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Assessment of psycho-social factors predicting recidivistic violent offenses within a sample of male prisoners

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INTRODUCTION

Violent criminal behaviour is often seen as resulting from the impulsive, spur-of-the-moment, and unpredictable acts of enraged individuals. Some theorists such as Toch (1969) believe that individuals possessing certain personality traits or dispositions are more likely to react violently under certain circumstances. The possible utility of personality for predicting violent offences was exemplified by the research on the construct of “over-controlled hostility” (Megargee, 1966). Research on the personality profiles of violent offenders consistently differentiated those characterized by denial, repression, and lack of general hostility from those characterized by antisocial tendencies, impulsivity, extroversion, and general hostility (Blackburn, 1971, 1975, 1998, 2000; Henderson, 1982; McGurk & McDougall, 1981). The former group was labelled “over-controlled hostile offenders” because they seemed to rely on rigid and broad controls over aggression, as well as repression, to manage their anger (Megargee, 1966). Confronted with repeated exposure to anger-producing stimuli, these defences may occasionally break down causing an outpouring of extreme violence. The utility of over-controlled hostility for predicting unique patterns of violence has been supported by research showing that offenders with these traits evidence infrequent anger and aggression (Henderson, 1982; McGrory, 1991) and rare, but extreme, violence (White & Heilbrun, 1995). Furthermore, the violence committed by over-controlled hostile offenders is more likely to be murderous than the violence of other offenders; they are more likely to be violent toward family and friends; and they are more likely to use weapons with homicidal intent during periods of intoxication and interpersonal conflict (Hershorn & Rosenbaum, 1991; McGrory, 1991).

Eysenck’s (1977) theory proposes three fundamental factors of personality: Psychoticism (P), Extraversion (E), and Neuroticism (N). Based on biological and conditioning processes, Eysenck hypothesized that criminals score high on all three basic dimensions of personality. Empirical investigations, however, indicate that delinquents do score high on P, but not always on E and N. Recent research strongly supports Eysenck’s position that people likely to commit delinquent and criminal behaviour will score high on the P scale (Cale, 2006; Center, Jackson, & Kemp, 2005; Heaven, Newbury, & Wilson, 2004; Kemp & Center, 2003; Levine & Jackson, 2004; van Dam, Janssen, & De Bruyn, 2005; Walker & Gudjonsson, 2006). Heaven et al. (2004) reported that the P-scale is effective in identifying those adolescents likely to commit delinquent offenses of all kinds, but it appears...
to be effective in identifying only serious violent offending in young adults. The N-scale does well in predicting serious crimes (Kemp & Center, 2003) and is somewhat successful in predicting recidivism (van Dam et al., 2005). It might be expected that the N scale does better at predicting recidivism since Eysenck hypothesized that high N scorers tend to be driven to continue their habitual behaviors and be unusually impulsive. The power of the E-scale as the predictor of criminal behaviour is even more in question, as several studies have found only a weak connection to offending (Cale, 2006; Center et al., 2005; Kemp & Center, 2003). However, Eysenck (1987) pointed out that incarcerated persons cannot properly answer the social activity questions which are part of the E-scale (van Dam et al., 2005). Eysenck (1971) recognized this early in his formulation of his theory, when he commented that:

“not all crimes are likely to be equally highly correlated with extraversion and some types of criminals, such as the recidivists, lacking entirely in the social skills needed to make a success of living outside an institution, may in fact show introverted tendencies” (p. 289).

Therefore, the low scores on the E scale might be due in part to the effects of incarceration. However, the most recent study conducted by Boduszek, Adamson, Shevlin, Hyland, and O’Kane (2012, in press) in a population of recidivistic prisoners indicated that extraversion plays a significant role in the development of distorted cognitive structures (such as criminal thinking styles) and criminal behaviour.

Prisonization is another possible predictor of repeated violent offences. Prisonization is a term coined by Donald Clemmer (1940) to describe the process by which prisoners adopt the customs, mores, and values of the prison culture in which they live. The prisonization thesis provides an explanation for the empirical regularity with which recidivistic offenders cycle in and out of prison to resume offending upon release. Prisonization also provides a criminological theory that articulates how and why prisons can serve as schools of crime and violence (Akers, Hayner, & Gruninger, 1977; Clemmer, 1940; Hochstetler & DeLisi, 2005; Paterline & Petersen, 1999; Sorensen, Wrinkle, & Gutierrez, 1998; Sykes, 1958; Wheeler, 1961; Reisig & Lee, 2000; Zaitzow, 1999). One significant example of the role of violent recidivism is a recently published study by DeLisi and Scherer (2006) in which 160 multiple-homicide offenders were compared to 494 single-homicide offenders on a number of concurrent offense and criminal-history variables. The results of this study indicate that
multiple violent offending was associated with prior violent convictions, prior incarceration, and greater concurrent involvement in violence. Despite providing support for a criminal-careers perspective on multiple violent offending, the DeLisi and Scherer study did not consider other possible theoretical explanations such as criminal social identity.

Zillmann (1979; 1983) believed that violent offences can be predicted by cognitive or thinking processes. Walters (2003) explored the prisonization process in some detail and determined that changes in both identity and thinking were critical in promoting prisonization. In this study, 55 male federal prison inmates with no prior prison experience (novice inmates) and 93 male federal prison inmates with at least one prior incarceration and at least five years of prison experience (experienced inmates) were administered the Psychological Inventory of Criminal Thinking Styles (Walters, 1995) and Social Identity as a Criminal (Cameron, 1999) on two occasions, 6 months apart. Whereas the scores of experienced inmates remained reasonably stable over time, novice inmates showed signs of increased criminal identity and proactive/instrumental criminal thinking. Whether increased instrumentality is a cause, consequence, or correlate of prisonization is currently unknown, but it may well have value in differentiating between single and multiple violent offending.

Considering the fact that the role of criminal social identity in predicting violent offences among repeated offenders has been neglected in the research literature, the aim of the current study was to incorporate this variable along with prisonization (measured by the level of recidivism) and personality traits (psychoticism, extraversion, and neuroticism) to investigate what variables can predict violent offending. Boduszek and Hyland (2011) indicated the necessity to consider one’s criminal social identity as a particularly important predictor of criminal behaviour, however research in this area has been extremely limited due to the absence of a well validated measurement tool. This problem has now been addressed with the publication of the Measure of Criminal Social Identity (MCSI - Boduszek, Adamson, Shevlin, & Hyland, 2012), an eight item, three-dimensional measure of criminal identity which has been empirically validated within a large sample of recidivistic prisoners. Specifically, the current study set out to investigate the difference between violent and non-violent recidivists on three personality variables (Extraversion, Neuroticism, and Psychoticism), level of recidivism and Criminal Social Identity. Additionally, the study
investigated how well personality, level of recidivism and criminal social identity can predict violent recidivism.

**METHOD**

**Participants and Procedure**

The sample included 312 male recidivistic prisoners incarcerated in Nowogard High Security Prison. The offender sample consisted of 133 violent offenders and 179 non-violent offenders. The respondents ranged in age from 20 to 66. The average age for participants was 33.85 (M = 33.85, SD = 9.38). Most offenders (88.1%; n = 275) come from urban areas. 52.2% (n = 163) of offenders reported to have primary school education, 45.5% (n = 213) of secondary school education, and 2.2% (n = 7) some college or university. 68.3% (n = 213) of prisoners indicated their marital status as single, 11.9% (n = 37) as married, 18.6% (n = 58) as divorced or separated, and 1.3% (n = 7) as widowed. The frequency of imprisonment reported by offenders ranged from 1 (mostly murderers) to 19 times (M = 3.57; SD = 2.48) and number of reported police arrests from 1 to 20 (M = 4.85; SD = 4.09).

The sample was recruited over a period of 3 months (March – May, 2011) in Nowogard High Security Prison for recidivists. Ethical approval for this project was granted by the Polish Prison Service. Appropriate prison staff members were instructed by the principal researcher about procedures involved in conducting this study. The questionnaires were delivered to the prison by the principal researcher. Of the 845 imprisoned adult male offenders requested to participate in this research project, 362 offenders (approximately 43%) volunteered their participation; however only 312 (approximately 37%) were considered for final analysis as 50 respondents returned considerably incomplete questionnaires. As all the questionnaires were returned in sealed envelopes, the researcher was not aware of whether the 50 incomplete questionnaires were due to the cognitive or literacy difficulties of the participants. Participants completed anonymous, self-administered, paper-and-pencil questionnaires which were compiled into a booklet along with an instruction sheet and a consent form attached to the front of the booklet. Each participant was provided with a brief description of the study, how to complete the questionnaire, and the general expected completion time. Participants were assured about the confidentiality of their participation and informed that they could
withdraw from the study at any point during the completion of the survey. Participants completed the questionnaires within the prison in their living units. After completing the questionnaire, prisoners were asked to place the questionnaire in an envelope, seal it and place it in a bag in the office of the prison educational coordinator. Participants were told that envelopes would be passed on unopened to the researcher. It was expected that this procedure would minimise any response bias as a result of giving the questionnaires to a member of the prison staff.

**Materials**

The Measure of Criminal Social Identity (MCSI: Boduszek, Adamson, Shevlin, & Hyland, 2012) is an 8-item measure which was adopted and modified from Cameron’s (1999) Social Identity Scale (12 items). The measure was developed to reflect Cameron’s (2004) three-factor model of social identification: ‘cognitive centrality’, the importance of belonging to a particular group; ‘in-group affect’, the emotional valance of belonging to a particular group; and ‘in-group ties’, the psychological perception of resemblance and emotional connection with other members of that particular group. Boduszek et al. (2012) applied this three-factor conceptualisation to a criminal group in the development of the MCSI and it was found to show an excellent model fit. The MCSI instrument therefore intends to measure prisoners’ criminal social identity. Each item was scored on a 5-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = sometimes, 4 = agree, 5 = strongly agree. Three items included in the scale were scored in a reverse direction (i.e., strongly disagree = 5 and strongly agree = 1). Possible scores ranged between 8 and 40, with higher scores indicating higher level of criminal identity. The measure included three sub-scales: In-Group Ties (3 items) subscale measures the level of personal bonding with other criminals; Cognitive Centrality (3 items) subscale measures the psychological salience of a criminal’s group identity; and In-Group Affect (2 items) sub-scale measures a criminals felt attitude toward other in-group criminals. Sample items measured each aspect of criminal social identity: Cognitive Centrality (e.g., “I often think about being a criminal”); In-group Affect (e.g., “In general I’m glad to be a part of a criminal group”); and In-group Ties (e.g., “I have a lot in common with other people who committed a crime”).
The Eysenck Personality Questionnaire Revised-Abbreviated (EPQR-A: Francis, Brown, & Philipchalk, 1992) is a 24-item inventory of four sub-scales with 6 items each: Extraversion (E), Neuroticism (N), Psychoticism (P) and a Lie scale (L). It was scored on Yes (1) and No (0) format and possible scores ranged between 0 and 6, with higher scores indicating higher levels of the personality trait. Sample questions included; “Do you often feel lonely?” (N), “Do other people think of you as being very lively?” (E), “Is it better to follow society's rules than go your own way?” (P), and “Do you always practice what you preach?” (L).

Level of recidivism was measured based on the frequency of self-reported incarcerations (“How many times have you been in prison?”). Given the anonymous nature of the study, there was no data available on official recidivism rates.

RESULTS

Descriptive statistics, correlations and group differences

The descriptive statistics and reliability for all continuous variables are presented in Table 1. Table 2 presents group differences (between those prisoners who reported repeated violent offences and prisoners without violent criminal history) for recidivism, in-group ties, in-group affect, cognitive centrality, psychoticism, neuroticism, and extraversion. Independent sample t-test results suggest that violent offenders and non-violent offenders significantly differed (t(310) = -3.59, p < .001, $\eta^2 = .04$) with regards to the scores on recidivism with higher scores reported by violent offenders. Furthermore, violent offenders scored significantly higher (t(310) = -2.33, p < .05, $\eta^2 = .02$) than non-violent offenders on the extraversion scale. Similarly, data suggests that violent offenders tend to report increased scores on cognitive centrality (t(301) = -2.14, p < .05, $\eta^2 = .01$) comparing to non-violent offenders. In terms of scores on psychoticism, neuroticism, in-group affect and in-group ties, independent sample t-tests did not indicate any significant differences between groups.

(Insert Table 1 about here)

(Insert Table 2 about here)
Logistic regression

Direct logistic regression was performed to assess the impact of recidivism, personality traits (psychoticism, extraversion, and neuroticism) and criminal identity (cognitive centrality, in-group ties, and in-group affect) on the likelihood that recidivistic prisoners would report that they committed multiple violent criminal offences. The correlations amongst the predictor variables (recidivism, in-group ties, in-group affect, cognitive centrality, psychoticism, neuroticism, and extraversion) included in the study were examined (Table 3). All significant correlations were weak to moderate, ranging between $r = .13, p < .05$ and $r = .38, p < .001$. This indicates that multicollinearity was unlikely to be a problem (see Tabachnick & Fidell, 2007).

A test of the full model containing all predictor variables against a constant-only model was statistically significant, $X^2 (7, 305) = 27.35, p < .001$, indicating that the model was able to distinguish between prisoners who reported and did not reported violent criminal offences. The model as a whole explained between 7% (Cox and Snell R square) and 12% (Nagelkerke R square) of the variance in violent offences, and correctly classified 56.8% of cases. As shown in Table 4 only four of the independent variables made a unique statistically significant contribution to the model (recidivism, extraversion, cognitive centrality, and in-group affect). The strongest predictor of reporting violent criminal offences was recidivism recording an odds ratio of 1.18 (OR = 1.18, p < .001). This indicated that criminals who spend more time in prison were 1.18 times more likely to report violent repeated criminal offences than those who spent less time in prison, controlling for all other factors in the model. The second and third strongest predictor were extraversion (OR = 1.15, p < .05) and cognitive centrality (OR = 1.08, p < .05). These findings suggest that those prisoners who score higher on extraversion and cognitive centrality scales were more likely to commit violent criminal offences. The odds ratio of .84 (OR = .84, p < .001) for in-group affect was less than 1, indicating that for increased scores on the in-group affect scale, prisoners were .84 times less likely to report having involvement in violent criminal offences, controlling for other factors in the model.

(Insert Table 3 about here)

(Insert Table 4 about here)
DISCUSSION

The primary purpose of this research project was to contribute to the existing literature regarding the predictors of violent criminal behaviour among repeat offenders by exploring the predictive ability of Criminal Social Identity, in conjunction with the more commonly investigated psychological variables such as personality traits and levels of recidivism. Specifically, the study investigated the differences between violent and non-violent recidivism in terms of personality traits and Criminal Social Identity, and examined how these variables predicted violent recidivism.

Initial investigations indicated that violent and non-violent offenders exhibited statistically significant differences in their levels of recidivism, Extraversion, and Cognitive Centrality, with violent offenders reporting higher scores on each respective variable. Although violent offenders reported higher levels of recidivism, Extraversion, and Cognitive Centrality, the magnitude of difference in each case was quite small. Of note however is that both violent and non-violent offenders reported considerably high levels of Extraversion, suggesting that previous concerns regarding the difficulty of measuring this personality trait given the participants environmental abnormalities was unlikely to have been a problem in this case.

Previous research among recidivistic criminals (DeLisi & Scherer, 2006) has indicated an association between violent offences and a greater frequency of incarcerations. Results from this study produced similar evidence with levels of recidivism emerging as the strongest predictor of belonging to the violent offender group. Individuals who reported a greater level of recidivism displayed a greater probability of belonging to the violent offender group than the non-violent offender group (OR = 1.18). Clearly causation cannot be inferred on the basis of these findings, however this observed relationship between number of imprisonments and violent criminal behaviour is interesting as it suggests that the process of prisonization may be influencing the emergence of serious violent criminal behaviour. Walter’s (2003) has already produced initial evidence that longer time spent incarcerated with criminals leads to increases in criminal identity and criminal thinking, both factors which are well established as potent predictors of criminal behaviour, therefore it is highly plausible that the process of prisonization can give rise to an increased likelihood of engagement in violent criminal behaviour, and this increased likelihood of committing violent offences is
mediated by changes in one’s identity and belief systems. Given the seriousness of the implications of such a relationship, it is imperative that longitudinal research be conducted in order to investigate this proposed hypothesis.

With respect to the role of personality in the prediction of violent offending behaviour, Extraversion was the only trait to emerge as a differentiating predictor between violent and non-violent offenders. Those prisoners who displayed higher levels of Extraversion were more likely to report being a violent offender (OR = 1.15). A great deal of prior research findings have questioned the predictive role of Extraversion in criminal behaviour, and its utility in understanding criminality more generally, however present findings in conjunction with previous findings from Boduszek et al. (2012, in press) are indicating that Extraversion does in fact have a very important and nuanced role in the understanding of criminal behaviour. Boduszek et al. (2012, in press) first demonstrated that Extraversion serves to moderate the relationships that exist between two of the three factors of Criminal Social Identity (In-Group Affect, and In-Group Ties) and criminal attitudes. Our findings are now indicating that Extraversion also has a role to play in distinguishing violent from non-violent offenders.

Neither Neuroticism nor Psychoticism were factors influencing whether prisoners belonged to the violent offender group. Eysenck’s definition of Neuroticism suggests that highly neurotic individuals will be unusually impulsive, and since impulsivity has been suggested frequently as an explanation for violent offences, Neuroticism is proposed to act as a predictor of violent criminal behaviour. Our results call into question that assertion, however future research should endeavour to more fully empirically investigate this issue by including a specific measure of impulsivity. It may be that impulsivity rather than Neuroticism is crucial in the prediction of violent criminal behaviour. Like Neuroticism, Psychoticism too could not predict membership of the violent offender group, and this finding is consistent with those of Haven et al. (2004) who reported that Psychoticism could predict violent criminal offences among young offenders but not among older offenders.

Boduszek and Hyland (2011) developed a theoretical model of Criminal Social Identity which argued that an individual’s social identity would play a crucial role in the prediction and understanding of various aspects of criminality including criminal thinking styles, and criminal behaviour. Concurrent to their theory of Criminal Social Identity,
Boduszek and colleagues (2012, in press) developed a validated measure of Criminal Social Identity which included three factors; Cognitive Centrality, In-Group Ties, and In-Group Affect. Consistent with the predictions of Boduszek and Hyland (2011), findings from the current study indicate that Criminal Social Identity is a very important psychological variable in the prediction of being a violent offender.

Cognitive Centrality refers to the psychological saliency of identification with one’s criminal group and higher scores on this variable predicted a greater likelihood of prisoners reporting that they belong to the violent offender group (OR = 1.08). This suggests that the more accessible one’s identification with their criminal peer group is, the greater the likelihood of being a violent offender.

In-Group Affect refers to the emotional connection one feels to their criminal group and higher scores on this variable predicts a lower likelihood of prisoners reporting that they will belong to the violent offender group (OR = .84). Contrary then to the role of Cognitive Centrality, a higher level of In-Group Affect reduces a prisoner’s likelihood of being a violent offender. These findings clearly demonstrate the need to consider the various aspects of an individual’s Criminal Social Identity when seeking to understand what variables are involved in the prediction of violent criminal behaviour.

The current findings, particular in terms of the role of social identity, may have implications for other delinquent and criminal populations, such that the different aspects of the construct may be seen as a risk or protective factor that could be implemented in risk assessments for violent offenders. In Ireland, where the prison system is vastly over-stretched and where 50% of prisoners return to prison within four years of release (O’Donnell, Baumer, & Hughes, 2008), knowledge of the predictors of violent re-offending is particularly relevant. The findings of the current study would suggest that those working with criminal populations should be cognisant of the role criminal identity can play in increasing or decreasing an individual’s likelihood of violent reoffending.

**Strengths and Limitations:**

As with any research project the current study had a number of limitations that should be considered by the reader when interpreting these findings. The currents study relied on self-reported number of incarcerations as a measure of recidivism. While this measure was used
to ensure anonymity of the data and increase truthful participation, it is open to distortion on
the part of the offender and lacking the accuracy that official reports of recidivism would
provide. Additionally, the reliance of re-incarceration rates as a measure of recidivism is
limited as violent offences are more likely to receive custodial sentences when compared
with non-violent offences. Thus, the difference found between the two groups on the
recidivism variable may have been a reflection on the increased likelihood of getting a
custodial sentence for the violent offender rather than an increased recidivism. Furthermore,
the current study was based upon an entirely male sample of Polish recidivistic prisoners, all
of whom were imprisoned for repeated serious offences in a high security facility. Future
studies should seek to replicate this study among prisoners from other regions of the world,
female prisoners, young offenders, and inmates who were involved in less serious or repeated
criminal activity. Additionally, the use of self-administered paper-and-pencil questionnaires
probably excluded a number of offenders lacking in reading and writing skills, however
accessibility constraints to this prisoner population meant this was an unavoidable limitation.

Notwithstanding these limitations, the study provides valuable information on how
Criminal Social Identity contributes to criminality, in particular violent recidivism, an area
that there is a considerable lack of research. Furthermore, the large sample size and the
recency of the data means that the current study provides is a significant contribution to the
prediction of violent recidivism.

Conclusion:

This study had demonstrated that a higher frequency of imprisonments, higher levels of
Extraversion, higher levels of Cognitive Centrality, and lower levels of In-Group Affect all
predict a greater probability of committing a violent criminal act. These results provide a
substantial contribution to the criminal psychology literature by further elucidating the
intricate role of Extraversion in the understanding of criminal behaviour, empirically
demonstrating the importance of Criminal Social Identity in the prediction of violent criminal
behaviour, and providing additional support for the possible role of prisonization effects in
the emergence of violent criminal behaviour.
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Table 1

Descriptive statistics and reliability coefficients for recidivism, personality traits (psychoticism, extraversion, and neuroticism), and criminal identity (cognitive centrality, in-group ties, and in-group affect)

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>Cronbach's Alpha</th>
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</thead>
<tbody>
<tr>
<td>1. Recidivism</td>
<td>3.57</td>
<td>2.48</td>
<td>1-19</td>
<td>n/a</td>
</tr>
<tr>
<td>2. Psychoticism</td>
<td>2.05</td>
<td>1.37</td>
<td>0-6</td>
<td>.61</td>
</tr>
<tr>
<td>3. Extraversion</td>
<td>4.22</td>
<td>1.73</td>
<td>0-6</td>
<td>.73</td>
</tr>
<tr>
<td>4. Neuroticism</td>
<td>3.38</td>
<td>2.11</td>
<td>0-6</td>
<td>.71</td>
</tr>
<tr>
<td>5. Cognitive Centrality</td>
<td>8.70</td>
<td>3.37</td>
<td>3-15</td>
<td>.96</td>
</tr>
<tr>
<td>6. In-group Ties</td>
<td>8.67</td>
<td>3.12</td>
<td>3-15</td>
<td>.92</td>
</tr>
<tr>
<td>7. In-group Affect</td>
<td>4.05</td>
<td>2.14</td>
<td>2-10</td>
<td>.92</td>
</tr>
</tbody>
</table>
Table 2

Group differences between violent and non-violent prisoners for recidivism, personality traits (psychoticism, extraversion, and neuroticism), and criminal identity (cognitive centrality, in-group ties, and in-group affect)

<table>
<thead>
<tr>
<th>Type of offences</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
<th>(\eta^2)</th>
</tr>
</thead>
<tbody>
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<td>Recidivism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-violent</td>
<td>179</td>
<td>3.12</td>
<td>1.78</td>
<td>-3.59</td>
<td>.001</td>
<td>.04</td>
</tr>
<tr>
<td>Violent</td>
<td>133</td>
<td>4.19</td>
<td>3.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychoticism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-violent</td>
<td>179</td>
<td>1.97</td>
<td>1.41</td>
<td>-1.24</td>
<td>.22</td>
<td></td>
</tr>
<tr>
<td>Violent</td>
<td>133</td>
<td>2.17</td>
<td>1.31</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-violent</td>
<td>179</td>
<td>4.02</td>
<td>1.80</td>
<td>-2.33</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>Violent</td>
<td>133</td>
<td>4.48</td>
<td>1.60</td>
<td></td>
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</tr>
<tr>
<td>Neuroticism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-violent</td>
<td>179</td>
<td>3.34</td>
<td>2.18</td>
<td>-.39</td>
<td>.70</td>
<td></td>
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<td></td>
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<tr>
<td>Cognitive Centrality</td>
<td>Non Violent</td>
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<td>8.34</td>
<td>3.36</td>
<td>-2.14</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td>Violent</td>
<td>131</td>
<td>9.17</td>
<td>3.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-group Ties</td>
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Table 3

Correlations for recidivism, personality traits (psychoticism, extraversion, and neuroticism), and criminal identity (cognitive centrality, in-group ties, and in-group affect)

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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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Note. Statistical significance: *p < .05; **p < .01; ***p < .001
Table 4

Logistic regression model predicting likelihood of violent offences in a sample of male recidivistic prisoners (N=312)

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<th>SE</th>
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<th>Odds Ratio</th>
<th>95% Confidence Interval for Odds Ratio</th>
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Note. Statistical significance: *p < .05; **p < .01