

McGauley, G; Ferris, S; Marin-Avellan, L; Fonagy, P; (2013) *The Index Offence Representation Scales; a predictive clinical tool in the management of dangerous, violent patients with personality disorder? Criminal Behaviour and Mental Health* , 23 (4) 274 – 289

## ARTICLE

# **The Index Offence Representation Scales (IORS); a predictive clinical tool in the management of dangerous, violent personality-disordered patients?**

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## **Abstract**

**Background** Forensic professionals attach considerable importance to their patient's description of his or her index offence which is frequently used to inform the patient's management and predict future behaviour. However, despite the cardinal importance of the index offence there is no systematic approach to examining and formulating the patient's offence narrative.

**Aim** To examine whether a clinical tool, which tapped into the patient's capacity to mentalize, could be developed from the index offence narratives of violent, personality-disordered patients. To see whether this tool would capture how the patient represents his or her index offence and predict the patient's progress, in terms of institutional aggression, pro-social behaviour, inter-personal relationships and psychiatric symptomatology.

**Method** This was a prospective, cohort study. The index offence narratives of 66 violent, personality disordered patients were obtained from a semi-structured interview and used to generate the Index Offence Representational Scales (IORS). The predictive validity of these scales was investigated across a range of outcome variables, controlling for the association between initial and final value of the dependent variable.

**Results** The degree of interpersonal violence and malevolence as measured by the IORS predicted subsequent violent behaviour. In contrast to their actual aggressive behaviour these patients rated themselves as having fewer symptoms on the SCL-90-R and problems in interpersonal relationships on the IIP. A more empathic victim representation on the IORS predicted those patients who engaged better in the hospital's therapeutic regime.

**Conclusions** The IORS may prove a useful tool to help clinicians predict both institutional aggression and pro-social engagement in these difficult to manage patients. Future replication studies would be useful to further validate the IORS.

**Keywords:** Index offence; personality disorder; violence; mentalization; interpersonal relating; pro-social behaviour

## **Introduction**

As professionals we routinely ask our patients to talk to us about their index offence and use what our patients say to inform their management or our predictions about their behaviour, symptomatology and risk. Elements such as aggression, empathy and responsibility are often highlighted in the patient's account of his or her offence and assumptions are made about their significance with respect to the individual's future progress.

However, despite the central importance of the index offence there is no systematic approach to **formulating** the patient's offence narrative. If a clinical tool could be developed from the narrative accounts of these patients, such a tool might help clinicians both manage and predict the behaviour of these individuals'.

Enquiry into the index offence is often undertaken using either self-report questionnaires or unstructured clinical judgement; both of these have limitations in individuals with severe personality-disorder (Losel, 1998). Direct questioning can elicit

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socially desirable answers from patients which can affect the validity of the information (Hiscoke et al, 2003). As personality-disordered patients have an impeded capacity for introspection and perspective taking (Fonagy, 1998; Perry, 1992), they may conceptualise their psychological difficulties differently to mental health professionals. Consequently self-report can be limited by defensive and self-presentational biases which can distort the information patients provide (Gudjonsson and Moore, 2001).

Methodologies' arising from the field of attachment research allow a reliable and valid approach to the classification of a person's representation of their own history and experience. These techniques are based, not only on what people say about their experiences, but the manner in which these are reported. Just as studying the quality of the attachment representations through narrative yields a prediction of future experience in interpersonal relationships (van IJzendoorn, 1995) we hoped that a similar clinical tool could be designed using patients' mental representations of their index offence. Patients with personality disorder, who were detained at the highest level of security in the healthcare system because of their dangerousness, and who had committed grave index offences provided a unique population for the development of such a measure.

### **Aims**

The first aim was to investigate whether a systematic approach to the examination of index offence narratives could yield a reliable clinical tool, the Index Offence Representational Scales (IORS), which reflected the current state of mind of the individual with respect to how he or she represented their index offence in relation to particular attributes. Second, to see whether the IORS provided a way of predicting how violent personality-disordered patients progress during the year subsequent to their admission: In particular how these patients a) behave, as assessed by measures of aggressive and pro-social behaviour b) function interpersonally, as assessed by patient rated and nurse rated measures and c) progress in terms of psychiatric symptomatology.

### **Method**

**Participants and procedure;** the participants comprised 66 patients with a diagnosis of personality disorder who posed a serious risk to the public and were detained under The Mental Health Act (HMSO, 2007) in a high secure hospital. The research had ethical approval. All patients sequentially admitted over the study period were approached if they were aged over 18. Exclusion criteria were active symptoms of psychosis, poor proficiency in English, physical disability, or an IQ below 70.

Demographic, developmental and criminogenic data were collected from patient interviews and case-notes. The Index Offence Interview (IOI), baseline measures, self-report and interview schedules and observer-report measures were administered early within the patient's admission. The patients were followed up for a year and the outcome measures were administered at 3 monthly intervals, unless otherwise indicated.

They were a highly violent group. The patients' profiles and early adverse experiences were similar to those of other personality-disordered patients detained in high security;

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the mean number of personality disorder diagnoses was 2.98 (sd 1.59) (Blackburn et al, 2003; Coid et al, 1999; Pert et al, 2004). Table 1 shows the patients' demographic, personality, developmental and criminogenic data.

Table 1

## **Measures**

### **Predictor measures**

#### **The Index Offence Interview (IOI)**

The IOI was designed to encourage the patient to mentalize about his or her index offence. In other words to think about his or her own mind and the minds of others, including the victim, and understand the behaviour of self and other as driven by thoughts, feelings, beliefs and desires (Bateman and Fonagy, 2004) with reference to the index offence. The interview consisted of 8 open-ended questions. On average the interview lasted between 10-25 minutes and as such could be easily integrated into a standard clinical interview. The interview format provided several opportunities for the speaker to either contradict or fail to support what he or she said. Throughout the interview the patient was encouraged to expand and clarify his or her descriptions and evaluations. **Please see online appendix 1 for further information about the IOI.**

#### **The Index Offence Representational Scales (IORS);**

The IOIs of the 66 patients were audio taped, transcribed and underwent a thematic analysis using the framework approach (Pope et al, 2006). Five themes emerged; agency; victim representation; interpersonal violence; malevolence and perception of self. Dimensional scales were created which were piloted across the IOI transcripts. Each transcript took between 10-40 minutes to rate. Table 2 summarizes the scales.

Table 2

The scales underwent two reliability tests. The scale developer, who had no contact with the patients and no access to other trial data, and the principal researcher independently rated 20 transcripts. To avoid any bias introduced by the principal researcher knowing the patients, a naïve rater, uninvolved in the scale development, rated 20 transcripts independently with the scale developer.

### **Baseline measures**

The Structured Clinical Interview for DSM-IV Personality Disorders (SCID-II; First et al, 1997) was used to assess Axis II psychopathology. A SCID-II study specific inter-rater reliability yielded a mean kappa of .80. [The Structured Clinical Interview for DSM-IV Axis I Disorders SCID 1 \(SCID-I; First et al, 1997a\) was used to assess Axis I psychopathology.](#) The Revised Gudjonsson Blame Attribution Inventory (BAI; Gudjonsson and Singh, 1989) was used at baseline to assess the construct validity of the IORS.

### **Outcome measures**

**Behavioural domain:** Study-specific measures of antisocial and pro-social behaviour were designed and outcome data collected systematically at 4, 8, and 12 months. Information was collected on violent and aggressive incidents in the 4-month period

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prior to each follow-up from case-notes and incident forms. Information for the pro-social index was collected from the hospital's data-base for patient activities. Each patient's attendance at occupational therapy, education and work areas in the 4-month period prior to each follow-up point was calculated. Non-attendances because of non-patient factors were factored out. Data on violent and aggressive incidents were operationalized into a 5-point antisocial scale which reflected both the severity and frequency of incidents. Data on attendance at activities and progression to lower levels of security were operationalized into a 7-point pro-social scale. The data for each patient, for each 4 month period were rated using the scales. Good inter-rater reliability was found (Spearman's  $\rho = 1.0$  for anti-social scale;  $\rho = 0.98$  for pro-social scale).

**Interpersonal relating:** This was assessed using a self-report measure, the Inventory of Interpersonal Problems (IIP; Horowitz et al, 1988) completed at entry and 1 year where high scores indicate a greater perceived problem and a nurse rated measure, the Chart of Interpersonal Reactions in a Closed Environment (CIRCLE; Blackburn and Renwick, 1996). The CIRCLE was completed at entry, 4, 8 and 12 months and assesses the interpersonal style and social behaviour of patients across eight domains.

**Psychiatric symptomatology:** This was assessed using a semi-structured interview, the Brief Psychiatric Rating Scale-Expanded Version (4.0) (BPRS; Ventura et al, 1993) and the 3 global indices of the self-report Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994). The Global Severity Index (GSI), measures overall level of distress, the Positive Symptom Distress Index (PSDI) measures symptom intensity and the Positive Symptom Total (PST) measures symptom breadth. The BPRS and the SCL-90-R were completed at entry, 4, 8 and 12 months.

### **Statistical analysis**

The first study aim, that the IORS scales reflected aspects of the current state of mind of the individual re the index offence, was investigated using correlation analysis. Inter-rater reliability and associations between the IORS and continuous variables were investigated using Spearman's  $\rho$  correlation co-efficient (two-tailed). Associations between the IORS and categorical variables were examined using a series of t tests (two-tailed).

Partial correlations were used to examine the second aim, to see whether the IORS predicted the patients' progress over the next year. Partial correlations between the IORS and the outcome variable were computed, controlling for the association between initial and final value of the dependent variable. Data from the 4, 8 and 12 month follow-up points were aggregated. Where more than one of the IORS was predictive of the dependent variable multiple linear regression analysis was used to determine which model provided the best prediction.

### **Results**

The mean  $\rho$  for the inter-rater reliability estimates were .9 for the scale developers and .85 for the independent rater. The scales showed unsurprising inter-correlations. [Please see online appendix 2 for the correlation matrix.](#)

There were no significant associations between the IORS and demographic variables,

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being in care or having been physically abused. Patients who had been sexually abused represented their offence as involving less interpersonal violence ( $t = 2.99$ ;  $df = 64$ ;  $p = .004$ ) and less malevolence ( $t = 2.13$ ;  $df = 63$ ;  $p = .04$ ) towards the victim compared with the non-sexually abused group. This association is most likely explained by the fact that there was a significant association between sexual abuse and an index offence of major violence ( $\chi^2 = 6.11$ ;  $p = .01$ ;  $df = 1$ ) with those patients who were sexually abused committing less violent offences. There were a lack of associations between the IORS and SCID I and II diagnoses. There was a significant positive association between having an index offence of major violence and the interpersonal violence and malevolence IORS ( $t = - 7.27$ ;  $df = 57$ ;  $p = .000$ ) and ( $t = - 3.53$ ;  $df = 64$ ;  $p = .001$ ) respectively.

With respect to the study's first aim we were interested to see whether the IORS reflected the patient's state of mind early in his or her admission in relation to interpersonal interactions, psychiatric symptomatology and capacity to take responsibility for the offence as measured by the IIP, CIRCLE, BPRS, SCL- 90-R and BAI respectively. Table 3 shows the associations between the IORS and baseline measures.

Table 3

Counter-intuitively, there was a significant negative association between the IOR interpersonal violence scale and the patients' mean IIP score at entry ( $-.27$ ;  $p = .03$ ). Those patients who represented their index offence with a higher degree of interpersonal violence perceived themselves as having fewer problems in their current interpersonal relationships compared with patients with lower representational levels of interpersonal violence. There were only 2 significant positive associations between the IORS and the CIRCLE scales at entry. Those patients, who the nurses rated as being more compliant in their interpersonal interactions, had a greater intention to harm their victim compared to those individuals rated as less compliant ( $.30$ ;  $p = .02$ ). Patients rated as being more friendly had index offence representations containing a greater degree of interpersonal violence ( $.29$ ;  $p = .02$ ).

There were several significant associations between the IORS and patients' rating of their offence on the BAI. In the main these associations were unsurprising and support the validity of the IORS. There was one counter-intuitively finding; patients who represented themselves as lacking in agency for their offence rated themselves as experiencing more guilt, although this just reached significance ( $-.25$ ;  $p = .05$ ) and may be a chance finding. We thought this association may relate to the extent to which the patients attributed blame to their mental illness. When we controlled for this by entering mental element as a covariate, the association failed to reach significance.

The main aim of the study was to investigate the predictive validity of the IORS. Table 4 shows the associations between the IORS and outcome variables

Table 4

We were particularly interested to see whether the scales provided clinicians with a handle on the future aggressive and pro-social behaviour of these patients. There was a significant positive association between the IOR interpersonal violence and

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malevolence scales and the antisocial behavioural scale (.42;  $p = .002$ ) and (.34;  $p = .01$ ) respectively. Those patients, who on admission, represented their index offence as having greater malevolent intent and levels of interpersonal violence were the patients who committed either a greater number of incidents or more severely aggressive incidents over the next year. As the interpersonal violence and malevolence scales were highly correlated linear regression was used to determine which model provided the clearest prediction of antisocial behaviour. When all the scales were entered the interpersonal violence scale was the only significant predictor of incidents (Beta = .36;  $p = .009$ ;  $R^2 = .11$ ;  $F_{(1, 49)} = 7.44$ ;  $p = .009$ ). There was also a significant positive association between the IOR victim representation scale and the pro-social index (.35;  $p = .01$ ). Those patients who initially represented their victim more empathically engaged more in off ward activities and were more likely to move to a lesser degree of security in the following year compared to those patients who represented their victim in a more hostile or denigrating way.

We also investigated the predictive validity of the IORS with respect to the patients' interpersonal functioning and psychiatric symptomatology, controlling for the association between the initial and final value of the outcome variable. Those patients who represented their index offence with a higher degree of interpersonal violence and malevolent intent towards their victim perceived themselves as having fewer problems in their interpersonal relationships with staff and patients (-.41;  $p = .003$ ) and (-.55;  $p = .000$ ) respectively, as assessed by the IIP, compared to patients with lower representational levels of violence and malevolence. As these scales were inter-correlated linear regression was used to determine which model best predicted the patients' rating of their interpersonal difficulties. When all the scales were entered the proportion of variance explained by the model was 82% ( $R^2 = .82$ ;  $F_{(5, 49)} = 46.10$ ;  $p = .000$ ). The malevolence scale was the only significant predictor (Beta = -.26,  $p = .003$ ). The only weakly significant association between the IORS and the CIRCLE was that the nurses rated those patients with greater levels of malevolent intent as being less dominant (-.30;  $p = .05$ ).

The significant negative association between the IOR malevolence scale and both the GSI (-.53;  $p = .000$ ) and PST (-.56;  $p = .000$ ) scales of the SCL-90-R indicated that those patients' with more malevolent representations of their victim rated themselves as being both less distressed by and having fewer psychiatric symptoms compared with patients with less intent to damage their victim. The same pattern held for the interpersonal violence scale and the PSDI scale of the SCL-90-R (-.40;  $p = .008$ ) indicating that those patients with more violent offence representations rated themselves as having less intensive symptoms than patients with less violent offence representations. There were no associations between the IORS and observer-rated psychiatric symptoms on the BPRS.

## **Discussion**

Overall the IORS scales appeared to be reliable and valid. The lack of significant associations between the IORS and demographic variables, SCID I and II categories and psychiatric symptom measures indicates that the scales were not measuring personality, psychiatric disorder or symptomatology. However the lack of associations between patients with antisocial personality disorder and the victim representation,

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interpersonal violence and malevolence IORS was surprising. We think the best explanation for this is a ceiling effect, with the considerable co-morbidity across Axis II diagnoses making any association hard to pick up.

The main aim of the study was to see whether the IORS could provide clinicians with a way of predicting the progress of these patients during their incarceration. Studies of the prediction of inpatient or institutional violence have yielded contradictory results, probably as a result of methodological diversity (Steinert, 2002; Doyle and Dolan, 2006). One consistent finding is that dynamic and psychopathological variables play a more important predictive role in inpatient settings while static, historical predictors are more prominent predictors for community violence (Steinert, 2002). It appeared that the degree of interpersonal violence and, to a lesser extent malevolence, represented in the patient's mind with respect to his or her index offence may act as a driver for aggressive behaviour. In these patients intention to damage the other is not encapsulated within the patients' thinking about their offence, but breaks through in behaviour. It is salient that these institutionally violent patients saw themselves as having fewer problems in their interpersonal interactions and fewer and less distressing psychiatric symptoms. Research indicates that violent personality-disordered patients have an impoverished capacity to mentalize (Levinson and Fonagy, 2004). We propose that the disparity between these patients' view of their own and others' minds, in terms of them feeling relatively free of symptomatic distress and problems in interpersonal relating versus their actual violent behaviour, is consistent with these patients having deficits in their internally focused and self-other mentalization systems.

The prediction of pro-social behaviour in violent personality-disordered patients has commanded less attention, although aiding the development of this behaviour is a key component of treatment (Livesley, 2007). The finding that those patients with a more empathic victim representation had a greater engagement in the rehabilitational process is also in keeping with the theoretical framework of mentalization. Those who are more able to accurately mentalize the minds of others would be more willing to accept their help and utilize the available treatment.

Other instruments have been used to predict institutional violence. The psychopathy based measures have yielded only modest associations (Doyle et al, 2002) with small to modest effect sizes which vary across studies. Studies conducted as part of the Dangerous and Severe Personality Disorder Programme (DSPD) in the UK have used actuarial and risk assessment tools and personality measures to predict institutional aggression (Langton et al, 2009; 2010). However, many personality-disordered offenders fail to meet the high-risk DSPD inclusion criteria. Staff ratings of interpersonal style, using the CIRCLE, have also predicted aggression in personality-disordered prisoners (Dolan and Blackburn, 2006). However, it may be that the IORS has a greater clinical utility as it has the advantage of giving a handle on the unfolding of both aggressive and pro-social behaviour.

On admission, the nurses saw those patients with more violent and malevolent index offence representations as being more friendly and compliant. One partial explanation for this mismatch may be that, as these patients also perceived themselves as having fewer problems in their interpersonal relationships, this self-perception was enacted in



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their friendly behaviour, as observed by the nurses. Although not tested, this constellation of self and observer perceived interpersonal relating, in the presence of a highly violent offence representation, may be a marker for patients with more psychopathic personality traits. Psychopathy Checklist (PCL-R) scores were not available for these patients but in future validation studies it would be interesting to see whether the IOR scales correlated with PCL-R scores and to investigate the capacity of both measures independently and together to predict violence.

Prospectively the IORS did not predict the nurses' view of the patients' day to day interactions. Possible explanations are that the patients' representations of their offence are psychologically compartmentalized and split off from their day to day relating or that, if present, these representations are not picked up by the CIRCLE. Alternatively, it may be that the nurses were unable to take a suitable observing stance and that their ratings were unduly influenced by their pre-existing expectations of their patients. Daffern (Daffern et al, 2010) report a similar phenomenon in that patients' perceptions of perceived coercion were unrelated to their interpersonal interactions as assessed by the CIRCLE.

A limitation of this research is that it employed new, non-validated measures such as the IOI however the IOI's construction draws on semi-structured interviews from the field of attachment research such as the Adult Attachment Interview (Main and Goldwyn, 1998) that have good reliability and validity.

Despite the centrality of the index offence its potential to systematically inform clinicians about the management of violent personality-disordered offenders has been under utilised. Although a small study which is in need of replication, the IORS seem a promising clinical tool which could aid clinicians **formulate** their patients' offence and predict both institutional aggression and pro-social engagement for this high risk group. Discriminating patients with the capacity to engage early in their care pathway may help clinicians maximize the rehabilitational potential for these patients while identifying those patients who will need greater therapeutic input to support the development of pro-social behaviour.

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<b>Table 1: Demographic, personality, developmental and criminogenic data for study patients (n=66)</b>							
<b>Demographic variable</b>	<b>Mean (sd)</b>	<b>SCID II diagnosis</b>	<b>Frequency (%)</b>	<b>Developmental variable</b>	<b>Frequency (%)</b>	<b>Index offence</b>	<b>Frequency (%)</b>
Age	31.35 (8.25)	Avoidant	19 (28.8)	Care before 10 years old	18 (27.3)	Major Violence <sup>1</sup>	29 (43.9)
IQ	92.24 (14.41)	Dependent	3 (4.5)	Care after 10 years old	25 (37.9)	Minor Violence <sup>2</sup>	13 (19.7)
	<b>Frequency (%)</b>	Obsessive-compulsive	3 (4.5)	Physical abuse	35 (53)	Sexual Offences	10 (15.2)
Male	55 (83)	Passive-aggressive	16 (24.2)	Sexual abuse	33 (50)	Acquisitive Offences	11 (16.7)
Female	11 (17)	Depressive	21 (31.8)			Arson	11 (16.7)
Caucasian	61 (92.7)	Paranoid	31 (47.0)			Criminal Damage	3 (4.5)
Other	5 (7.6)	Schizotypal	3 (4.5)			Other	3 (4.5)
<b>HMSO</b>		Schizoid	7 (10.6)				
Professional & Intermediate	6 (9.1)	Histrionic	1 (1.5)				
Skilled & Semi-skilled	44 (66.7)	Narcissistic	11 (16.7)				
Unskilled	12 (18.2)	Borderline	31 (47)				
Armed Forces	3	Antisocial	52				

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	(4.5)		(78.8)				
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<sup>1</sup> Includes homicide, attempted murder, infanticide and grievous bodily harm  
<sup>2</sup> Includes actual bodily harm, assault, making an affray, wounding and threats of violence

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<b>Table 2: The Index Offence Representational Scales (IORS)</b>	
<b>Scale name and description</b>	<b>Description of scale points</b>
<b>Agency</b> , (1 - 4 point scale): Examines the extent to which the patient acknowledges the offence, his or her role in it and degree of responsibility taken.	<b>Low scores:</b> The patient denies or only partially acknowledges any recollection of, or role in the offence. The patient either attributes his or her actions entirely to an external agency or claims lack of control e.g. a violent rapist says he woke up on a park bench covered in somebody else's blood.
	<b>High scores:</b> The patient acknowledges his or her role in the offence, ability to make decisions at the time and accepts some responsibility for the offence. The highest rating is given if the patient accepts full control for his actions and full responsibility for the offence.
<b>Victim representation</b> , (1 - 5 point scale): Examines the extent to which the patient expresses hostile intent towards the victim, or a more understanding account of the impact of the offence on the victim.	<b>Low scores:</b> The patient expresses hostile intent to harm the victim who is reviled and denigrated by the perpetrator. The patient may feel that the victim provoked him.
	<b>High scores:</b> The patient gives a spontaneous, authentic and elaborated account of the impact of the offence on the victim and expresses genuine sorrow for harm done to another.
<b>Interpersonal violence</b> , (1 – 4 point scale): Assesses the degree of interpersonal violence.	<b>Low scores:</b> There is either no violence described as part of the offence representation or no more force than necessary is used.
	<b>High scores:</b> The violent response is out of proportion to the stated purpose or provocation. Violence may be an end in itself e.g. stabbing the victim multiple times, or continuing to attack the victim after death.
<b>Malevolence</b> , (1 – 4 point scale): Assesses the intention to cause damage to the victim.	<b>Low scores:</b> Any damage to the victim, either physical or psychological, is accidental, incidental or not intended. The offence is largely described in terms of a non-malicious purpose e.g. a sexual offence described as follows. 'She said it's cold and we started cuddling, then one thing led to another, she seemed to be enjoying it...when she said stop, I did.'
	<b>High scores:</b> The intention to cause damage to the victim is the main purpose of the offence which is usually premeditated.
<b>Perception of self</b> , (1 – 5 point scale): Examines the extent to which the patient considers the offence concordant or discordant with his or her sense of self	<b>Low scores:</b> The offence is in keeping with the patient's sense of self and may help maintain or bolster his or her self-esteem. The patient considers it normal behaviour under the circumstances and may feel a sense of achievement, e.g. a patient who describes himself as the 'best burglar around'.
	<b>High scores:</b> The offence is out of kilter with the patient's sense of self. The patient experiences feelings of discomfort or distaste at his or her behaviour or may be traumatized by the offence.

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**Table 3: Correlations of the IORS with the baseline variables**

	agency	interpersonal violence	victim representation	malevolence	perception of self
<b>Baseline variable</b>					
IIP mean (n = 65)	.13	-.27*	.24	-.21	-.07
CIRCLE dominant (n = 64)	.04	-.02	-.18	-.11	-.05
CIRCLE coercive (n = 63)	.01	-.09	-.06	-.23	-.11
CIRCLE hostile (n = 63)	.17	-.17	-.04	-.16	-.11
CIRCLE withdrawn (n = 63)	.05	-.23	.12	-.04	-.04
CIRCLE submissive (n = 63)	.01	-.17	.16	.05	-.00
CIRCLE compliant (n = 63)	.07	.18	.09	.30*	.17
CIRCLE friendly (n = 63)	-.21	.29*	.06	.24	-.14

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CIRCLE sociable (n = 63)	-.12	.06	-.10	-.01	-.01
BPRS (n = 66)	.08	-.17	.16	-.17	-.04
SCL-90-R GSI (n = 65)	.04	-.06	.08	-.16	-.04
SCL-90-R PST (n = 65)	.06	-.04	.08	-.14	.05
SCL-90-R PSDI (n = 65)	-.03	-.08	.07	-.16	-.06
BAI guilt (n = 65)	-.25*	.10	.37**	-.04	.54***
BAI mental element (n = 65)	-.46***	.30*	-.03	.25*	.33**
BAI external element (n = 66)	.01	.18	-.37**	.11	-.25*
* p ≤ .05; ** p ≤ .01; *** p ≤ .001					



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**Table 4: Correlations of the IORS with the outcome variables, controlling for the association between the entry and the final level of the outcome variable**

	agency	interpersonal violence	victim representation	malevolence	perception of self
<b>Outcome variable</b>					
Antisocial scale (n = 51)	-.16	.42**	.01	.34**	.21
Pro-social scale (n = 56)	.05	-.19	.35**	-.14	.10
IIP mean outcome (n = 51)	.10	-.44***	.28*	-.49***	-.11
Controlling for entry level		-.41**	.10	-.55***	
CIRCLE dominant outcome (n = 47)	.15	.11	.08	-.31*	.05
Controlling for entry level				-.30*	
CIRCLE coercive outcome (n = 47)	.02	-.29	.20	-.31*	.04
Controlling for entry level				-.23	
CIRCLE hostile outcome (n = 47)	.09	-.23	.12	-.25	-.12
CIRCLE withdrawn outcome (n = 47)	.01	-.04	.07	-.01	-.12
CIRCLE submissive outcome (n = 47)	-.03	-.05	.07	.05	-.03
CIRCLE compliant outcome (n = 47)	.02	.14	-.04	.24	.13
CIRCLE friendly outcome (n = 47)	-.03	-.00	.01	.12	.17
CIRCLE sociable outcome (n = 47)	.10	-.20	-.07	-.12	-.12
BPRS outcome (n = 52)	.10	-.29*	.06	-.23	-.23
Controlling for entry level		-.22			
SCL-90-R GSI outcome (n = 45)	.05	-.26	.16	-.47***	-.07
Controlling for entry level				-.53***	
SCL-90-R PST outcome (n = 45)	.11	-.14	.12	-.43**	-.04
Controlling for entry level				-.56***	
SCL-90-R PSDI outcome (n = 45)	-.06	-.32*	.20	-.28	-.06
Controlling for entry level		-.40**			
* p ≤ .05; ** p ≤ .01; *** p ≤ .001					

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## Online Appendices

### Appendix 1; IOI details to be sent separately

### Appendix 2

**Table 5: Correlation matrix for the Index Offence Representational Scales (n= 66)**

IORS	Agency	Victim representation	Interpersonal violence	Malevolence
Victim representation	-.03 p = .79			
Interpersonal violence	-.30* p = .01	-.17 p = .17		
Malevolence	-.08 p = .52	-.38** p = .002	.60** p = .000	
Perception of self	-.53** p = .000	.42** p = .000	.27* p = .03	.02 p = .85

\*p ≤ .05; \*\* p ≤ .01