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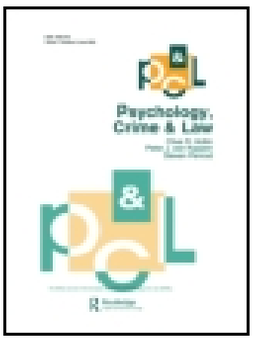

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The reliability and validity of a revised version of the How I Think Questionnaire for people who have intellectual disabilities

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Abstract

The aim of the current study was to revise an existing measure of distorted cognitions, creating the How I Think Questionnaire – Intellectual Disabilities (HIT-IDs), and to investigate the reliability and validity of the revised questionnaire. To achieve our aims, we recruited 97 men with intellectual disabilities (IDs), with or without a history of engaging in criminal behaviour, and interviewed them on two occasions, inviting them to complete the HIT-IDs, along with measures of moral development and empathy. The results indicated that the internal consistency of the HIT-IDs was acceptable, and the test-retest reliability was good. The HIT-IDs discriminated well between offenders and non-offenders, and as expected, correlated positively with a measure of moral development and negatively with a measure of empathy. The HIT-IDs is a reliable and valid measure for use with men who have IDs.

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KEYWORDS: Neurodevelopmental disorders, learning disabilities, moral development, Sociomoral Reflection Measure-Short Form, Empathy Quotient

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The reliability and validity of a revised version of the How I Think Questionnaire for people who have intellectual disabilities

While there are some robust measures of distorted cognitions for people with IDs that are offence specific (e.g. Questionnaire on Attitudes Consistent with Sexual Offending; Lindsay & Michie, 2004; Lindsay *et al.*, 2006), there is a clear absence of questionnaires that measure offence supportive cognitions more generally. This is problematic, as reliable and valid measures of offence supportive cognitions are needed to help assess both dynamic risk, and outcomes from treatment programmes.

Previously, Langdon *et al*. (2011c) made use of the How I Think Questionnaire (HIT; Barriga & Gibbs, 1996; Barriga, Gibbs, Potter, & Liau, 2001) with a sample of men with and without IDs, who either did or did not have a history of criminal offending, but they did not explore or consider the psychometric properties of the questionnaire further, bearing in mind that the HIT did discriminate between offenders and non-offenders with IDs within their study. It was noted by those administering the HIT at the time that some participants appeared confused by the Likert response scale, which includes six choices, while participants also appeared to have difficulty with understanding some of the language, drawing the validity of some responses on the original questionnaire into doubt. There is little in the way of clear and empirically derived evidence as to what works well for people with IDs when developing and designing questionnaires, with many relying on anecdotal evidence or opinions. Questionnaires may be developed using simple language or choosing to use few response options within forced choice questionnaires in an attempt to improve validity. While many consider "easier to read" materials helpful in improving understanding for people with IDs, recent evidence suggests that these types of aids (e.g. simplified language accompanied by pictures or drawings) do not actually improve understanding, and what may be beneficial is actually taking the time to explain information to people with IDs (Buell, Langdon, Bunning, & Pounds, 2016; Buell, Pounds, Bunning, & Langdon, 2016).

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The HIT was originally developed and validated using samples of adolescents aged 12 to 21, and had internal consistency that ranged from, $\alpha = .63$ to .96, depending on the subscale or summary score (Barriga *et al.*, 2001). The HIT also correlated well with self-reported and informant-reported antisocial behaviour, and a measure of anger, while the measure discriminated well between adolescents with and without a history of criminal offending behaviour (Barriga *et al.*, 2001). A meta-analysis involving a very large sample of participants has revealed that the HIT has excellent internal consistency and discriminated between those with and without a history of criminal offending well (Gini & Pozzoli, 2013).

While the HIT was developed for use with adolescents within the United States, it has been translated into several different languages, including Dutch (Nas, Brugman, & Koops, 2008), French (Plante *et al.*, 2012; Van Leeuwen, Chauchard, Chabrol, & Gibbs, 2013), Italian (Bacchini, De Angelis, Affuso, & Brugman, 2015), Spanish (Fernández, Rodríguez, & Gibbs, 2013) and Swedish (Wallinius, Johansson, Larden, & Dernevik, 2011), and the reliability and validity of the HIT has been consistently favourable, bearing in mind that Wallinius *et al.* (2011) suggested an alternative factor solution for the HIT, as compared to the one reported by the original authors (Barriga *et al.*, 2001).

Considering the importance of having robust measures of distorted cognitions that can be used with offenders with IDs, the aim of the current study was to revise the HIT, creating the How I Think Questionnaire – Intellectual Disabilities (HIT-IDs), based on our experience of using this questionnaire previously, and to investigate the reliability and validity of the new questionnaire. To achieve our aims, we recruited men with IDs, with and without a history of engaging in criminal behaviour, and interviewed them on two occasions, inviting them to complete the HIT-IDs. Our specific aims were to: (a) calculate the internal consistency of all the subscales and the total score at both Time 1 and 2, and compare this to that calculated using data from a study (Langdon *et al.*, 2011c) where the unmodified version of the HIT was used with men with IDs, (b) determine the test-retest reliability, (c) investigate the discriminant validity by comparing a sample of offenders and

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non-offenders with IDs; it was hypothesised that men with IDs and a history of criminal offending should score significantly higher on the HIT-IDs than men with IDs and no such history, and (d) investigate the construct validity by correlating scores on the HIT-IDs with a measure of moral development and a measure of empathy; it was hypothesised that the HIT-IDs should correlate positively with a measure of moral development and negatively with a measure of empathy.

Method

Participants

Forty-six men with IDs, M_{age} = 33.49, *SD* = 12.67, *Range* = 41; M_{IQ} = 63.20, *SD* = 4.67, *Range* = 20, who had a documented history of criminal offending behaviour, and fifty-one men with IDs, M_{age} = 41.16, *SD* = 13.74, *Range* = 49; M_{IQ} = 60.70, *SD* = 5.10, *Range* = 22, and no known history of engaging in criminal offending behaviour took part in this study. Men with IDs who had a history of criminal offending were recruited from secure services within the eastern region of England, while men with IDs and no such history were recruited from the community throughout the same region. Offenders with IDs were significantly younger, t (95) = 2.83, p = .006, and had a significantly higher Full Scale IQ, t (95) = 2.50, p = .014. Participants were considered eligible to take part in this study if they were (a) a man aged between 18 and 65 years, (b) who had a mild intellectual disability, and (c) had capacity to give or withhold informed consent. Participants with a history of offending behaviours were only included if they had a history of committing an indictable offence, rather than a summary offence, or an 'either-way' offence. This means that the participants included within this study had committed serious offences that can only be tried by a Crown court within England and Wales. This includes offences such as those involving violence (e.g. murder, manslaughter, wounding), sexual offences, burglary, robbery, theft, criminal damage (e.g. arson), drug offences, and kidnapping, amongst others. A full breakdown of the most recent indictable offence for the men with IDs who had a history of criminal offending is found in Table 1, and was generated through both self-report and checking health records.

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INSERT TABLE 1 ABOUT HERE

Participants were excluded if they (a) had a known history of acquired brain injury or a diagnosis of dementia, (b) were a woman, or (c) were unable to speak English. Women were excluded from this study for two reasons: (a) there is some evidence that women and men may score differently on measures of related constructs, such as empathy (Baron-Cohen & Wheelright, 2004); and (b) the population of offenders with IDs within secure services in the United Kingdom are predominantly men.

Design & Procedure

A mixed 2 (Offenders or Non-Offenders) x (2 (Time 1 or 2) x *SJ* design was used. Participants were invited to complete the How I Think Questionnaire, along with several other measures as detailed below, on one occasion. Two-weeks later, participants were invited to complete only the How I Think Questionnaire a second time.

Measures. ***The How I Think Questionnaire*** (HIT; Barriga & Gibbs, 1996; Barriga *et al.*, 2001). The HIT is a self-report measure of distorted and offence-supportive cognitions, originally developed for adolescents. The questionnaire measures cognitive distortions across the four-categories developed by Gibbs and Potter (Gibbs, 1991, 1993, 2013; Gibbs, Potter, & Goldstein, 1995) as (a) Self-Centred, (b) Blaming Others, (c) Minimising and Mislabelling, and (d) Assuming the Worst. In addition, four behavioural referent categories are also incorporated within the HIT, and are labelled (a) Oppositional Defiance, (b) Physical Aggression, (c) Lying, and (d) Stealing. An Anomalous Responding subscale is also included. Three summary scores are generated, labelled as follows (a) Overt Scale, (b) Covert Scale, and (c) Total Score.

With permission from the publisher, who retain the copyright, and based on our experiences of using the original HIT questionnaire within a previous study involving people with IDs (Langdon *et al.*, 2011c), we made a series of modifications to the HIT in an attempt to increase accessibility for

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people with IDs, creating the How I Think Questionnaire – Intellectual Disabilities (HIT-IDs) for use within Great Britain. Initially, we replaced words that were not British or were judged to be complex. Second, we ensured our changes were associated with a Flesch Reading Ease Score (Flesch, 1948) that was greater than 80, which is generally considered to easier to read. Finally, we changed the response framework from a 6-point Likert scale to a 4-point Likert scale and included a visual analogue scale. In total, 12 changes were made to the HIT as detailed in Table 2. The mean item Flesch Reading Ease Score for the HIT-IDs questionnaire was 87.31.

INSERT TABLE 2 ABOUT HERE

Sociomoral Reflection Measure – Short Form (SRM-SF; Gibbs, Basinger, & Fuller, 1992). The SRM-SF is a production measure of moral reasoning and has been shown to possess high levels of test-retest reliability (r=0.88; Gibbs *et al.*, 1992), and excellent internal consistency (α =0.92; Gibbs *et al.*, 1992). Langdon *et al*. (2010c) demonstrated that the SRM-SF has substantial internal consistency and good test-retest reliability when used with men with IDs. The SRM-SF appears valid as it is positively correlated with the Moral Judgement Interview, and discriminates between children of differing chronological ages, as well as between 'delinquent' and 'non-delinquent' adolescents (Gibbs *et al.*, 1992). The measure comprises eleven questions pertaining to the following seven constructs, (a) Contract (questions one to three), (b) Truth (question four), (c) Affiliation (questions five and six), (d) Life (questions seven and eight), (e) Property (question nine), (f) Law (question ten), and 9g) Legal Justice (question eleven). Each question is relatively brief, and invites the respondent first to consider the importance of behaving in a certain manner, or making a certain decision, within the context of a forced choice. For example, when asked the question, "Think about when you've made a promise to a friend of yours. How important is it for people to keep promises, if they can, to their friends?", the respondent is asked to choose whether this is very important, important, or not important. Next, respondents are asked to consider further by answering the following question, "Why is that very important / important / not important?". Respondents write their answers on the

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questionnaire, or give them orally to be recorded by the interviewer. All answers from the IDs-Group were recorded by the interviewer. Verbatim answers are scored according to a set of rules and heuristics, and the development of proficient and reliable scoring occurs through the use of practice scoring material (Gibbs *et al.*, 1992). Responses to each question are assigned a developmental rating which corresponds to a moral stage associated with Gibb's Socio-Moral Reasoning Theory. Scores across all the questions are then summed and the mean is calculated and multiplied by 100, yielding a possible score of 100 to 400. These scores correspond to a person's global moral stage. The inter-rater reliability of the scoring of the SRM-SF was calculated using an expert rater (PL) who scored a random sample of 25% of completed questionnaires. Interrater reliability was determined to be r_i=0.96 using an intraclass correlation.

Empathy Quotient (EQ; Baron-Cohen & Wheelwright, 2004). The EQ is a self-report measure of global empathy comprising three main aspects: (a) cognitive empathy, reflected in statements such as "I can't always see why someone was offended by a remark", and (b) emotional reactivity or affective empathy, e.g. "I get upset if I see people suffering on the news programmes", and social skills, e.g. "Friends usually talk to me about their problems as they say I am very understanding". Higher scores indicate greater empathy. In the general population, and when used with people who have autistic spectrum conditions, the EQ has robust psychometric properties. The EQ has been previously used with men who have IDs and the internal consistency was, $\alpha = .64$, which rates as "questionable", but was based upon a sample comprising only 35 participants (Hockley & Langdon, 2015; Langdon & Hockley, 2012). However, the measure successfully discriminated between offenders and non-offenders with IDs within this study (Hockley & Langdon, 2015; Langdon & Hockley, 2012). The internal consistency of the EQ for the current study was, $\alpha = .70$.

General Intellectual Functioning. Where available, the Full Scale Intelligence Quotient (IQ) of participants was taken from medical records if this had been estimated using any version of the

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Wechsler Scales. When this was not available, we estimated the Full Scale IQ using a two subtest version of the WASI (Wechsler, 1999); this was completed for 73% of the participants.

Procedure. Following a favourable ethical opinion from the Southwest National Research Ethics Committee (Reference: 13/SW/0084), information about the study was disseminated to secure and community services for people with IDs across the east of England. Staff working within recruitment sites were encouraged to share information about the study with participants likely to meet the inclusion criteria. Those participants who expressed an interest in taking part where visited by a researcher who sought informed and recorded consent to take part in the study. All participants were told that they could have someone else present during any meeting with a researcher. Information about the study was read aloud for those participants who struggled with reading. Participants were told they could take up to two-weeks to make a decision about whether to take part in this study. Those participants who agreed to take part in this study were invited to complete the questionnaires, and asked to complete only the HIT questionnaire following a two-week period.

Data Analysis. Initially, Cronbach's α was calculated for each of the subscales and the total score of the HIT-IDs, at both Time 1 and Time 2, in order to provide an estimate of internal consistency. We examined test-retest reliability by calculating the mean intraclass correlation coefficient, r_i. To investigate the discriminant validity of the HIT, we completed a mixed MANOVA incorporating both Group (Offenders or Non-Offenders) and Time (1 or 2) as factors. Finally, we investigated the construct validity of the HIT-IDs by undertaking a series of partial correlations, controlling for Full Scale IQ, between the HIT-IDs and the SRM-SF and the EQ at both Time 1 and 2.

Results

Internal Consistency and Test-Retest Reliability

The internal consistency of the subscales of the HIT-IDs ranged from, $\alpha = .64$ to .86 (Table 3). All the subscales fell within the "acceptable" range or higher, except the Blaming Others subscale,

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which fell within the "questionable" range, but only at Time 2; at Time 1 this fell within the "acceptable" range, $\alpha = .71$. Considering the Overt, Covert and Total score for the HIT-IDs, both at Time 1 and Time 2, these fell within the "good" to "excellent" range, and ranged from, $\alpha = .86$ to .95. The internal consistency calculated following our modifications was higher than that calculated using data generated from a previous study using an unmodified version of the HIT with men who had IDs (Table 3). The two-week test-restest reliability for the HIT-IDs was "good", r_i = .80 (Table 3).

INSERT TABLE 3 ABOUT HERE

Discriminant Validity

There was no significant difference between Time 1 and 2 on all subscales, nor the Overt, Covert and Total Score of the HIT-IDs, with the exception of the Lying subscale; scores were significantly lower at Time 2, as compared to Time 1, F (1, 95) = 4.963, p = .028. Men with IDs who had a history of criminal offending, scored higher than men with IDs and no such history, on the Self-Centred, F (1, 95) = 10.63, p = .002, Blaming Others, F (1, 95) = 6.45, p = .013, Minimising and Mislabelling, F (1, 95) = 4.62, p = .034, Assuming the Worst, F (1, 95) = 12.18, p = .001, Opposition Defiance, F (1, 95) = 8.73, p = .004, Physical Aggression, F (1, 95) = 8.00, p = .006, Lying, F (1, 95) = 8.93, p = .004, and Stealing, F (1, 95) = 5.28, p = .024, subscales. Men with IDs and a history of criminal offending also scored significantly higher on the Overt, F (1, 95) = 9.53, p = .003, and Covert, F (1, 95) = 9.67, p = .002, or Total score, F (1, 95) = 10.12, p = .002, while they scored significantly lower on the Anomalous Responding subscale than those without a history of criminal offending, F (1, 95) = 18.80, $p < .001$. (Table 4).

There was a significant Group X Time interaction for the Anomalous Responding, F (1, 95) = 4.61, p = .034, and the Minimising and Mislabelling, F (1, 95) = 8.06, p = .006, subscale, as well as the Covert, F (1, 95) = 4.85, p = .030, and Total score, F (1, 95) = 4.60, p = .035. Inspection of these interactions revealed that across Time, men with IDs who had a history of criminal offending scored lower on the Minimising and Mislabelling subscale, and the Covert and Total score, while they

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scored higher on the Anomalous Responding subscale, as compared to men with no such history (Table 4).

INSERT TABLE 4 ABOUT HERE

Convergent Validity

There was a significant positive correlation between the HIT-IDs and the SRM-SF, at both Time 1, r (93) = .29, p = .002, and Time 2, r (93) = .19, p = .034, controlling for Full Scale IQ. There was a significant negative correlation between the HIT-IDs and the EQ, again, at both Time 1, r (94) = -.27, p = .003, and Time 2, r (94) = -.31, p = .001.

Supplementary Analysis

Men with IDs and a history of criminal offending behaviour scored significantly higher than men with IDs and no such history on the SRM-SF, F (1, 93) = 24.99, $p < .001$, when Full Scale IQ was controlled. Men with IDs and a history of criminal offending behaviour scored significantly lower than men with IDs, and no such history, on the EQ, F (1, 94) = 5.31, p = .023, again, when Full Scale IQ was controlled. There was no significant relationship between age and the HIT-IDs at either Time 1, r (96) = -.13, p = .20, or Time 2, r (96) = -.12, p = .23, nor was there a significant relationship between age and scores on the SRM-SF, r (96) = -.05, p = .66, or the EQ, r (96) = .10, p = .32. As would be anticipated, there was a significant positive relationship between Full Scale IQ and SRM-SF scores, r (96) = .36, $p < .001$, and a significant negative relationship between Full Scale IQ and the EQ, r (97) = -.22, p = .03. There was no significant relationship between Full Scale IQ and scores on the HIT-IDs at either Time 1, r (97) = -.15, p = .15, or Time 2, r (97) = .04, p = .74.

Discussion

Reconsidering the aims and hypotheses, initially, the findings indicated that the internal consistency of the HIT-IDs was acceptable, with the exception of one subscale at Time 2, but nevertheless, our modifications led to an improvement in the internal consistency of the HIT-IDs.

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The test-retest reliability of the HIT-IDs was good. Second, as predicted, men with IDs and a history of criminal offending had significantly higher scores on all the subscales and the Overt, Covert and Total scores of the HIT-IDs, as compared to men without such a history, indicating that the HIT-IDs has discriminant validity, and further highlighting that information processing has a likely role to play in the commission of criminal offending behaviour by some men with IDs. Finally, and again as predicted, scores on the HIT-IDs correlated positively with moral development, and negatively with empathy, and indicated that the HIT-IDs has convergent validity.

As such, it is appropriate to conclude that the HIT-IDs appears to be a reliable and valid measure of distorted cognitions for use with men who have mild IDs. On first glance, the positive correlation between moral development and distorted cognitions may appear counterintuitive, as more mature moral development should be associated with fewer distorted cognitions, considering there is a negative relationship between moral development and offending behaviours amongst adolescents (Stams *et al.*, 2006). However, as previously reported and discussed in several studies, it appears the case that both men or women with IDs who have a history of criminal offending appear to have more "mature" moral development, in comparison to people with IDs and no such history; bearing in mind that both groups present with "immature" moral development in comparison to typically developing, chronological age matched peers (Langdon, Clare, & Murphy, 2010a, 2010b; Langdon, Clare, & Murphy, 2011a; Langdon *et al.*, 2010c; Langdon *et al.*, 2011c; McDermott & Langdon, 2016). This means that "Stage 2" moral reasoning is more prevalent amongst offenders with IDs, while "Stage 1", or moral reasoning associated with the rules and an avoidance of punishment is more prevalent amongst those with IDs who have no history of criminal offending behaviour (See Langdon, Clare, & Murphy, 2011b for further discussion) which would tend to account for the absence of criminal offending, and is consistent with the account given by Bear & Rys (1994) in relation to school children. Consistent with these previous studies, participants with a history of criminal offending did actually have significantly more mature moral development than participants with no such history (Table 4); bearing in mind that both groups had "immature" moral

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development. Considering these findings, it was therefore hypothesised that offenders, who were likely to endorse a greater number of distorted cognitions, would also have "more mature" moral development, and as such, there should be a positive correlation between moral development and distorted cognitions when used with people who have IDs.

There are some strengths and weaknesses to the current study which need to be considered. First, the study was well designed, and while having made use of a convenience sample, which does allow for the introduction of some sampling bias, the population included was thought to be representative of men with mild IDs using either community services or detained in secure hospitals. The reason for this is that we drew our sample from across the eastern region and included multiple secure and community services, rather than focus on recruiting from one or two services. Second, we are confident that the men in our study with a history of criminal offending had committed an indictable offence considering that we used a combination of self-report and checking of records. Third, while the mean age and Full Scale IQ of our two groups was significantly different, there was no relationship between either age or Full Scale IQ and scores on the HIT-IDs at either Time 1 or Time 2. Related to this, it is an inherent weakness that the WASI was used to estimate intellectual functioning for a large number of our participants as there is some evidence to suggest that this method may lack a degree of validity and reliability (Axelrod, 2002); this means that we may have overestimated or underestimated the Full Scale IQ of a large proportion of our sample, balancing against the fact that our sample was taken from services specifically for people with IDs. Finally, it is important to point out that the HIT-IDs is only appropriate for use with those who have mild IDs, as we did not include participants with IDs that fell below the mild range within our study.

In conclusion, the findings from this study indicated that the HIT-IDs is an appropriate measure to use with men who have IDs. Future clinical trials of psychological interventions for men with IDs who have a history of criminal offending behaviours should consider including the HIT-IDs as an

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outcome measure, while further research is needed to examine the reliability and validity of the HIT-IDs with women with IDs, and to investigate the factor structure of the HIT-IDs.

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Table 1

The most recent indictable offence for the men with intellectual disabilities who had a known history of engaging in criminal offending behaviours.

Offence Type	Frequency (%)
Violent offences	
Manslaughter	1 (2.2)
Murder	2 (4.3)
Attempted murder	1 (2.2)
Wounding or other act endangering life	11 (23.9)
Sexual Offences	
Sexual assault (under 13)	8 (17.4)
Sexual assault (adult)	6 (13.0)
Sexual activity (under 13)	6 (13.0)
Rape	1 (2.2)
Abuse of children through prostitution and pornography	2 (4.3)
Acquisitive Offences	
Burglary	1 (2.2)
Robbery	1 (2.2)
Criminal Damage	
Arson	2 (4.3)
Other Indictable Offence	4 (8.7)

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Table 2

Modifications to the How I Think Questionnaire (HIT)

Original Item (Item Number)	FRE (%)	Rationale for Change	New Item (FRE, %)
I can't help losing my temper a lot (2)	92.9	Ambiguous sentence	I lose my temper a lot (100.00)
I am generous with my friends (9)	87.9	Substituted 'Generous.'	I give a lot to my friends (100.00)
When I get mad, I don't care who gets hurt (10)	100.00	Substituted 'mad.'	When I get angry, I don't care who gets hurt (100.00)
Sometimes I gossip about other people (13)	31.5	Low FRE	Sometimes I talk about other people when they don't know (69.7)
Everybody lies, it's no big deal (14)	59.7	Low FRE	Everyone lies. It's not a problem to lie (86.4)
I have sometimes said something bad about a friend (20)	66.1	Low FRE	Sometimes I have said bad things about a friend (84.9)
If a store or home owner gets robbed, it's really their fault for not having better security (25)	65.1	Low FRE and substituted 'store.'	If shops get robbed it's their fault for not having good security (74.8)
People are always trying to hassle me (29)	78.8	Substituted 'hassle.'	People are always trying to get on my nerves (94.3)
Stores make enough money that it's ok to just take the things you need (30)	95.9	Changed 'stores' to 'shops.'	Shops make enough money that it's ok to just take the things you need (95.9)
It's important to think of other people's feelings (34)	61.2	Low FRE	I should think about others feelings (73.8)
If someone is careless enough to lose a wallet, they deserve to have it stolen (39)	61.8	Ambiguous sentence	It's ok to steal a wallet if someone leaves it behind (80.3)
When I lose my temper, it's because people try to make me mad (46)	89.5	Removed 'mad.'	When I lose my temper, it's because people try to make me angry (83.0)

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Table 3

Internal consistency and test-retest reliability for the How I Think Questionnaire – Intellectual Disabilities (HIT-IDs)

	Time 1	Time 2	Unmodified Version[1]
Measure	$\alpha =$	$\alpha =$	$\alpha =$
How I Think Questionnaire - IDs			
Anomalous responding	.81	.80	.71
Self-centred	.79	.79	.72
Blaming others	.71	.64	.68
Minimising/mislabelling	.83	.85	.59
Assuming the worst	.82	.80	.78
Opposition defiance	.79	.75	.74
Physical aggression	.86	.84	.74
Lying	.78	.75	.75
Stealing	.82	.82	.75
Overt	.89	.87	.84
Covert	.87	.86	.82
Total Score	.95	.94	.89
	Test Re-test Reliability (ICC)		
Total Score	.80		

Note. ICC = Intraclass Correlation; [1]Data taken from Langdon *et al.* (2011c)

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Table 4

Descriptive statistics

	Offenders		Non-Offenders	
Measure	*M*	*SD*	*M*	*SD*
Time 1: How I Think Questionnaire - IDs				
Anomalous responding	2.40	.64	3.05	.66
Self-centred	2.16	.66	1.75	.55
Blaming others	2.28	.54	1.99	.50
Minimising/mislabelling	1.99	.68	1.59	.53
Assuming the worst	2.16	.59	1.75	.44
Opposition defiance	2.40	.61	2.02	.57
Physical aggression	1.96	.66	1.57	.55
Lying	2.35	.66	1.91	.57
Stealing	1.96	.62	1.64	.45
Overt	2.18	.60	1.79	.52
Covert	2.18	.60	1.78	.44
Total Score	2.16	.54	1.78	.45
Time 2: How I Think Questionnaire - IDs				
Anomalous responding	2.49	.63	2.90	.68
Self-centred	2.03	.57	1.76	.56
Blaming others	2.15	.56	1.99	.40
Minimising/mislabelling	1.75	.64	1.67	.57
Assuming the worst	2.07	.55	1.80	.49
Opposition defiance	2.29	.56	2.03	.53
Physical aggression	1.86	.61	1.64	.56
Lying	2.10	.56	1.90	.59
Stealing	1.82	.64	1.70	.45
Overt	2.07	.54	1.83	.50
Covert	1.96	.55	1.80	.46
Total Score	2.01	.52	1.81	.44
Sociomoral Reflection Measure – Short Form	245.17	34.74	205.54	33.81
Empathy Quotient	31.63	8.13	36.65	9.60
Full Scale IQ	63.20	4.67	60.70	5.13

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