it will be of benefit to explore the use of the measure with other populations, such as individuals with ID in admission services or community-based services without forensic convictions, or alternatively non-ID offenders, such as prison populations, and of course expanding the sample to be more heterogeneous.

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### Corresponding author

Gareth Hickman can be contacted at: [Gareth.Hickman@covwarkpt.nhs.uk](mailto:Gareth.Hickman@covwarkpt.nhs.uk)

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