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The relationships between moral reasoning, empathy and distorted cognitions amongst men with intellectual disabilities and a history of criminal offending: A comparison study

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Abstract

Eighty men, spread equally across four groups were recruited: men with and without intellectual disabilities (IDs) who were either offenders or non-offenders. Participants completed measures of moral reasoning, empathy and distorted cognitions. The results indicated that the moral reasoning abilities of offenders with IDs were developmentally delayed, but yet were still more mature than those of non-offenders with IDs. Offenders without IDs had less mature moral reasoning abilities than non-offenders without IDs. The differences may be partially accounted for by intellectual ability. The results also indicated that the relationship between empathy and distorted cognitions is mediated by moral reasoning. The findings have implications for the use of psychological interventions with offenders with IDs.

KEYWORDS: Learning Disabilities, Moral Development, Intellectual Disabilities, SRM-SF, Criminal Offending, Offenders, Moral Reasoning, Moral Judgement, EQUIP

The relationships between moral reasoning, empathy and distorted cognitions amongst men with intellectual disabilities and a history of criminal offending: A comparison study

Piaget (1932) is often credited as the first to consider the moral development of children from a psychological perspective. Later, Kohlberg (1969, 1976) revised Piagetian theory and extended the theory beyond childhood and into adolescence and into adulthood. However, his theory has been criticised for being cultural biased (Simpson, 1974), and based on Western liberalism (Schweder, 1982; Sullivan, 1977). Others have noted that the theory appears based on masculinist conceptualisations of morality (Gilligan, 1982), while others have commented that the theory does not consider emotion (Sullivan, 1977). More recently, Krebs and Denton (2005) have argued that, in contrast to Kohlberg's proposals, moral reasoning is not structurally consistent across all contexts. Some of these criticisms led Gibbs (1979, 2003, 2010) to revise Kohlbergian theory into a sociomoral stage theory (Table 1). Other perspectives have also been adopted, placing moral development within the social (Semetana, 1999; Turiel, 1983, 2002) or emotional (Eisenberg, Reykowski, & Staub, 1989; Hoffman, 2000) domains.

Insert Table 1 About Here

Although there are some differences between these theoretical approaches, both Gibbs (1979, 2003, 2010) and Hoffman (2000) argue that empathy is an important emotion that relates to moral reasoning and behaviour. However, Hoffman (2000) considers empathy as the primary motivator of moral behaviour, and argues that this relationship is affected by moral reasoning or principles. Hoffman (2000)

states that “the cognitive dimension...helps give structure and stability to empathic affects, which should make empathic affects less vulnerable to bias (p. 216).” He suggests that moral principles are activated by empathy, and empathy can become embedded within or “bonded” with moral principles. In turn, moral principles are augmented by empathic states and therefore affect behavioural responses. He further argues that this bonding leads to the creation of “...hot cognitions - cognitive representations charged with empathic affect thus giving them motive force” (Hoffman, 2000; p. 239).

Gibbs (2003; 2010) equally recognises that empathy may motivate moral behaviour, but it may not be the primary motivator of moral behaviour: he argues that moral principles also motivate moral behaviour in their own right. Gibbs (2003, 2010) considers Hoffman’s (2000) theory as one of “affective primacy”, and instead, argues for a model of “co-primacy”, where both empathy and moral principles motivate moral behaviour. Nevertheless, both the theories of Gibbs and Hoffmann recognise that cognition and empathy may be augmented by each other, and that cognitions stem from moral schema.

Unfortunately, the advances in moral development theory have not explicitly considered people with intellectual disabilities (IDs), and in an attempt to address this shortcoming, Langdon, Clare and Murphy (2010a) undertook a structured review of the literature regarding the moral development of people with IDs. They concluded that the moral development of children, adolescents and adults with IDs tends to occur at a slower pace than that of typically developing individuals. These differences in the rate of development may disappear when cognitive ability is controlled. Langdon et al. (2010a) stressed that their conclusions must be preliminary because many of the

existing studies made use of measures of moral reasoning that were idiosyncratic and unstandardised.

In an attempt to address the issues highlighted by their review, Langdon, Murphy, Clare and Palmer (2010b) examined the psychometric properties of two different moral reasoning measures. They presented the Moral Theme Inventory (MTI; Narvaez, Gleason, Mitchell, & Bentley, 1999), a recognition instrument, and the Socio-Moral Reflection Measure – Short Form (SRM-SF; Gibbs, Basinger, & Fuller, 1992), a production instrument, to men with and without IDs of similar age and with no known history of arrests, cautions or convictions. They reported that, for men with IDs, the two-week test-retest reliability of the MTI was poor, while it was good for the SRM-SF. They also found that the moral reasoning abilities of men with IDs were less developed than those of their counterparts without IDs and that the differences could be partially accounted for by intellectual ability. Nevertheless, even when IQ was controlled, differences between the two groups remained in relation to moral reasoning about the law. The scores of men with IDs fell within a transition stage between stages 1 and 2 (Table 1).

In a subsequent paper, Langdon, Clare and Murphy (2011) suggested that the relationship between moral reasoning and illegal behaviour may be moderated by intellectual functioning and that this relationship may approximate an inverted U-curve. Based on these proposed relationships, the moral reasoning of men with IDs and no history of engaging in illegal behaviour should be developmentally immature. Moral justifications at the early stages are based upon unilateral authority or avoidance of punishment and so such individuals should be less likely to engage in illegal behaviour. In contrast, as a group, individuals with a history of engaging in illegal behaviour should be more likely to have “borderline” intellectual functioning,

and more mature moral reasoning, but this reasoning is still developmentally immature, and should fall within the stages associated with meeting one's own needs.

There is considerable evidence that moral reasoning is related to offending behaviour amongst young offenders (Blasi, 1980; Nelson, Smith, & Dodd, 1990; Stams et al., 2006). From a theoretical perspective, Gibbs (2003, 2010) has argued that young offenders have immature moral judgement, distorted cognitions and social skills deficits that interact and lead to illegal behaviour. Illegal behaviour is then driven by cognitive distortions that are generated by the development of schema reflecting the individual's moral stage. This account has been elaborated by Palmer (2003a, 2003b), who embedded moral reasoning within a developmental theory incorporating parental and peer influence, information processing, and social and environmental factors. Like Gibbs (2003, 2010), Palmer (2003a, 2003b) proposed that immature moral reasoning leads to the generation of cognitive distortions, used by an individual to support his or her illegal behaviour, and reduce empathy. She thereby provided a theoretical link between moral reasoning theory and behaviour that is against the law.

Given the evidence of a relationship between illegal behaviour and immature moral reasoning amongst young offenders, we undertook this study to investigate the moral reasoning abilities of offenders with and without IDs. The purpose of the study was twofold. First, we aimed to examine the moral reasoning abilities of offenders with and without IDs and compare these abilities to those of non-offenders with and without IDs. We hypothesised that the moral reasoning abilities of non-offenders with IDs should be more limited than offenders with IDs. Among those without IDs, offenders should have more immature moral reasoning than non-offenders. Secondly, based on the theoretical relationships between moral reasoning, distorted cognitions

and empathy (Gibbs, 2003, 2010; Hoffman, 2000), we examined whether the relationship between empathy and distorted cognitions would be mediated by moral reasoning.

Methods

Participants

Eighty men were recruited from the East of England (UK) and allocated to four groups: 1) men with IDs and no self-reported known history of arrests, cautions or convictions (M IQ=58.8, SD=5.87; M Age=45.35; SD=16.57) formed the IDs-Group, 2) men with IDs and a documented history of at least one Crown Court conviction that led to a custodial sentence (M IQ=62.9, SD=5.22; M Age=33.60, SD=7.54) formed the IDs-Offender Group, 3) men without IDs with a documented history of at least one Crown Court conviction that led to a custodial sentence (M IQ=89.50, SD=11.12; M Age=38.80; SD=15.20) formed the Comparison-Offender Group and 4) men without IDs with no known history of arrests, cautions or convictions as determined by self-report (M IQ=103.25, SD=5.77; M Age=38.70; SD=12.99) formed the Comparison-Group.

The specific inclusion criteria were: a) all participants should be men because there is some evidence that men and women make moral judgements differently (Gilligan, 1982; Kohlberg, Levine, & Hewer, 1983, 1984; Walker, 1995), b) the Full Scale IQ score of participants within the IDs and IDs-Offender Groups should be below 70, with associated difficulties with adaptive behaviour (considered to be present if the person was receiving support from specialist services for health and/or social care), and these difficulties should have had an onset before the age of 18

(American Psychiatric Association, 2000), c) the Full Scale IQ score of participants in the Comparison and Comparison-Offender Groups should be greater than 70, and d) offenders should have committed an indictable offence which had been dealt with by a Crown Court. Offenders who had tried by a Crown Court were included because, in England, these are used to deal with more severe offences (attracting a custodial sentence of more than six months).

Design

A 2 (Factor IDs: IDs vs No IDs) X 2 (Factor Offence: Offending vs No Offending) between-subjects design was used. Initially, all participants completed the Wechsler Adult Intelligence Scale - III^{UK} (WAIS-III; Wechsler, 1998) to assess their general intellectual functioning. Participants then completed the Sociomoral Reflection Measure-Short Form (SRM-SF; Gibbs et al., 1992), a measure of moral reasoning; the Bryant Empathy Index (BEI; Bryant, 1982), which is a measure of emotional empathy; and finally, a measure of distorted cognitions, the How I Think Questionnaire (Barriga, Gibbs, Potter, & Liao, 2001).

Measures

Offence Data. Information about convictions was initially sought from the research participant directly and consent was obtained to verify disclosures by referencing records. In order to account for the difficulties with indexing convictions simply by frequency, without taking severity into account, offence data were ranked in terms of severity by drawing on the findings of Francis, Soothill and Dittrich (2001) who used a paired-comparisons method to devise an offence seriousness score. Similar methods have been used more recently in the United States (Ramchand, Macdonald, Haviland, & Morral, 2009). As a consequence, offence data from

participants were assigned a severity score on the basis of the data presented by Francis et al. (2001), and the offence with the highest severity score for each participant was ranked in ascending order (higher ranks indicate greater severity).

General Intellectual Functioning. The Wechsler Adult Intelligence Scale - III^{UK} (WAIS-III; Wechsler, 1998) was used to assess the general intellectual functioning of participants. The WAIS-III is a well developed reliable and valid measure of general intelligence that has been standardised on a British population. Reliability coefficients for the WAIS-III IQ scales range from 0.88 to 0.97 (Tulskey, Zhu, & Ledbetter, 1997). The WAIS-III yields three different IQ scores; Verbal IQ, Performance IQ and Full Scale IQ. Full Scale IQ is an aggregate of the Verbal and Performance IQ scores and represents global intellectual functioning.

Moral Reasoning. The Sociomoral Reflection Measure (SRM-SF) is a production measure of moral reasoning (Gibbs et al., 1992) and has been shown to possess high levels of test-retest reliability ($r=0.88$; Gibbs et al., 1992), and excellent internal consistency ($\alpha =0.92$; Gibbs et al., 1992). Langdon et al. (2010b) 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 SRM-SF comprises eleven questions, and generally takes about twenty minutes to present. The questions relate 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 g) 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 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 complex 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. At least seven of the eleven questions must be answered with scoreable material in order for a questionnaire to be scored reliably. Once a developmental rating is assigned to each question, it is converted to a number (e.g. a developmental rating of 1 corresponds to moral Stage 1, and is assigned the numerical value 1). 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. As shown in Table 2, these scores correspond to a person’s global moral stage. Additionally, moral stage ratings can be generated for each of the seven constructs examined by the SRM-SF: The scores generated across these constructs are interpreted using Table 2. The inter-rater reliability of the scoring of the SRM-SF was also calculated using an

expert rater (EP) who scored a random sample of 19% (n=15) of completed questionnaires. Interrater reliability was determined to be $r_i=0.99$ using an intraclass correlation.

Insert Table 2 About Here

Empathy. The Bryant Empathy Index (BEI; Bryant, 1982) is a twenty-two item measure of emotional empathy. The scale was designed for use with children and adolescents to measure emotional empathy in a trait-like manner. Bryant (1982) demonstrated that the BEI had good to excellent test-retest reliability, and adequate to substantial internal consistency. One of the difficulties associated with measuring empathy amongst people with and without IDs is that there is no measure of empathy that can be satisfactorily used with both groups. The BEI was considered as a measure that might be suitable because it is short, relatively easy to understand, and responses to items are coded as simply Yes or No. However, some of the items are potentially inappropriate for use with adults and some minor modification to items was therefore required. For example, some of the items make reference to “boys” or “girls” and these words were replaced with “men” or “women”. Details of the original items contained within the BEI, and the revised items, are found in Table 3. As a consequence of these revisions, the internal consistency and split-half reliability of the BEI was calculated. The internal consistency of the BEI was found to be $k=0.64$.

Insert Table 3 About Here

Cognitive Distortions. The How I Think (HIT) Questionnaire (Barriga et al., 2001) is a measure of cognitive distortions based upon the four-categories proposed by Gibbs and colleagues (Gibbs, 1991, 1993; Gibbs, Potter, & Goldstein, 1995). These are: a) Self-Centred, b) Blaming Others, c) Minimizing/Mislabelling, and d) Assuming the Worst. The HIT has 54 items and respondents are asked to indicate their degree of agreement along a six-point scale from “agree strongly” to “disagree strongly”. Total and mean scores are derived for the four-categories of distorted thinking as well as four behavioural referent subscales: a) Opposition-Defiance, b) Physical Aggression, c) Lying and d) Stealing. An Anomalous Responding scale is also calculated, along with three Summary Scales: a) Overt Scale, b) Covert Scale, and c) Total Score. The Overt Scale is calculated from the Opposition-Defiance and Physical Aggression subscales, while the Covert Scale is calculated from the Lying and Stealing subscales. The Total Score is calculated from all subscales. Barriga et al. (2001) reported that confirmatory factor analysis supported the structure of the HIT. The internal consistency of the HIT has been reported to range from 0.63 to 0.96, and the measure has been shown to possess convergent, divergent and discriminant validity (Barriga et al., 2001).

Procedure

Following the receipt of a favourable ethical opinion from the Hertfordshire NHS Research Ethics Committee, information about the study was disseminated in different ways to participants who were likely to have capacity to give or withhold consent to participation.

For the IDs-Group, managers of day services and community intellectual disabilities teams were contacted directly, and informed of the project. They were

asked to distribute information leaflets to men with IDs using their services. They were specifically directed not to share information regarding the study with anyone using their service whom they knew to have a history of arrests, cautions or convictions. Any man who expressed an interest in taking part was asked to alert his keyworker, who then informed the relevant manager. The manager then contacted the researcher (PEL) to inform him of the number of possible participants at a site, and a mutually convenient time was arranged to attend the site and speak to potential participants. Once someone indicated that he might like to take part, full information about the study was provided, and if he wished to take part, written consent was sought..

The IDs-Offender Group was recruited by contacting medium-secure hospitals in the East of England and gaining permission to share information about the study with potential participants who were known to have IDs and a history of criminal offending. All men were detained in hospital under the Mental Health Act 2003 (amended 2007). Any men who expressed an interest in taking part were asked to inform a member of staff who contacted the researcher. The researcher then met with the potential participant and further information about the study was provided, and again, written consent was sought from those who expressed a wish to take part.

The Comparison-Offender Group was recruited through the National Probation Service in the East of England. Information about the study was shared with Probation Services who passed information to individuals who met the inclusion criteria. Any potential participants who expressed an interest in taking part were advised to share this information with a member of staff, who then contacted the researcher. The researcher then met with the potential participant and further

information about the study was provided. Participants who wished to take part were asked to provide written consent.

Finally, information about the study was disseminated to the Comparison-Group in several different ways. Information sheets were distributed by their managers to men employed within a university in a non-academic position. Information about the study was also disseminated using an advertisement email system at this university. Participants were asked not to volunteer for the study if they had a history of arrests, cautions or convictions. Interested participants were invited to contact the researcher directly, and written consent was given by those who wished to take part.

No participant was included if he appeared to lack capacity to take part or withheld consent. Participants in all of the four groups were given £10.00 in shopping vouchers as a token of appreciation.

Data Preparation and Analysis

All data were entered into a database and analysed using PASW Statistics Version 18.0.2. Descriptive data were generated and examined, and any possible errors were checked and corrected as appropriate. Data were inspected for departures from normality by visual inspection of histograms and the generation of P-P plots. No variables departed substantially from normality, with the exception of the seven constructs assessed using the SRM-SF; however, the overall SRM-SF score was not affected. As a consequence of the non-normal data, we made use of bootstrapping with 5000 samples with replacement, within ANOVA and ANCOVA, using appropriate post-hoc testing. Parameter estimates for each model were determined and bias corrected and accelerated (BC_a) confidence intervals were calculated. The F

statistic reported in the Results was derived using the original data, while the significance level and the 95% BC_a confidence interval were derived using bootstrapping. If the BC_a confidence interval does not include zero, then differences are considered to be statistically significant at $p < 0.05$.

In order to examine the relationships between moral reasoning, empathy and distorted cognitions, we followed the recommendations of Baron and Kenny (1986) for investigating mediation, but we also made use of appropriate methods for investigating mediation in small samples. Hayes (2009) has argued that bootstrapping procedures are more appropriate than parametric statistics for investigating the indirect effect within mediation models because assumptions regarding normality are not necessary and these methods are more powerful. As a consequence, we made use of the methods and macros described by Preacher and Hayes (2004, 2008) for investigating mediation models using bootstrapping. For each of the two simple mediation models we examined, we generated 5000 bootstrap samples. BC_a confidence intervals were calculated and are reported in order to examine the significance of the indirect effect within each model.

Results

Descriptive Data

In relation to age, the initial analysis revealed that there was no significant main effect of IDs ($F(1, 79) < 1$, $p = 0.589$; BC_a 95% CI = -3.40 to 1.93), or Offence ($F(1, 79) = 3.20$, $p = 0.079$; BC_a 95% CI = -5.22 to 0.21), but the interaction was significant ($F(1, 79) = 5.83$, $p = 0.018$; BC_a 95% CI = 0.61 to 5.94) (Table 4). Posthoc testing revealed that the IDs-Group were significantly older than both the IDs-Offender Group ($p = 0.007$; BC_a 95% CI = 4.26 to 19.24) and the Comparison-Group ($p = 0.049$; BC_a 95% CI = 0.25 to 16.17), while there were no significant differences between the other groups ($p > 0.05$).

There was no significant difference in offence severity between the IDs-Offender and the Comparison-Offender group ($z = -0.22$, $p = 0.83$). For intellectual functioning, as expected, those with IDs scored significantly lower on the WAIS-III than those without IDs ($F(1, 79) = 461.60$, $p < 0.001$; BC_a 95% CI = 16.17 to 19.37). Offenders also scored significantly lower than non-offenders ($F(1, 79) = 8.52$, $p = 0.006$; BC_a 95% CI = -4.07 to -0.76). There was a significant interaction between the factor IDs and Offence ($F(1, 79) = 29.14$, $p < 0.001$; BC_a 95% CI = -6.12 to -2.77). Posthoc analysis revealed that there was a significant difference between all the groups ($p < 0.05$; Table 4).

Insert Table 4 About Here

Empathy and Distorted Cognitions

For empathy, participants with IDs scored significantly lower on the BEI than those without IDs ($F(1, 79) = 12.00$, $p = 0.002$; BC_a 95% CI = 0.51 to 1.82), while neither the difference between offenders and non-offenders ($F(1, 79) < 1$, $p = 0.88$; BC_a 95%

CI=-0.71 to 0.61) nor the interaction ($F(1, 79)=2.17, p=0.145$; BC_a 95% CI=-0.18 to 1.18) was significant. However, posthoc analysis indicated that the IDs-Group scored significantly lower ($p=0.013$; BC_a 95% CI=-3.22 to -0.57) than the Comparison-Offender Group. The IDs-Offender Group also scored significantly lower than both the Comparison-Offender Group ($p=0.002$; BC_a 95% CI=-5.31 to -1.45), and the Comparison-Group ($p=0.023$; BC_a 95% CI=-4.43 to -0.36). Differences between the other groups were not significant ($p>0.05$; Table 4).

On the HIT, the measure of distorted cognitions, there was no significant main effect for IDs with respect to the Anomalous Responding ($F(1, 79)=3.81, p=0.06$; BC_a 95% CI=-0.01 to 0.41), Self-Centred ($F(1, 79)=1.68, p=0.19$; BC_a 95% CI=-0.28 to 0.06), or Lying ($F(1, 79)=<1, p=0.375$; BC_a 95% CI=-0.25 to 0.09) subscales, and the Covert scale ($F(1, 79)=3.48, p=0.065$; BC_a 95% CI=-0.29 to 0.01; Table 4).

However, men with IDs scored significantly higher than men without IDs on the Blaming Others ($F(1, 79)=17.16, p<0.001$; BC_a 95% CI=-0.51 to -0.19), Minimising/Mislabelling ($F(1, 79)=4.15, p=0.046$; BC_a 95% CI=-0.32 to -0.01), Assuming the Worst ($F(1, 79)=6.07, p=0.019$; BC_a 95% CI=-0.39 to -0.05), Opposition-Defiance ($F(1, 79)=13.12, p=0.001$; BC_a 95% CI=-0.51 to -0.15), Physical Aggression ($F(1, 79)=4.15, p=0.048$; BC_a 95% CI=-0.35 to -0.01), and Stealing ($F(1, 79)=5.94, p=0.021$; BC_a 95% CI=-0.36 to -0.04) subscales, as well as the Overt ($F(1, 79)=9.54, p=0.004$; BC_a 95% CI=-0.41 to -0.10) and HIT Total ($F(1, 79)=7.30, p=0.011$; BC_a 95% CI=-0.35 to -0.05) scales.

There were no significant differences between the offenders and non-offenders on the Anomalous Responding ($F(1, 79)=<1, p=0.602$; BC_a 95% CI=-0.15 to 0.26), and Physical Aggression subscales ($F(1, 79)=2.14, p=0.146$; BC_a 95% CI=-0.04 to 0.30). However, offenders scored significantly higher on the Self Centred ($F(1,$

79)=5.92, $p=0.017$; BC_a 95% CI=0.05 to 0.38), Blaming Others ($F(1, 79)=13.39$, $p<0.001$; BC_a 95% CI=0.13 to 0.47), Minimising/Mislabelling ($F(1, 79)=3.24$, $p=0.016$; BC_a 95% CI=0.04 to 0.36), Assuming the Worst ($F(1, 79)=5.30$, $p=0.025$; BC_a 95% CI=0.04 to 0.37), Opposition-Defiance ($F(1, 79)=15.88$, $p<0.001$; BC_a 95% CI=0.18 to 0.53), Lying ($F(1, 79)=10.27$, $p=0.04$; BC_a 95% CI=0.11 to 0.44), Stealing ($F(1, 79)=5.29$, $p=0.028$; BC_a 95% CI=0.03 to 0.35) subscales, and the Overt ($F(1, 79)=9.16$, $p=0.003$; BC_a 95% CI=0.09 to 0.40), Covert ($F(1, 79)=8.91$, $p=0.004$; BC_a 95% CI=0.08 to 0.38) and HIT Total Scales ($F(1, 79)=9.68$, $p=0.003$; BC_a 95% CI=0.08 to 0.38; Table 4). None of the interactions between the IDs and Offence Factors was significant, and as a consequence, posthoc analyses of the subscales are not reported here; they can be found in Table 4.

However, posthoc analyses of the total scales on the HIT indicated that the IDs-Group scored significantly lower than the IDs-Offender Group on the Covert ($p=0.014$; BC_a 95% CI=-1.08 to -0.14), and Total HIT scales ($p=0.034$; BC_a 95% CI=-0.95 to -0.02). The IDs-Group scored significantly higher than the Comparison-Group on the Overt ($p=0.002$; BC_a 95% CI=0.22 to 0.88) and Total HIT ($p=0.029$; BC_a 95% CI=0.04 to 0.71) scales. There were no differences between the IDs-Group and the Comparison-Offenders Group on the Overt, Covert or Total HIT scale ($p>0.05$). The IDs-Offender Group and the Comparison Offender Group did not differ significantly on the Covert, Overt or Total HIT scales ($p>0.05$), while the IDs-Offender Group scored significantly higher than the Comparison Group on the Overt ($p<0.001$; BC_a 95% CI=0.53 to 1.46), Covert ($p=0.003$; BC_a 95% CI=0.26 to 1.20), and Total HIT ($p<0.001$; BC_a 95% CI=0.45 to 1.30) scale. The Comparison-Offenders Group scored significantly higher than the Comparison-Group on the Overt

($p=0.015$; BC_a 95% CI=0.14 to 0.95), and Total HIT ($p=0.033$; BC_a 95% CI=0.05 to 0.81) scales (Table 4).

Moral Reasoning

On the SRM-SF, the measure of moral reasoning, those with IDs scored significantly lower than those without IDs on Contract ($F(1, 79)=120.95$, $p<0.001$; BC_a 95% CI=40.57 to 58.34), Truth ($F(1, 77)=102.89$, $p<0.001$; BC_a 95% CI=51.56 to 75.89), Affiliation ($F(1, 79)=53.79$, $p<0.001$; BC_a 95% CI=30.41 to 52.26), Life ($F(1, 79)=50.97$, $p<0.001$; BC_a 95% CI=27.64 to 49.39), Property ($F(1, 78)=73.92$, $p<0.001$; BC_a 95% CI=44.57 to 71.16), Law ($F(1, 74)=165.65$, $p<0.001$; BC_a 95% CI=70.97 to 96.29), Legal Justice ($F(1, 79)=207.25$, $p<0.001$; BC_a 95% CI=59.12 to 77.39), and total SRM-SF Scores ($F(1, 79)=207.91$, $p<0.001$; BC_a 95% CI=45.18 to 59.66). In contrast, there was no significant differences ($p>0.05$) between offender and non-offenders across all seven construct and total score. There was a significant interaction between IDs and Offence regarding Contract ($F(1, 79)=14.95$, $p<0.001$; BC_a 95% CI=-26.27 to -8.85), Truth ($F(1, 77)=8.77$, $p=0.003$; BC_a 95% CI=-30.60 to -6.66), Affiliation ($F(1, 79)=6.15$, $p=0.014$; BC_a 95% CI=-25.09 to -2.89), Life ($F(1, 79)=13.79$, $p<0.001$; BC_a 95% CI=-30.91 to -9.31), Property ($F(1, 78)=17.41$, $p<0.001$; BC_a 95% CI=-41.52 to -14.69), Law ($F(1, 74)=22.88$, $p<0.001$; BC_a 95% CI=-43.76 to -18.65), Legal Justice ($F(1, 79)=29.11$, $p<0.001$; BC_a 95% CI=-34.97 to -16.58) and total SRM-SF scores ($F(1, 79)=31.03$, $p<0.001$; BC_a 95% CI=-27.49 to -13.01; Table 5).

Insert Table 5 About Here

Posthoc testing revealed that the IDs-Group scored significantly ($p<0.05$) lower than the IDs Offender Group on Contract, Life, Property, Law, Legal Justice,

and total SRM-SF Scores. However, the difference between the IDs-Group and the IDs-Offender Group on Truth ($p=0.22$; BC_a 95% CI=-56.41 to 14.62) and Affiliation ($p=0.215$; BC_a 95% CI=-49.84 to 10.37) was not statistically significant. The IDs-Group scored at stage 1(2) on Property, stage 1 on Law and stage 2(1) on Legal Justice, while the IDs Offender Group scored at Stage 2 across these constructs. The IDs-Group also scored significantly ($p<0.05$) lower than the Comparison-Offenders and Comparison-Group on all seven constructs and the total SRM-SF score (Table 5).

The IDs Offender Group scored significantly ($p<0.05$) lower than the Comparison-Offenders and Comparison-Group across all seven constructs and the total SRM-SF score. The IDs-Offender Group scored consistently at Stage 2 across constructs, while the Comparison-Offenders Group scored at Stage 2 only on Property, scoring at Stage 3 across the other constructs. However, the Comparison-Offenders Group scored significantly ($p<0.05$) lower than the Comparison-Group across all seven constructs and the total SRM-SF score (Table 5). The Comparison-Group scored consistently at Stage 3 across all constructs. Examining the differences between the four groups with respect to total SRM-SF score indicated that the differences took the shape of a significant linear trend ($p<0.001$).

Moral Reasoning: Controlling for Intellectual Functioning

Given there was a positive relationship between intellectual functioning and moral reasoning, with intellectual functioning accounting for 74% of the variability in total moral reasoning score ($R^2=0.74$; $\beta=0.86$; $B=2.80$; $t=14.99$, $p<0.001$; BC_a 95% CI=2.37 to 3.23), the previous analysis was repeated, controlling for scores on the WAIS-III. There was no longer a significant main effect for IDs regarding Contract ($F(1, 79)=3.35$, $p=0.083$; BC_a 95% CI=-4.64 to 42.96), Affiliation ($F(1, 79)=4.89$,

$p=0.079$; BC_a 95% CI=-2.55 to 66.27), Life ($F(1, 79)=2.61$, $p=0.232$; BC_a 95% CI=-10.10 to 56.51), Property ($F(1, 78)=<1$, $p=0.42$; BC_a 95% CI=-23.31 to 51.96), or Law ($F(1, 74)=1.04$, $p=0.316$; BC_a 95% CI=-16.71 to 55.94). The absence of a significant main effect for offence remained, however, with the exception of moral reasoning regarding the law, where offenders scored higher than non offenders ($F(1, 79)=3.30$, $p=0.05$; BC_a 95% CI=0.75 to 21.20). The significant interactions between factors remained, but not in relation to Contract ($F(1, 79)=4.06$, $p=0.079$; BC_a 95% CI=-21.02 to 2.25), Truth ($F(1, 77)=3.57$, $p=0.110$; BC_a 95% CI=-26.07 to 3.13), Affiliation ($F(1, 79)=3.22$, $p=0.177$; BC_a 95% CI=-29.64 to 6.96), or Life ($F(1, 79)=6.52$, $p=0.06$; BC_a 95% CI=-34.15 to 3.14).

Insert Figure 1 About Here

Posthoc analyses indicated that, when Full Scale IQ was controlled, the IDs-Group was no longer significantly different from the IDs Offender Group on Contract ($p=0.157$; BC_a 95% CI=-43.10 to 6.61), Truth ($p=0.371$; BC_a 95% CI=-50.69 to 20.16), or Affiliation ($p=0.284$; BC_a 95% CI=-54.19 to 15.98). Nor was the IDs-Group significantly different from the Comparison-Offenders Group on Contract ($p=0.093$; BC_a 95% CI=-88.19 to 10.42), Affiliation ($p=0.068$; BC_a 95% CI=-131.17 to 9.55), Life ($p=0.136$; BC_a 95% CI=-124.10 to 17.29), Property ($p=0.170$; BC_a 95% CI=-114.91 to 20.33), or Law ($p=0.160$; BC_a 95% CI=-130.82 to 12.48). There was no significant difference between the IDs-Group and the Comparison-Group on Contract ($p=0.070$; BC_a 95% CI=-125.42 to 11.53), Affiliation ($p=0.081$; BC_a 95% CI=-191.83 to 20.67), Life ($p=0.139$; BC_a 95% CI=-183.04 to 30.97), Property ($p=0.155$; BC_a 95% CI=-152.68 to 22.60), or Law ($p=0.167$; BC_a 95% CI=-143.49 to

15.64; Figure 1). However, the IDs Group remained significantly different ($p < 0.05$) from all other groups on Legal Justice and the total SRM-SF score.

When Full Scale IQ was controlled, the scores of the IDs-Offender Group were not significantly different from those of the Comparison Offenders Group on Contract ($p = 0.241$; BC_a 95% CI = -59.76 to 19.38), Truth ($p = 0.105$; BC_a 95% CI = -109.43 to 15.28), Affiliation ($p = 0.123$; BC_a 95% CI = -97.28 to 13.43), Life ($p = 0.613$; BC_a 95% CI = -73.62 to 38.46), Property ($p = 0.869$; BC_a 95% CI = -54.46 to 65.14), Law ($p = 0.952$; BC_a 95% CI = -74.36 to 58.45) or total SRM-SF scores ($p = 0.128$; BC_a 95% CI = -56.72 to 7.06; Figure 1). Nor did the IDs-Offender Group differ significantly from the Comparison-Group on Contract ($p = 0.132$; BC_a 95% CI = -97.59 to 19.94), Affiliation ($p = 0.124$; BC_a 95% CI = -158.81 to 28.88) Life ($p = 0.393$; BC_a 95% CI = -132.73 to 51.04), Property ($p = 0.834$; BC_a 95% CI = -92.20 to 66.54), Law ($p = 0.821$; BC_a 95% CI = -87.07 to 61.79) or the total SRM-SF score ($p = 0.064$; BC_a 95% CI = -99.06 to 4.88) (Figure 1). However, the IDs-Offender Group remained significantly different ($p < 0.05$) from all other groups on Legal Justice.

When Full Scale IQ was controlled, the Comparison-Offenders Group was not significantly different from the Comparison-Group on Contract ($p = 0.202$; BC_a 95% CI = -53.88 to 14.76), Truth ($p = 0.137$; BC_a 95% CI = -70.19 to 12.05), Affiliation ($p = 0.273$; BC_a 95% CI = -82.94 to 27.49), Life ($p = 0.303$; BC_a 95% CI = -78.40 to 27.01), Property ($p = 0.535$; BC_a 95% CI = -59.50 to 27.67), Law ($p = 0.726$; BC_a 95% CI = -44.88 to 30.42), or total SRM-SF score ($p = 0.130$; BC_a 95% CI = -52.96 to 10.35; Figure 1). The differences between the four groups on the total SRM-SF score took the shape of a significant linear trend ($p = 0.002$). Both the Comparison-Offenders Group and the Comparison Group were significantly different ($p < 0.05$) from all other groups on Legal Justice. These results indicate that, with the exception of Legal

Justice, some of the differences between the four groups can be accounted for by differences in intellectual functioning.

Mediation

Initially, correlations (two-tailed) between moral reasoning (SRM-SF total score), cognition distortions (HIT Scale) and empathy (BEI) were examined. There was a significant positive relationship between moral reasoning and empathy ($r(80)=0.33, p=0.002$), and significant negative relationships between moral reasoning and cognitive distortions ($r(80)=-0.43, p<0.001$), and empathy and cognitive distortions ($r(80)=-0.25, p=0.025$).

Investigating the relationships between moral reasoning, cognitive distortions and empathy indicated empathy significantly predicted both cognitive distortions ($p=0.0249$), and moral reasoning ($p=0.0024$). Moral reasoning also significantly predicted cognitive distortions, controlling for empathy ($p=0.0007$). The indirect effect was significant ($z=-2.37, p=0.0177$) and this was confirmed by the results using the bootstrapping (95% BCa CI=-0.0601 to -0.0092; Table 6).

Insert Table 6 About Here

Discussion

The results of the current study demonstrated that the moral reasoning of the IDs-Offender Group was more mature than that of the IDs-Group. The moral reasoning of the Comparison-Offender Group was more developed than that of the IDs-Offender Group, but less mature than that of the Comparison Group. The global moral reasoning scores across these four groups approximated a linear trend, even when intelligence had been controlled. Nevertheless, both groups of men with IDs were reasoning at global stage 2, while both groups of men without IDs were reasoning at global stage 3.

The analysis suggested that there was no significant difference in emotional empathy between the two groups of men with IDs, but that the IDs-Group had more limited empathy than the Comparison Group and the IDs-Offender Group had more limited empathy than either of the groups of men without learning disabilities. IDs-Offender Group had significantly less emotional empathy than both the Comparison-Offender and Comparison Groups, but there was no difference between the IDs-Offender and IDs Group. The IDs-Group also had more limited empathy than the Comparison Group. These results contrast with those of Proctor and Beail (2007) who suggested that offenders with IDs have better empathy and theory of mind skills than non-offenders. However, Woodbury-Smith et al. (2005) reported findings similar to those of the current study. They found there was no difference in the scores of offenders and non-offenders with high functioning autistic spectrum conditions on theory of mind and emotional recognition tasks. They did, though, report that performance on these tasks, together with more limited intellectual ability, was associated with an increased likelihood of being in their offender group. It is

important to note, however, that the current study focussed on men with IDs, rather than men and women with high functioning autism.

Turning to cognitive distortions, men with IDs scored higher on the measure of distorted cognitions than those without IDs, and offenders scored higher than non-offenders, with distorted cognitions being highest amongst offenders with IDs. The findings are consistent with those from studies involving sexual offenders with IDs (Broxholme & Lindsay, 2003; Langdon, Maxted, Murphy, & SOTSEC-ID, 2007; Langdon & Talbot, 2006; Lindsay & Michie, 2004; Lindsay et al., 2006; Lindsay, Whitefield, & Carson, 2007; Murphy, Powell, Guzman, & Hays, 2007; Talbot & Langdon, 2006). However, this is the first study we know of in which the likelihood of endorsing cognitive distortions has been investigated in men with IDs who have been convicted of other offences.

Turning to our hypothesis which predicted that the IDs-Group would score lower on the measure of moral reasoning than the IDs-Offender Group, while the Comparison-Offender Group would score lower than the Comparison Group, the results indicated that the differences between the groups were as predicted. Controlling for intelligence in the analysis indicated that the total moral reasoning score of the IDs-Offender Group was no longer significantly different from the Comparison-Offenders Group, while that of the Comparison-Offenders Group was no longer significantly different from the Comparison Group. This suggests that some of the differences between the groups can be accounted for by intelligence. Langdon et al. (2010b) also demonstrated that many of the differences between men with and without IDs, with no known history of arrests, cautions or convictions could be accounted for by intelligence. In their study, intelligence accounted for all the differences between the two groups with the exception of moral reasoning in relation

to the law and overall SRM-SF score. Nevertheless, even when IQ was controlled, the four groups differed significantly on Legal Justice. This finding may be related to the finding that there is intergenerational transmission of offending in men (Farrington, Coid, & Murray, 2009) and requires more detailed examination.

In this study, we found that the moral reasoning of both groups of men with IDs fell at Stage 2 overall, yet one group had a documented history of criminal offending, while the other had no history of criminal offending. This finding may be accounted for by the differences between the groups across the seven constructs measured by the SRM-SF. Specifically, the IDs-Group demonstrated less mature reasoning in relation to Property, Law and Legal Justice. This finding is consistent with that of Langdon et al. (2010b). It suggests moral judgement within these areas is based upon the avoidance of punishment and unilateral authority. As expected from the literature relating to young offenders (Blasi, 1980; Campagna & Harter, 1975; Chandler & Moran, 1990; Gavaghan, Arnold, & Gibbs, 1983; Gregg, Gibbs, & Basinger, 1994; Nelson et al., 1990; Trevethan & Walker, 1989), the IDs-Offender Group demonstrated reasoning at Stage 2 in relation to these three constructs. In contrast, the Comparison-Offenders Group demonstrated Stage 2 moral reasoning only on Property, scoring at Stage 3 across the other constructs, while the Comparison-Group scored at Stage 3 across all the constructs.

Our findings in relation to offenders without IDs are not entirely consistent with the moral reasoning literature relating to young offenders. Gibbs (2003) comments that many studies have demonstrated that young offenders tend to make more use of Stage 2 moral reasoning with regards to concepts such as legal justice and the law (Blasi, 1980; Campagna & Harter, 1975; Chandler & Moran, 1990; Gavaghan et al., 1983; Gregg et al., 1994; Nelson et al., 1990; Trevethan & Walker, 1989). In

contrast, young people who are not offenders tend to give Stage 3 reasons for obeying the law (Gibbs, 2003, 2010). Although the Comparison-Offenders Group in our study had significantly lower scores on the test of moral reasoning than the Comparison-Group, our findings are not consistent with this literature, because on average, the Comparison-Offenders Group was reasoning at Stage 3. It is important to note, though, that our offenders were adults, rather than young offenders. Such findings are consistent with Stevenson et al. (2003), who also found that adult offenders tend to be reasoning at Stage 3.

In relation to men with IDs who are offenders, however, our findings are consistent with the literature relating to young offenders. The IDs-Offender Group was consistently reasoning at stage 2 across all constructs. Furthermore, the findings suggest that non-offenders with IDs were reasoning at stage 1, and therefore appealing to unilateral authority and avoidance of punishment when making moral judgements in relation to the law. This may explain why, as a group, they had no history of arrests, cautions or convictions, considering that their total moral reasoning score fell at stage 2.

Our findings have substantial clinical implications for men with IDs. Langdon et al. (2011) pointed out that the relationship between moral development and social perspective-taking provides a rationale for the effectiveness of group-based interventions over individual treatments, as groups offer more opportunities for social perspective-taking. Gibbs and his colleagues (2003, 2010; Gibbs et al., 1995) argued that proximal, as well as distal interventions, are required when offering clinical interventions to young offenders on the grounds that moral reasoning abilities are distal schema within the context of a social situation. Cognitive distortions and social skills, which are proximal, also need to be targeted to ensure that interventions are

effective. In an attempt to address this issue, Gibbs and colleagues (Gibbs, Potter, Barriga, & Liao, 1996; Gibbs et al., 1995; Potter, Gibbs, & Goldstein, 2001) developed the Equipping Youth to Help One Another Programme (EQUIP) which has been shown to be effective at reducing misconduct and recidivism rates (Leeman, Gibbs, & Fuller, 1993).

Given the evidence that the moral reasoning abilities of offenders with IDs are comparable to those of young offenders, the question of whether or not the EQUIP programme is likely to be an effective treatment for this population requires investigation. In view of the strong relationship between intelligence and moral development, Langdon et al. (2010a) considered whether or not people with IDs would be able to reach the developmentally more mature moral reasoning stages that are protective against illegal behaviour. The findings from the current study indicate that men with IDs with no history of illegal behaviour are reasoning at Stage 1 in relation to Property, Law and Legal Justice, while offenders with IDs are reasoning at Stage 2. Therefore, an alternative therapeutic approach may be to encourage moral reasoning that appeals to unilateral authority and avoidance of punishment. It would, however, make sense to examine whether or not EQUIP can bring about developmental shifts to mature moral reasoning amongst offenders with IDs before endorsing such a strategy.

Our findings suggest that the relationship between empathy and distorted cognitions is mediated by moral reasoning. This was investigated because both Gibbs (2003, 2010) and Hoffman (2000) argue that cognition serves to augment empathic states. Hoffman argues that empathy is the primary motivator of moral behaviour and is affected by moral reasoning, while Gibbs argues that moral reasoning and empathy are both motivators of moral behaviour, with empathy influenced by distorted

cognitions, arising from maladaptive moral schema. The findings from this study indicate that the relationship between empathy and distorted cognitions is mediated by moral reasoning. From a theoretical perspective, this makes sense, since distorted cognitions reflect moral schema and therefore the relationship between empathy and distorted cognitions would occur through moral reasoning. While the findings of our mediation analysis are consistent with both Hoffman (2000) and Gibbs (2003, 2010), because of the emphasis that each places on affect empathy, the analysis is in no way a test of whether or not empathy alone or empathy and moral principles motivate moral behaviour; further research is needed.

There are some limitations with the current study that need to be highlighted. Since some of the participants were in custodial facilities, it is likely that they received some sort of intervention for their offending behaviour. This may have affected their moral reasoning. It was impossible to control for this in the analysis, because of such marked variability in the programmes available in prisons and hospitals, and, moreover, in what is offered to offenders with different index offences. It is also the case that offenders who volunteered to take part in this study may have different moral reasoning and empathy abilities than those who did not volunteer. It is also important to mention that IQ of men with IDs included within this study is necessarily restricted. Finally, the internal consistency of the empathy measure used within this study is problematic, and some further work is needed regarding the development of measures of empathy for offenders with intellectual and other developmental disabilities.

In conclusion, the results indicate that the moral reasoning abilities of offenders with IDs are developmentally delayed and that the relationship between empathy and distorted cognitions is mediated by moral reasoning. Future research

should focus on whether or not clinical interventions for offenders with IDs, based upon moral development theory, are effective.

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Table 1

Gibbs' Sociomoral Stage Theory (Gibbs et al., 1992)

<i>Level and Stage</i>	<i>Description</i>
<i>Level 1: Immature</i>	
Stage 1: Unilateral and Physicalistic	Moral justifications are based upon unilateral authority and rule based, or related to punitive consequences of the violation of rules.
Stage 2: Exchanging and Instrumental	Moral justifications based upon an understanding that has arisen from social interaction. For example, decisions to help others may be justified because that person may help you in the future. However, justifications remain superficial.
<i>Level 2: Mature</i>	
Stage 3: Mutual and Prosocial	Moral justifications are characterised by further decentration, and are based upon a prosocial understanding of emotional states (e.g. empathy), care and good conduct.
Stage 4: Systemic and Standard	Further maturity is indexed by the development of an understanding of the complex social structures in which we live. Justifications are also based upon constructs such as rights, values and character within society. Other justifications may be based upon social justice and responsibility or conscience.

Table 2

The relationship between scores on the Sociomoral Reflection Measure – Short Form (SRM-SF) and moral stages.

Score	Moral Stage
100 to 125	Stage 1
126 to 149	Transition Stage 1(2)
150 to 174	Transition Stage 2(1)
175 to 225	Stage 2
226 to 249	Transition Stage 2(3)
250 to 274	Transition Stage 3(2)
275 to 325	Stage 3
326 to 349	Transition Stage 3(4)
350 to 374	Transition Stage 4(3)
375 to 400	Stage 4

Table 3

The original modified items of the Bryant Empathy Index.

Original Items	Modified Items
1*. It makes me sad to see a girl who can't find anyone to play with.	1. It makes me sad to see an elderly woman who has no one to talk to
2. People who kiss and hug in public are silly	2. People who kiss and hug in public are silly.
3*. Boys who cry because they are happy are silly.	3. Men who cry because they are happy are silly.
4. I really like to watch people open presents, even when I don't get a present myself.	4. I really like to watch people open presents, even when I don't get a present myself.
5*. Seeing a boy who is crying makes me feel like crying.	5. Seeing a man who is crying makes me feel like crying.
6. I get upset when I see a girl being hurt.	6. I get upset when I see a girl being hurt.
7. Even when I don't know why someone is laughing, I laugh too.	7. Even when I don't know why someone is laughing, I laugh too.
8. Sometimes I cry when I watch TV.	8. Sometimes I cry when I watch TV.
9.* Girls who cry because they are happy are silly.	9. Women who cry because they are happy are silly.
10. It's hard for me to see why someone else gets upset.	10. It's hard for me to see why someone else gets upset.
11. I get upset when I see an animal being hurt.	11. I get upset when I see an animal being hurt.
12*. It makes me sad to see a boy who can't find anyone to play with.	12. It makes me sad to see an elderly man who has no one to talk to.
13. Some songs make me feel so sad I feel like crying.	13. Some songs make me feel so sad I feel like crying.

14. I get upset when I see a boy being hurt.	14. I get upset when I see a boy being hurt.
15*. Grown-ups sometimes cry even when they have nothing to be sad about.	15. Adults sometimes cry even when they have nothing to be sad about.
16. It's silly to treat dogs and cats as though they have feelings like people.	16. It's silly to treat dogs and cats as though they have feelings like people.
17*. I get mad when I see a classmate pretending to need help from the teacher all the time.	17. I get angry when I see someone pretending they need help all the time.
18*. Kids who have no friends probably don't want any.	18. People who have no friends probably don't want any.
19*. Seeing a girl who is crying makes me feel like crying.	19. Seeing a woman who is crying makes me feel like crying.
20. I think it is funny that some people cry during a sad movie or while reading a sad book.	20. I think it is funny that some people cry during a sad movie or while reading a sad book.
21*. I am able to eat all my cookies even when I see someone looking at me wanting one.	21. I am able to eat all my biscuits even when I see someone looking at me wanting one.
22*. I don't feel upset when I see a classmate being punished by a teacher for not obeying school rules.	22. I don't feel upset when I see someone being punished for breaking the rules.

*item has been modified

Table 4: Descriptive statistics for empathy and cognitive distortions for men with and without IDs and offenders and non-offenders.

	IDs		IDs-Offenders (IDs-O)		Comparison- Offenders (CO)		Comparison (C)		Post-hoc Tests
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	45.35	16.58	33.60	7.54	38.80	15.20	37.05*	7.88	IDs>IDs-O**; IDs>C*
Offence Severity (Rank)			20.83	12.47	20.18	10.86	-	-	
WAIS-III Full Scale IQ	58.80	5.87	62.90	5.22	89.50	11.12	103.25	5.67	IDs<IDs-O*; IDs<CO***; IDs<C***; IDs-O<CO***; IDs-O<C***; CO<C***
Bryant Empathy Index	14.65	2.85	13.55	3.62	16.90	2.65	16.00	2.91	IDs<CO*; IDs-O<CO**; IDs-O<C*
How I Think Questionnaire (<i>M</i> Scores)									
Anomalous Responding	3.05	0.84	3.29	1.12	3.56	0.99	3.59	0.72	
Self-Centred	2.07	0.67	2.56	0.97	2.26	0.78	1.91	0.59	IDs-O>C*
Blaming Others	2.44	0.73	3.12	0.94	2.36	0.72	1.81	0.56	IDs<IDs-O*; IDs>C**; IDs-O>CO**; IDs-O>C***; CO>C*
Minimising Mislabelling	2.04	0.59	2.49	0.86	2.11	0.86	1.76	0.52	IDs-O>C**
Assuming the Worst	2.20	0.60	2.47	1.03	2.17	0.75	1.65	0.63	IDs>C**; IDs-O>C**; CO>C*
Opposition-Defiance	2.50	0.59	3.26	1.05	2.57	0.94	1.88	0.51	IDs<IDs-O**; IDs<CO; IDs>C**; IDs-O>CO*; IDs-O>C***; CO>C**
Physical Aggression	2.09	0.75	2.16	0.97	1.99	0.79	1.55	0.56	IDs>C*; IDs-O>C*; CO>C*
Lying	2.09	0.52	2.91	1.10	2.49	0.77	2.21	0.55	IDs<IDs-O**; IDs-O>C*
Stealing	2.01	0.58	2.40	0.97	1.99	0.72	1.63	0.56	IDs>C*; IDs-O>C**
Overt Scale	2.29	0.57	2.70	0.91	2.28	0.81	1.73	0.50	IDs>C**; IDs-O>C***; CO>C*
Covert Scale	2.05	0.52	2.64	0.90	2.22	0.65	1.92	0.54	IDs<IDs-O*; IDs-O>C**
Total Score	2.18	0.53	2.67	0.85	2.24	0.72	1.81	0.50	IDs<IDs-O*; IDs>C*; IDs-O>C***; CO>C*

*p<0.05
 **p<0.01
 ***p<0.001

Table 5: Moral reasoning scores for men with and without IDs and offenders and non-offenders.

	IDs		IDs-Offenders (IDs-O)		Comparison- Offenders (CO)		Comparison (C)		Post-hoc Tests
Sociomoral Reflection Measure –Short Form									
Contract	204.17	46.79	229.17	30.52	293.33	46.01	337.92	35.20	IDs<IDs-O*; IDs<CO***; IDs<C***; IDs-O<CO***; IDs-O<C***; CO<C**
Truth	175.00	55.01	197.37	56.45	287.50	60.43	339.47	48.81	IDs<CO***; IDs<C***; IDs-O<CO***; IDs-O<C***; CO<C**
Affiliation	211.25	53.48	231.25	46.51	286.33	56.83	322.50	45.09	IDs<CO***; IDs<C***; IDs-O<CO***; IDs-O<C***; CO<C*
Life	206.25	58.98	247.50	39.65	285.08	58.50	325.25	33.85	IDs<IDs-O*; IDs<CO***; IDs<C***; IDs-O<CO*; IDs-O<C***; CO<C*
Property	140.00	57.58	205.00	48.40	265.00	69.02	313.16	64.21	IDs<IDs-O***; IDs<CO***; IDs<C***; IDs-O<CO***; IDs-O<C***; CO<C*
Law	122.50	34.31	186.84	36.67	292.50	83.15	353.13	56.18	IDs<IDs-O***; IDs<CO***; IDs<C***; IDs-O<CO***; IDs-O<C***; CO<C*
Legal Justice	167.50	40.64	225.00	42.87	310.53	48.82	355.56	29.15	IDs<IDs-O***; IDs<CO***; IDs<C***; IDs-O<CO***; IDs-O<C***; CO<C**
Total Score	186.59	33.35	224.37	27.64	288.70	36.85	331.92	31.53	IDs<IDs-O***; IDs<CO***; IDs<C***; IDs-O<CO***; IDs-O<C***; CO<C***
*p<0.05									
**p<0.01									
***p<0.001									

Figure 1: Adjusted means (SEM) on the Sociomoral Reflection Measure-Short Form controlling for Full Scale IQ by Group.

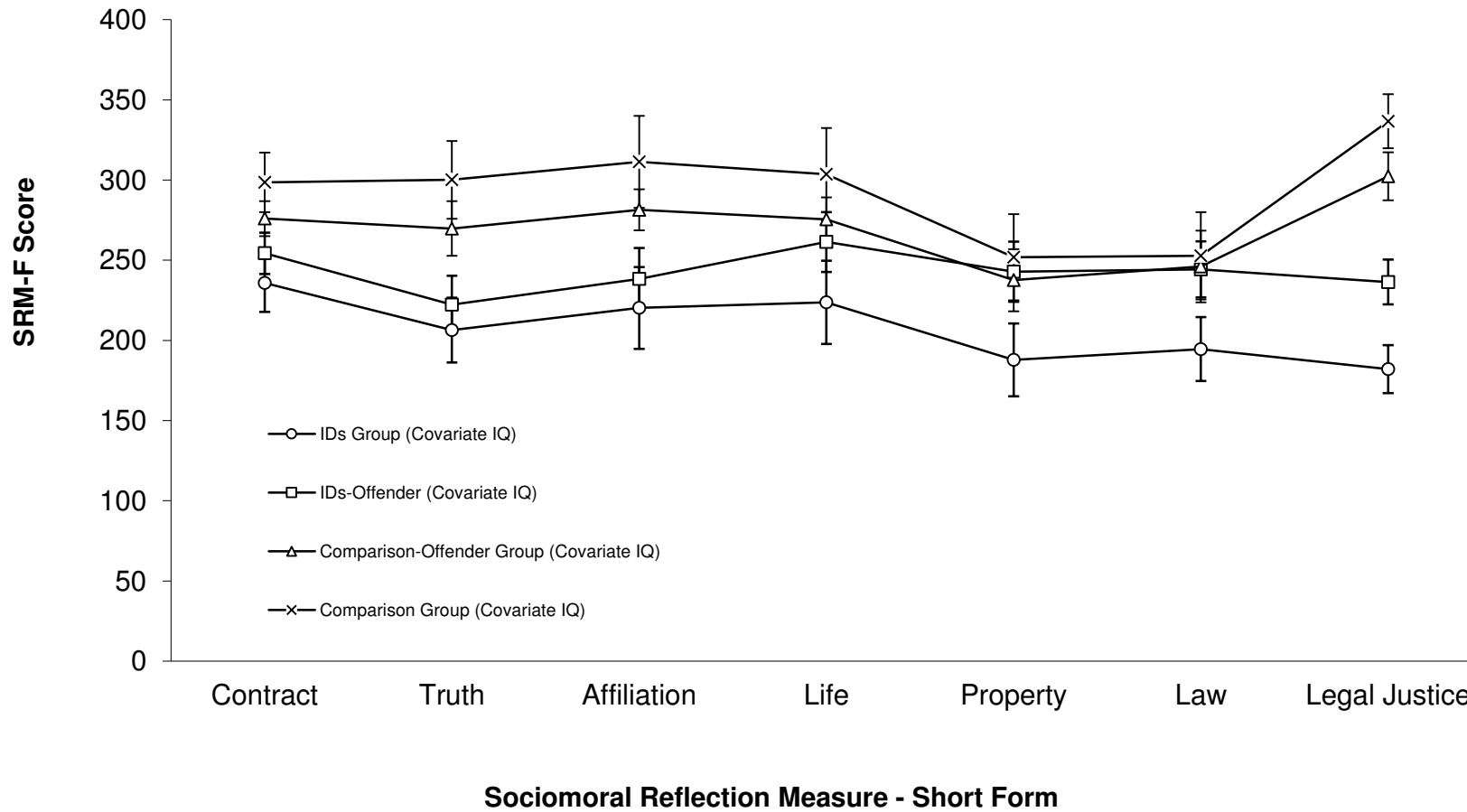


Table 6

A mediation analysis demonstrating that the relationship between empathy and distorted cognitions is mediated by moral reasoning. Using bootstrapping, a significant indirect effect is found.

	Unstandardised B	SE	t	p
a	6.698	2.137	3.13	0.0024
b	-0.004	0.001	-3.55	0.0007
c	-0.056	0.024	-2.29	0.0249
c'	-0.027	0.024	-1.12	0.2649
<hr/>				
Indirect Effect	-0.029	0.012	-2.37	0.0177
	<u>Lower BCa 95% CI</u>		<u>Upper BCa 95% CI</u>	
Indirect Effect (Bootstrap)	-0.0601		-0.0092	