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## Psychopathy, intelligence and conviction history

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## ABSTRACT

The current study examined the relationship between psychopathy, intelligence and two variables describing the conviction history (length of conviction and number of prior convictions). It was hypothesized that psychopathy factors (interpersonal and antisocial factors assuming a 2-factor model or interpersonal, affective, lifestyle and antisocial factors assuming a 4-factor model) would be related in different ways to IQ scores, length of conviction and number of prior convictions. Psychopathy and IQ were assessed using the PCL:SV and the CFT 20-R respectively. Results indicated no association between interpersonal psychopathy features (Factor 1, two-factor model), IQ and the number of prior convictions but a positive association between Factor 1 and the length of conviction. Antisocial features (Factor 2, two-factor model) were negatively related to IQ and the length of conviction and positively related to the number of prior convictions. Results were further differentiated for the four-factor model of psychopathy. The relationship between IQ and psychopathy features was further assessed by statistically isolating the effects of the two factors of psychopathy. It was found that individuals scoring high on interpersonal features of psychopathy are more intelligent than those scoring high on antisocial features, but less intelligent than those scoring low on both psychopathy features. The results underpin the importance of allocating psychopathic individuals to subgroups on the basis of personality characteristics and criminological features. These subgroups may identify different types of offenders and may be highly valuable for defining treatment needs and risk of future violence.

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## 1. Introduction

## 1.1. Psychopathy and Crime Features

Although psychopathic individuals are not necessarily criminal, they are at greater risk for behavioral deviancies (Vitacco, Michael, Neumann, & Woduschek, 2008). The nature of these deviancies seems to depend specifically on the way the psychopathic personality traits are expressed in the individual. For example, interpersonal features of psychopathy—superficial charm and manipulation, lack of empathy and callousness (Cleckley, 1941; Hervé, Ling, & Hare, 2000)—have often been found to be associated with planned and instrumental violence with severe consequences (Blair, Mitchell, & Blair, 2008). Psychopathic individuals seem to use manipulative skills and well-established superficial charm to fulfill their goals and desires (Toole, Smith, & Hare, 2008).

According to the two-factor model of psychopathy (Hare, 1991; Harpur, Hare, & Hakistan, 1989) the phenomena of psychopathy are based upon interpersonal and affective features (Factor 1) and behavioral features (Factor 2). This division was later further refined to give

a better fit, resulting in the four-factor model (Hare, 2003) made up of interpersonal, affective, lifestyle and antisocial factors (Factors 1, 2, 3 and 4 respectively). Because of the well-planned character of their offences the likelihood of arrest and conviction seems to be low in individuals in whom the first factor of psychopathy is strongly expressed (Lilienfeld, Purcell, & Jones-Alexander, 1997; Porter & Porter, 2007). However, manifestations of psychopathy involving impulsive behavior, antisociality and lack of behavioral control, the second factor according to Hare (1991), have been found to be related to reactive and impulsive violence and to high rates of recidivism and incarceration (Cornell et al., 1996; Huchzermeier et al., 2006; Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). In accordance with these findings, prisoners manifesting impulsive and antisocial behavior seem to significantly outnumber those with interpersonal features of psychopathy in inmate populations (Köhler, Heinzen, Hinrichs, & Huchzermeier, 2009; Lilienfeld et al., 1997; Scholz & Schmidt, 2003). The high prevalence of impulsive features may be ascribed to the association with behavioral deviancies and to the high risk of being caught (Köhler et al., 2009; Scholz & Schmidt, 2003).

## 1.2. Psychopathy and intelligence

Criminal behavior has been shown to be inversely related to intelligence (Rushton & Timpler, 2009; Walsh, Swogger, & Kosson, 2004).

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This association seems to be highly robust and holds across age, gender and ethnicity (Rushton & Templer, 2009). In particular, more detailed consideration of these results indicates that this relationship holds true for offences resulting from impulsive and reactive behavior but not for highly-planned instrumental offences (Salekin, Neumann, Leistico, & Zalot, 2004; Vitacco et al., 2008). It has therefore been suggested that 'intellectual deficits may be primarily related to impulsivity and not antisocial behavior per se' (Vitacco et al., 2008). In line with these findings and in accordance with clinical descriptions of psychopathic personality (Cleckley, 1941; Fowler, Lilienfeld, & Patrick, 2009) individuals with interpersonal psychopathic features should possess high levels of intellectual ability that enable them to thoroughly plan their actions and be especially skilled in engaging in manipulative social interactions. Individuals with behavioral psychopathic personality features, however, should possess characteristics resembling those of prototypical antisocial delinquents who tend to have low intelligence scores and offend impulsively in a non-planned manner. Despite the theoretical consistency of these assumptions examinations of the relationship between psychopathic personality traits and intelligence in incarcerated offenders have so far delivered mixed and sometimes even controversial results: dividing psychopathic personality traits into two factors Harpur et al. (1989) found no significant correlations between the presence of Factor 1 traits and IQ and only a weak negative correlation between the presence of Factor 2 traits and intelligence scores. Forth, Hart, and Hare (1990) did not find any significant relationship between the variables in a later investigation. However Salekin et al. (2004) reported a positive association between interpersonal features of psychopathy and IQ and a negative association between behavioral features of psychopathy and IQ. Studies that assumed a four-factor model to underlie the construct of psychopathy (interpersonal, affective, lifestyle, antisocial features; (Hare, 2003) claimed to deliver more specific results by investigating the construct more closely. Vitacco, Neumann, and Jackson (2005) found positive correlations between IQ and the interpersonal and affective factors and negative correlations between IQ and the lifestyle and antisocial factors. These results were replicated by Neumann and Hare (2007). Further studies hypothesized that the relationship between intelligence and psychopathy might be more complex than a straightforward correlation and tested interaction effects between intelligence and psychopathy. The results, however, were mixed (Walsh et al., 2004). All these studies used incarcerated samples. It has been suggested that the large amount of common variance between the two factors significantly influences the statistical analysis of the relationship between psychopathy and intelligence and that the predictive value of one factor therefore needs to be isolated from that of the other (Andershed, Kerr, & Stattin, 2002).

## 2. The current study

The current study sought to shed further light on the relationship between psychopathic personality traits, intelligence and two parameters of conviction history: the length of conviction and the number of prior convictions. It was assumed that the inconclusiveness of results from previous studies of psychopathic personality traits and intelligence resulted primarily from the specific properties of the incarcerated population where psychopathy features are assumed to be less stereotypical than in the community. In addition, it was thought that the common variance within the factors of psychopathy and the greater prevalence of impulsive and antisocial than of interpersonal features of psychopathy in criminal populations could have influenced statistical calculations. As a result it would be difficult to consider interpersonal aspects of psychopathy in isolation in incarcerated samples. The present study therefore set out to further investigate the occurrence of psychopathic traits in the incarcerated population. This was done by assessing the relationship between psychopathic personality traits and intelligence while statistically

isolating the effect of each factor of the two-factor model of psychopathy. The following predictions were tested.

### 2.1. Psychopathy and Length of Conviction (LoC) and Number of Convictions (Wörner et al.)

- High scores for the behavioral factor of psychopathy (Factor 2) were expected to be associated with short LoC and high NoC. Impulsivity and antisocial behavior have generally been associated with spontaneous and reactive offending and hence with more frequent but shorter incarceration periods (Cornell et al., 1996).
- High scores for psychopathy Factor 1 (interpersonal) were expected to be associated with low NoC and long LoC because this group would tend to commit well-planned serious offences.

### 2.2. Psychopathy and IQ

- It was expected that individuals exhibiting a high incidence of behavioral psychopathic features (Factor 2) would have lower intelligence scores than all other participants and that this would hold irrespective of their scores on the first factors. The inability to control impulses and the manifestation of dysfunctional behavior strategies has consistently been associated with low IQ scores (Cleckley, 1941; Harpur et al., 1989) and was expected not to be influenced by scores on the first factor.
- It was expected that individuals with low psychopathy scores on both factors would exhibit higher intelligence scores than participants with high scores on either of the two factors. Inmates with high psychopathy scores have always been considered a more problematic subgroup of incarcerated offenders than their non-psychopathic counterparts (Moffitt, 1993). It was assumed that this would also be reflected in intelligence scores with non-psychopathic offenders achieving higher IQ scores than psychopathic individuals.
- Individuals with high scores on the interpersonal factor (Factor 1) but low scores on the behavioral factor (Factor 2) of psychopathy were expected to be more intelligent than those with high scores on the behavioral factor (Factor 2). On the other hand, these individuals were expected to be less intelligent than non-psychopathic individuals. It was supposed that incarcerated individuals achieving high scores for the interpersonal aspects of psychopathy would not conform to the prototype of the 'successful psychopath' of above-average intelligence but would still constitute a specific subgroup of the prison population and would achieve higher IQ scores than those with high Factor 2 scores, probably using their social skills mainly for manipulation and deception

## 3. Methods

### 3.1. Participants

313 violent male offenders in a prison in Northern Germany participated in the current study. Participants were recruited from among those offenders who were assigned to undergo intramural psychotherapy. According to the standard procedure in place this includes all offenders who have been imprisoned for one or more violent offences. Tests were carried out during the diagnostic procedure preceding the actual treatment. The men were informed about the anonymous use of the data for research purposes and gave their written consent. 75.7% of the men were German and had German as their mother tongue. The men were aged between 19 and 59 (mean = 28.6; SD = 6.7) years and had been convicted for violent offences. 24% had no school leaving qualification. 73.8% of participants met criteria for at least one personality disorder. The three most prominent personality disorders were Antisocial (55%), Borderline (26.8%) and Narcissistic (20.9%). The average length of the

sentence being served was 35.2 (minimum=5, maximum=132, SD=21) months. All men invited to participate were advised that participation would be voluntary. None of them refused to participate. The study was approved by the university's ethics committee.

### 3.2. Procedure

Participants were tested at various points during their sentence, but never during the first days after referral. Information about length of conviction and number of convictions was taken from the official records. The intelligence measure was obtained during one single session that took place in the therapeutic area of the prison. The prisoners' therapists provided ratings of psychopathic personality traits. Three different therapists were involved. All three had undergone special training on the assessment of psychopathy.

### 3.3. Measures

#### 3.3.1. Psychopathy

Psychopathic traits were measured using the Psychopathy Checklist: Screening Version (Hart, David, & Hare, 1995) which is derived from the Psychopathy Checklist (Hare, 2003). The PCL:SV consists of 12 items rated by an external rater from evaluation of file records and a semi-structured interview. Total scores range from 0 to 12 and can be summed to reflect two factors (interpersonal and behavioral) or four factors (interpersonal, affective, antisocial, lifestyle). Each item is rated on a three-point Likert scale (0=not present, 1=possibly present, 2=definitely present). In the current study PCL:SV scores were rated by three different raters. The scores were found to be highly reliable, both between raters (Cronbach's  $\alpha=.81$ ) and within raters (Rater 1: Cronbach's  $\alpha$  between .75 and .84). *Intelligence*: Intelligence scores were obtained using the Culture Fair Test-Revised (CFT 20-R; (Weiss & Weiss, 2006). The test emphasizes the fluid component of intelligence according to Cattell (1963). Fluid intelligence is thought to reflect a person's actual intellectual capacity, which is innate rather than learned, and is therefore not affected by environmental influences (Cattell, 1963). The test thus seeks to exclude biases resulting from differences in education, language, culture and socialization (Weiss & Weiss, 2006). The test consists of four subtests (series, classifications, matrices and conditions), which are combined to give one total IQ score. *Number of prior convictions*: The number of prior convictions was taken from each individual's records and included all prior offences that had resulted in legal consequences. *Length of conviction*: The length of conviction referred to the sentence being served for the current offence and was taken from legal records. It was assumed that longer convictions indicated more severe offences. In the German legal system violent offences are evaluated according to their severity and convictions are supposed to be set accordingly (Glaser, 1983).

## 4. Statistical analysis and results

All analyses were performed using SPSS 17 for Windows.

### 4.1. Descriptives

In both the two-factor and four-factor applications of the PCL:SV all factors were significantly intercorrelated (Factors 1 and 3  $r=.33$ ;  $P<0.01$ ; Factors 1 and 2  $r=.43$ ;  $P<0.01$ ; Factors 2 and 3  $r=.30$ ;  $P<0.01$ ; Factors 3 and 4  $r=.52$ ,  $P<0.01$ ). PCL:SV total scores in the current sample ranged between 0 and 23 (mean=13.1, SD=4.8). Scores on both factors of the two-Factor solution (interpersonal and behavioral) were distributed between 0 and 12 (PCL:SV Factor 1: mean=5.8; SD=3.1; PCL:SV Factor 2: mean=7.3; SD=2.9). Scores on the four factors ranged from 0 to 6 (PCL:SV Factor 1: mean=2.4,

SD=1.8; PCL:SV Factor 2: mean=3.4, SD=1.8; PCL:SV Factor 3: mean=3.6, SD=1.6; PCL:SV Factor 4: mean=3.7, SD=1.8).

Total IQ scores in the current sample ranged from 71 to 139 (mean=101; SD=13.8). The minimum number of prior convictions was 0 and the maximum was 25 (mean=7.5, SD=5.6). The average length of conviction was 35.2 months (minimum=5, maximum=132, SD=21).

### 4.2. Correlational analysis

To assess the relationship between psychopathy, intelligence, the number of prior convictions and the length of conviction partial correlations were calculated. Partial correlations take into account one factor while controlling for the influence of the other. This was done to control for the common variance between factors when assessing the relationship between the respective variables. Results are presented in Table 1 separately for the two-factor and four-factor applications of the PCL:SV. IQ scores were not related to Factor 1 of the two-factor application nor to Factors 1 and 2 of the four-factor application, but were significantly negatively correlated with Factor 2 of the two-factor application and with Factors 3 and 4 of the four-factor application. Using a two-factor model, psychopathy was related to conviction history in the predicted direction. The four-factor application made it possible to examine these results in more detail.

With reference to prior findings of high incidence of impulsive and antisocial features in a prison population (Lilienfeld et al., 1997) it was expected that high scores on Factor 1 of psychopathy (interpersonal) would be associated with high scores on Factor 2 (behavioral) in the current sample and thus confound correlational results. To look exclusively at the effect of Factor 1 in comparison to Factor 2 participants were separated according to their PCL:SV scores for Factors 1 and 2 into low and high scoring groups (below and above the median respectively, Factor 1: Median=6, Factor 2: Median=7). This produced four groups reflecting the extent to which each of the two psychopathic traits was expressed: the 'non-psychopathy' group (Factor 1 and Factor 2 low), the 'interpersonal group' (Factor 1 high, Factor 2 low), the 'antisocial group' (Factor 1 low and Factor 2 high) and the 'psychopathy group' (Factor 1 high and Factor 2 high). Descriptions of the four groups are given in Table 2.

### 4.3. ANOVA and contrast analyses

A one-way between-subjects ANOVA was conducted to compare the IQ scores of the four groups (non-psychopathic, interpersonal,

**Table 1**

Partial correlations between PCL:SV scores (two- and four-factor models of psychopathy), CFT-20 IQ Score, LoC and NoC ( $N=313$ ). Two-tailed significance.

Control variables	PCL:SV	CFT-20 IQ Score	LoC	NoC
Behavioral (Factor 2)	Interpersonal (Factor 1)	n.s.	.16**	n.s.
Interpersonal (Factor 1)	Behavioral (Factor 2)	-.22**	-.13*	.40**
Affective, lifestyle and antisocial (Factors 2, 3 and 4)	Interpersonal (Factor 1)	n.s.	.19**	n.s.
Interpersonal, lifestyle and antisocial (Factors 1, 3 and 4)	Affective (Factor 2)	n.s.	n.s.	n.s.
Interpersonal, affective and antisocial (Factors 1, 2 and 4)	Lifestyle (Factor 3)	-.18**	-.12*	n.s.
Interpersonal, affective and lifestyle (Factors 1, 2 and 3)	Antisocial (Factor 4)	n.s.	n.s.	.39**

Note. LoC=length of conviction in months. NoC=number of prior convictions from criminal record.

\*  $P<0.05$ .

\*\*  $P<0.01$ .



antisocial, psychopathic). Results indicated a significant effect (see Table 3).

To test the hypothesis we sought specifically to compare the intelligence scores of individuals who scored highly on the interpersonal factor of psychopathy to those of individuals scoring highly on the behavioral factor. Contrast tests were conducted to compare mean IQ scores between the four psychopathy groups. Because the current hypothesis was directed, contrast analysis was tested one-tailed. Results indicated a main effect for Factor 2 of the PCL:SV ('antisocial' and 'psychopathy' group mean IQ=99.9, SD=14.1; 'interpersonal' and 'non-psychopathy' group mean IQ=104.6, SD=12.9, mean difference:  $P<0.01$ ). Furthermore, it was found that individuals in the 'non-psychopathy' group generally obtained higher IQ results than those who scored highly on either of the two psychopathy factors ('interpersonal', 'antisocial' and 'psychopathy' group mean IQ=99.9, SD=14.1; non-psychopathy group mean IQ=104.6, SD=12.9; mean difference:  $P<0.01$ ). Finally, contrast analyses indicated that IQ in the 'interpersonal' group was non-significantly lower than in the 'non-psychopathy' group ('interpersonal' group mean IQ=102.7, SD=14.1; 'non-psychopathy' group mean IQ=104.6, SD=12.9; mean difference:  $P=0.21$ ) but significantly higher than in the two groups that contained antisocial high scorers ('interpersonal' group mean IQ=102.7, SD=14.1; 'antisocial' and 'psychopathy' group mean IQ=98.9, SD=14.0,  $P<0.05$ ).

## 5. Discussion

The current study investigated the relationship between psychopathic personality traits, intelligence and the offender-related variables length of conviction (LoC) and number of prior convictions (Wörner et al., 2004).

### 5.1. Psychopathy and intelligence

In line with the hypothesis and prior findings (Cleckley, 1941; Fowler et al., 2009), behavioral features of psychopathy (Factor 2) were associated with low IQ. This was primarily true for the lifestyle factor of the four-factor model, which comprises the concept of impulsivity and stimulation seeking (Hare, 2003). This provides support for the view (Cornell et al., 1996; Skeem et al., 2003; Vitacco et al., 2008) that the association between antisocial behavior and intelligence is due primarily to impulsivity and poor behavioral control rather than to antisociality in general.

Interpersonal features of psychopathy (Factor 1) and IQ scores, however, showed no correlational association. While it contrasts with Cleckley's assumption (Cleckley, 1941) that psychopathic individuals possess above-average intelligence, this lack of association replicated a number of earlier results (Harpur et al., 1989; Salekin et al., 2004; Vitacco, 2005). When the participants were grouped

**Table 2**

IQ, LoC and NoC for the four psychopathy groups as defined by PCL:SV scores corresponding to Factors 1 (interpersonal) and 2 (behavioral) of psychopathy. ( $N=313$ ).

Psychopathy group	N	Percent	Mean IQ	Mean LoC	Mean NoC
Psychopathic (high F1, high F2)	76	24.3	99.7 (14.9)	36.9 (20.1)	9.4 (5.2)
Non-psychopathic (low F1, low F2)	110	35.1	104.6 (12.9)	34.8 (23.8)	6.0 (4.9)
Antisocial (low F1, high F2)	76	24.3	98.1 (13.0)	31.8 (17.3)	9.6 (6.3)
Interpersonal (high F1, low F2)	51	16.3	102.7 (14.3)	39.0 (21.0)	5.4 (4.5)
Total	313	100.0	101.5 (13.8)	35.2 (21.0)	7.6 (5.6)

Note. F1 and F2 refer to PCL:SV scores for Factors 1 and 2 respectively. LoC=length of conviction in months. NoC=number of prior convictions from criminal record.

**Table 3**

One-way ANOVA for the four psychopathy groups and IQ, Length of Conviction (LoC) and Number of Convictions (Wörner et al.) ( $N=313$ ). One-tailed significance.

Factor dominance	Sum of squares			F	P
	Between groups	Within groups			
IQ	2266.9	57503.2		4.06	.01**

Note. LoC=length of conviction in months. NoC=number of prior convictions from criminal record.

\*\*  $p<0.01$ .

according to psychopathy scores, and the low- and high-scoring groups were differentiated according to their specific manifestation of psychopathic personality traits, a clearer picture emerged that confirmed the hypothesis of the current study. Individuals with high scores for psychopathy Factor 2 (behavioral) exhibited the lowest IQ scores of all participants. This result seemed to be independent of their scores on Factor 1. Hence the occurrence of behavioral psychopathic features was related to low IQ scores. Those with high Factor 1 scores and low Factor 2 scores were not significantly less intelligent than the non-psychopathic group, though they showed a tendency in this direction. However, they were generally more intelligent than Factor 2 high-scorers. In accordance with the current hypothesis, individuals with low scores on both factors of the PCL:SV constituted the most intelligent group of participants. Their IQs exceeded the IQs of Factor 2 high scorers significantly and were also non-significantly higher than those of Factor 1 high scorers. This suggests that individuals exhibiting interpersonal features of psychopathy constitute a group of intelligent offenders within the psychopathic population but are still less intelligent, on average, than individuals scoring low on both psychopathy factors. This finding might explain the lack of a correlational association between interpersonal psychopathy features and IQ scores but still confirms the assumption of the interpersonal psychopath representing an intelligent 'variant' of the incarcerated psychopath.

### 5.2. Psychopathy and conviction history

In accordance with our hypothesis, the length of conviction (LoC) was positively related to interpersonal features of psychopathy (Factor 1) but negatively related to behavioral features (Factor 2). These results were teased apart by applying a four-factor model of psychopathy. This gave a significant positive result for the interpersonal factor (Factor 1) and a negative result for the lifestyle factor (Factor 3) of the PCL:SV. This result indicates that superficial, grandiose and deceitful features of psychopathy, but not unemotional ones, relate to longer conviction time and to more severe offences (Glaser, 1983). This result is striking considering the assumption that lack of empathy and remorse, features that are captured by the unemotionality factor of psychopathy, might be specifically predictive for a severe outcome of an offence.

In accordance with the hypothesis, a higher score on behavioral features of psychopathy was accompanied by a larger number of prior convictions, indicating a higher risk of recidivism for this psychopathic sub-group. In terms of the four-factor model the antisocial domain was most strongly related to NoC. These results may be attributable to the finding that antisocial personality features are usually associated with an early onset of delinquent behavior which in turn contributes to the development of antisocial behavior (Hare, 1991; Moffitt, 1993) and may result in a higher number of prior convictions.

### 5.3. General conclusion

The current results emphasize that psychopathy represents an important construct within the prison population. They suggest that the features of psychopathy relate differently to specific parameters of

criminal behavior: low intelligence scores, longer conviction times and a higher number of convictions. Although the stereotypical picture of the psychopath was not mirrored by our results, it seems that separating the psychopathy construct into different factors may be valuable for describing different offender types within the incarcerated population: Psychopathic offenders with primarily behavioral features of psychopathy seem to constitute a subgroup with low intelligence and a high risk of recidivism. Individuals exhibiting interpersonal features of psychopathy tend to have higher IQ scores than the other psychopathy group and to have been convicted less often but for longer. Non-psychopathic offenders tend to be the most intelligent group, which has been associated with lower recidivism risk and more positive legal prognosis. This typology might be especially valuable for prognostic examination as well as for therapeutic intervention. Specifically, incarcerated psychopathic individuals may not reflect the stereotyped image of the criminal psychopath but they nevertheless constitute a high-risk group of offenders and therefore require special attention in the prison environment (Hildebrand, Rüter, & Nijman, 2004; Porter & Porter, 2007; Porter, Woodworth, Earle, Drugge, & Boer, 2003).

## 6. Restrictions and future implications

The current results were based on an investigation of adult and juvenile incarcerated offenders. Incarcerated offenders usually exhibit high levels of impulsivity and deficits in attention (Köhler et al., 2009; Rushton & Templar, 2009; Walsh et al., 2004). The CFT-20 intelligence test includes a time limit and therefore presupposes a certain level of attention. This may have confounded the results of intelligence testing for particularly impulsive offenders. Furthermore, the assessment included offenders who had been referred for intramural psychotherapeutic treatment. Although this should apply to all incarcerated inmates with a record of violent offences it is possible that some inmates had not been considered suitable for therapy, for example because of insufficient language skills or aggressive behavior while in prison. These inmates were not included in the study which may have resulted in a sampling bias.

With reference to the concept of psychopathy, group effects were not tested for the four-factor model of psychopathy. Future studies need to address this question and follow up recent promising results for this model. Furthermore, the results should be further investigated in successful psychopathic individuals. The picture of the stereotypical psychopath may not be apparent within the prison population, but may still hold for psychopathic individuals in the community.

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