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The moderating role of psychopathic traits in the relationship between period of confinement  
and criminal social identity in a sample of juvenile prisoners

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## **Abstract**

*Purpose:* The main aim of the current study was to examine how primary psychopathy may interact with period of confinement to predict Criminal Social Identity (CSI) scores, while controlling for covariates.

*Methods:* The Measure of Criminal Social Identity, Levenson Self-report Psychopathy Scale, and the Measure of Criminal Attitudes and Associates were administered to 126 male juvenile offenders incarcerated in prisons in Khyber Pakhtunkhwa.

*Results:* Results indicated no significant direct relationship between period of confinement and CSI scores. However, as expected, a significant moderating effect of primary psychopathy on the association between period of confinement and CSI scores was observed while controlling for covariates. Specifically, the significant effect of period of confinement on CSI was observed only for those participants who scored higher (1 SD above the mean) on primary psychopathy (affective and interpersonal features).

*Conclusion:* For incarcerated juveniles with greater primary psychopathic traits, the formation and/or intensification of CSI may be an adaptive response to incarceration.

**Keywords:** Criminal Social Identity; Psychopathy; Prisonization; Juvenile offenders; Moderation Analysis

## **Introduction**

Social identity refers to people's internalised sense of their membership in a particular group (Tajfel, 1978), and theorists have argued that when a given social identity is salient, this is a powerful motivator of social perception and behaviour (e.g., Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; Turner, Oakes, Haslam, & McGarty, 1994).

Research has shown that salient social identities are a basis for social judgment, social influence, trust, and cooperation (see Ellemers, Spears, & Doosje, 1999; Haslam, 2004; Haslam & Ellemers, 2005; Tyler & Blader, 2000). Consequently, individuals tend to see the world from the perspective of fellow in-group members, are more likely to be influenced by in-group members, and are more likely to show preference in their attitudes and behaviours toward them (see Tajfel & Turner, 1979).

Applied to the analysis of crime, the above ideas have led to the development of Criminal Social Identity theory (CSI; Boduszek, Dhingra, & Debowska, in press; Boduszek & Hyland, 2011). In line with Cameron's (2004) earlier suggestions, the model of CSI was proposed to be comprised of three factors, namely cognitive centrality (the cognitive importance of belonging to a particular group), in-group affect (the emotional valence of belonging to a given group), and in-group tie (the psychological perception of resemblance and emotional connection with other members of particular group). The theoretical framework has been utilized to make a number of important predictions. Most importantly, if an individual's criminal social identity (CSI) is salient, it is predicted that there will be an increase in an individual's likelihood of developing criminal cognitions, and subsequently engaging in criminal behaviour (Boduszek & Hyland, 2011). Consistent with this, CSI salience has been found to be a powerful determinant of criminal thinking styles and engagement in a range of criminal acts (Boduszek, O'Shea, Dhingra, & Hyland, 2014; Boduszek, Adamson, Shevlin, & Hyland, 2012; Boduszek, Adamson, Shevlin, Hyland, &

Bourke, 2013; Boduszek, Shevlin, Adamson, & Hyland, 2013; Shagufta, Boduszek, Dhingra, & Kola-Plamer, 2015a, b).

Given the recent development of the theory of CSI (Boduszek & Hyland, 2011, Boduszek, Dhingra, & Debowska, in press), little empirical work exists on the factors capable of initiating and/or maintaining a criminally oriented self-view. In one study, associations with criminal friends were, however, found to positively predict all three CSI components (Boduszek, Adamson, Shevlin, Mallett, & Hyland, 2013). Another factor that may be capable of maintaining a criminally oriented self-view is socialization in criminal environments, such as prisons (Holsinger, 1999; Losel, 2003; Rhodes, 1979; Stryker & Serpe, 1982). Lawson and Nelson (1984), for instance, in a study that followed 121 women from three prisons, determined that the amount of time served/remaining in prison and friendship diversity was more strongly associated with prisonization (a form of secondary socialisation in which offenders learn how to adapt to the prison life style; Clemmer, 1958) than individual's criminal history. Clemmer further suggested that although all inmates experience prison assimilation, this might differ in degree due to the duration and frequency of the sentence, as well as the degree of previous contact to criminal structures. Thus, although relatively stable, identities may change over the course of incarceration. Consistent with this, Rhodes (1979) found that incarcerated offenders who initially registered identities that were more deviant recorded a slight temporal trend in favour of increased conventionality; whereas, legitimate identities became more criminally oriented as time progressed. Similarly, Walters (2003a) found that criminal identity and proactive/instrumental criminal thinking increased over a six-month period in novice inmates (i.e., those with no prior prison experience) exposed to a medium-security prison environment. By contrast, the scores of experienced inmates (i.e., inmates with at least one prior incarceration and at least five years of prison experience) remained reasonably stable over time.

Although previous research has typically used number of prior incarcerations as a measure of prisonization (e.g., Boduszek et al., 2013; DeLisi & Walters, 2011; Dhami, Ayton, & Loewenstein, 2007; McCorkle, Miethe & Drass, 1995), it is possible that the total amount of time spent in prison is a better measure of prisonization. That is, one long prison sentence could be much more detrimental than several short(er) prison sentences. Indeed, Wheeler (1970) indicated that “*the inmate culture should give expression to the values of those who are most committed to a criminal value system—the long termers, those who have followed systematic criminal careers . . . and if the culture is viewed as an outgrowth of the criminogenic character of inmates, it is reasonable to expect a reinforcement process operating throughout the duration of confinement*” (p. 708). Studies examining whether prisonization is more potent in inmates with longer sentences or in inmates who have served a greater portion of their sentences have proved inconclusive (MacKenzie & Goodstein, 1985). However, consistent with Wheeler’s (1970) suggestion, a recent study of incarcerated offenders and males drawn from the general population revealed a positive significant effect of length of imprisonment on cognitive distortions pertaining to rape (Debowska, Boduszek, Dhingra, & DeLisi, in press). This suggests that period of confinement can affect an individual’s prison assimilation.

The above research indicates that environmental influences (e.g., incarceration), and criminal associations may offer a sufficient explanation for variations in CSI. However, previous research has neglected the potential role of personality traits (Boduszek, Dhingra, & Debowska, in press). This is an important omission as research by Boduszek et al. (2012) indicated that personality traits can serve to moderate the relationship between CSI and criminal orientations. Specifically, moderated multiple regression analysis found that the impact of in-group affect (CSI factor) on criminal thinking was stronger among those criminals who were more introverted, while the impact of in-group ties (CSI factor) on

criminal thinking was stronger among those criminals who were more extroverted. Research to date has not examined the role of psychopathy in the development and maintenance of CSI, and given the significant impact of psychopathy on criminal behaviour (Dhingra & Boduszek, 2013), research in this area is warranted. Historically, psychopathy refers to two distinct but interrelated facets (Brinkley, Newman, Widiger, & Lynam, 2004). The first dimension, primary psychopathy, consists of interpersonal-affective traits (grandiosity, shallowness, manipulativeness, lack of remorse etc.); whereas, the second dimension, secondary psychopathy, consists of behavioural traits (antisocial behaviours, impulsiveness, irresponsibility, etc.).

Widom (1976) demonstrated that psychopaths are unable to distinguish their own evaluations and appraisals from those of others. He suggested that this was indicative of the presence of cognitive biases among psychopathic individuals. Along similar lines, Blackburn (2006) suggested that the psychopath's attributes are "*mediated by dysfunctional schemas about the self, the world, and the future that are maintained through selective, confirmatory experiences*" (p. 46). Accordingly, the beliefs of psychopaths encompass such biases as entitlement and the need to manipulate others. Consequently, those with higher affective and interpersonal features of psychopathy may portray a more criminally orientated self-view because in-group members are seen as part of the self.

### **Cultural Context and Current Study**

The criminal age of responsibility is between 7 and 12 years of age in Pakistan, and is derived from a range of criterion such as levels of maturity and understanding (Talpur, Pathan & Shah, 2012). In Pakistan, money, land, sexual assault, illiteracy, honour killing, hostility, and drugs are the main factors causing juvenile delinquency (Mahmood & Cheema, 2004). Other frequently cited factors include broken homes, delinquent community environment, bad company of peer/ school group, slums with criminal neighbourhood, poverty, and

unemployment (Auolakh, 1999). Human Rights organizations such as the United Nations Commission for Human Rights have noted that the juveniles in prisoners in Pakistan are not treated in accordance with international treaties and declarations (Talpur et al., 2012). Indeed, while in custody, juveniles have been found to be subject to physical maltreatment and abuse by adult prisoners as they are not separated from them. It is assumed that incarceration in such difficult environments will contribute to the development of CSI. Moreover, in line with Criminal Social Identity Theory (Boduszek & Hyland, 2011), more skilled offenders (e.g., those with greater interpersonal manipulation skills) are more likely to develop CSI in order to survive incarceration.

The aim of the current research is to extend Clemmer's (1940) prisonization hypothesis by examining (a) the direct relationship between period of confinement and Criminal Social Identity (CSI) scores while controlling for psychopathy factors (primary and secondary), age, criminal friends, and (b) the moderating effect of primary psychopathy on the relationship between period of confinement and CSI scores.

Hypothesis 1: It is predicted that period of incarceration has the capacity to facilitate the intensification of a criminally orientated self-view (CSI) among juvenile offenders incarcerated in Pakistan.

Hypothesis 2: It is further predicted that primary psychopathy, the core personality traits of psychopathy, would moderate the association between period of incarceration and CSI scores. Specifically, we anticipate that period of incarceration will be significantly positively related with CSI only for those juvenile offenders with greater primary psychopathy traits.

## **Method**

### **Participants and procedure**

One hundred and sixty male juvenile offenders incarcerated in three prisons in Khyber Pakhtunkhwa (KPK), Pakistan were approached. Participants selected for this project were suspected to collaborate with organised criminal groups. The sample was reduced to 126 participants due to unavailability and pairwise deletion of missing data (data were missing at random, Little's MCAR test:  $p = .34$ ). Participants ranged in age from 12 to 21 years ( $M = 16.28$ ,  $SD = 1.89$ ). In Pakistan, juvenile wards are located in regular jails for offenders up to the age of 21 years. Children below the age of 15 charged with a particularly serious offence are also located in these wards. There are no separate cells for these juvenile offenders, thus their exposure to individuals convicted of serious crime, including jihad (militant activity) makes them more likely to embrace the motivation, attitudes, and techniques necessary to crime. Most offenders came from rural areas (78.2%), were brought up by one parent (57.2%), and reported having been imprisoned for non-violent crimes (73.8%). The duration of imprisonment reported by juvenile offenders ranged from one to 36 months ( $M = 7.30$ ;  $SD = 6.64$ ).

The self-reported measures were all administered at one time point, and to groups of up to 40 individuals by the lead researcher, an assistant researcher, or the prison superintendent. The assistant researcher and prison superintendent were instructed by the lead researcher about the procedures involved in conducting this study. Each participant was provided with a brief description of the study including the general area of interest, how to complete the questionnaire, and the general expected completion time. Participants completed an anonymous, self-administered, paper and pencil questionnaire, which was compiled into a booklet along with an instruction sheet and a consent form attached to the front of the

booklet. Participants were assured about the confidentiality of their participation and informed that they could withdraw from the study at any time. The participation was voluntary without any form of reward.

## Materials

**The Measure of Criminal Social Identity** (MCSI; Boduszek et al., 2012) consists of eight items and is based on Cameron's (2004) Three-dimensional Strength of Group Identification Scale. Each item is scored on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Scores range from 8 to 40, with higher scores reflecting higher levels of criminal social identity. The scale included items measuring the level of personal bonding with other criminals (e.g., I have a lot in common with other people who committed a crime"), the psychological salience of a criminal's group identity (e.g., "being a criminal is an important part of my self-image"); and a criminal's felt attitude toward other in-group criminals (e.g., "in general I'm glad to be a part of criminal group"). Cronbach's alpha for entire measure was .77.

**Levenson Self-report Psychopathy Scale** (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995). The LSRP is a 26-item self-report measure designed to assess psychopathic traits in non-institutionalised samples. The measure has been also validated and used in forensic population (e.g., Brinkley et al., 2001). The primary psychopathy scale consists of 16 items (scores range from 16 to 64), designed to assess the core personality features described by Cleckley (1988), such as being selfish, uncaring and manipulative (e.g., "my main purpose in life is getting as many goodies as I can," "success is based on survival of the fittest; I am not concerned about the losers," and "I often admire a really clever scam"). The secondary psychopathy scale consists of 10 items (scores range from 10 to 40), assessing antisocial behaviour, a self-defeating lifestyle, and impulsivity (e.g., "love is overrated," "I am often bored," and "I quickly lose interest in tasks I start"). Items are rated on a ranging 1 = *disagree*

*strongly to 4 = agree strongly* Likert scale. Cronbach's alpha for primary psychopathy was .69, and .71 for secondary psychopathy.

***The Measure of Criminal Attitudes and Associates (MCAA; Mills & Kroner, 1999)*** is a two-part self-report measure of criminal attitudes and associates (only part A Criminal Friend Index was used in the current research). Part A is a measure intended to quantify criminal associations before incarceration. Respondents are asked to recall the three adults who they spend most of their free time with before incarceration (0%-25%, 25%-50%, 50%-75%, and 75%-100%). The respondent then answers four questions in relation to the degree of the criminal involvement of their associates: (a) "Has this person ever committed a crime?" (b) "Does this person have a criminal record?" (c) "Has this person ever been to jail?" and (d) "Has this person tried to involve you in a crime?" Part A was used to calculate two measures of criminal associates. The first, "Number of Criminal Friends," was calculated by adding up the number of friends to which the participant had answered "yes" to any of the questions of criminal involvement. This meant the participant could indicate zero to three criminal associates. The second measure is the extent of exposure to criminal friends. This measure is calculated by assigning a number of one to four to the percentage of time options available for each identified associate. That number is then multiplied by the number of yes responses to the four questions of criminal involvement. Each of the resulting products is added together to produce the Criminal Friend Index. Overall scores for the Criminal Friend Index (CFI) therefore range from 0 to 48, with higher scores reflecting an increased involvement with criminal associates.

The MCSI, LSRP, and MCAA were translated from English into Urdu and then sent to a group of academics to translate the Urdu versions back into English. The translations of the MCSI, LSRP, and MCAA, along with the original English versions, were then submitted to three experts who indicated appropriate changes. Translators were instructed that the central

aim of this process was to achieve a target language version of the English scales that are conceptually equivalent rather than literal equivalence in terms of word-for-word translation.

## **Analysis**

Descriptive statistics, Pearson product-moment correlation coefficients, and regression analysis were calculated using SPSS 22. A hierarchical moderated multiple regression analysis, as the recommended method for testing interaction effects (Cohen & Cohen, 1983), was applied in order to investigate the moderating role of primary psychopathy in relationship between period of confinement and CSI while controlling for criminal friends, secondary psychopathy, and age of juvenile offenders. Simple slopes for the relationship between period of confinement and CSI were investigated for low (1 SD below the mean), medium (mean), and high (1 SD above the mean) levels of primary psychopathy using ModGraph 3.0 (Jose, 2013). The enter method was used which enters all variables in a step simultaneously. All variables were standardised to z scores prior to entry and prior to the calculation of the interaction terms. Only the standardized solution was reported.

## Results

### **Descriptive statistics and correlations**

Descriptive statistics, including means ( $M$ ) and standard deviations ( $SD$ ) for age, period of confinement, CSI, CFI, and the two psychopathy factors (primary and secondary) are presented in Table 1, together with Cronbach's alpha reliability (Cronbach, 1951) and correlations between all continuous variables. The descriptive statistics indicate that the juvenile offenders reported moderate levels of CSI, primary and secondary psychopathy. Results of correlation analysis indicates significant positive correlations between CSI and criminal friends ( $r = .35$ ), and between the two psychopathy factors ( $r = .61$ ). There was no statistically significant direct association between period of confinement and CSI.

Table 1. *Descriptive Statistics and correlations*

Variable	Age	PC	CF	P1	P2	CSI
Age	-					
Period of confinement (PC)	.14	-				
Criminal friends (CF)	.14	.17	-			
Primary Psychopathy (P1)	.01	.14	.09	-		
Secondary Psychopathy (P2)	-.14	.02	.04	.61***	-	
Criminal Social Identity (CSI)	.11	.17	.35***	.06	.16	-
<i>Mean</i>	16.29	7.30	17.50	55.73	37.91	27.36
<i>Standard Deviation</i>	1.89	6.64	11.78	6.92	6.11	6.12
<i>Min-Max</i>	12-21	1-36	0-48	22-76	10-50	10-40

*Note:* \*\*\*  $p < .001$

## **Primary Psychopathy, Period of Confinement, and Their Interaction as Predictors of CSI scores**

Hierarchical moderated regression analysis was used to examine the effect of the interaction between primary psychopathy scores and period of confinement on CSI scores, while controlling for secondary psychopathy scores, age of offenders, and criminal friends. Preliminary analysis ensured no violation of the assumptions of normality, linearity and homoscedasticity. Inspection of Variance Inflation Factor (all values were above 0.10) and Tolerance statistic (all values were below 10) indicated that the multicollinearity assumption was not violated.

In the first step of the analysis (Table 2), the main effects of primary psychopathy factor and period of confinement on CSI were investigated. This model (model 1) was not statistically significant  $F(2, 104) = 1.67, p > .05$  and explained 3% of variance in CSI ( $R^2 = .03$ ). None of the predictor variables significantly contributed to the model. Consequently, hypothesis 1 was not supported.

The second step consisted of entering interaction terms, coding the interaction between period of confinement and primary psychopathy, while controlling for covariates (secondary psychopathy scores, age of offenders, and criminal friend index). Incorporation of the interaction term and covariates explained an additional 19% of variance, and the final regression model explained 22% of variance in CSI scores ( $R^2 = .22, F(6, 100) = 4.65, p < .001$ ). Criminal friends and secondary psychopathy scores were both positively directly correlated with CSI scores. There was no significant direct relationship between period of confinement and CSI scores and between primary psychopathy scores and CSI scores. However, the relationship between interaction term (period of confinement by primary psychopathy) and CSI was statistically significant, suggesting that the effect of period of confinement on CSI depends on the level of primary psychopathy factor scores.

To interpret the interaction between primary psychopathy and period of confinement, simple slopes for the relationship between period of confinement and CSI were investigated for low (1 SD below the mean), medium (mean), and high (1 SD above the mean) levels of primary psychopathy (see Bate, Boduszek, Dhingra, & Bale, 2014; Boduszek et al., 2012; Cohen & Cohen, 1983). The simple slope for low levels of primary psychopathy indicated a negative non-significant association between period of confinement and CSI; whereas the period of confinement was significantly associated with CSI for high levels of primary psychopathy (see Table 3 and Figure 1). Therefore supporting hypothesis 2, the results suggest that period of confinement has a significant effect on criminal cognitions (CSI) only for those juvenile offenders with increased primary psychopathy levels while controlling for other covariates in the model.

*Table 2. Hierarchical regression model of criminal social identity*

Model	Variable	R <sup>2</sup>	R <sup>2</sup> Change	$\beta$ (95% CI)	SE
1		.03			
	Period of Confinement (PC)			.17 (-.03/.36)	.09
	Primary Psychopathy (P1)			.04 (-.16/.23)	.09
2		.22	.16***		
	Period of Confinement (PC)			.03 (-.17/.22)	.09
	Primary Psychopathy (P1)			-.11 (-.34/.15)	.11
	PC by P1 (interaction term)			.21* (.04/.38)	.08
	Criminal Friends (CF)			.32*** (.14/.50)	.09
	Secondary Psychopathy (P2)			.27* (.05/.50)	.11
	Age			.10 (-.08/.28)	.09

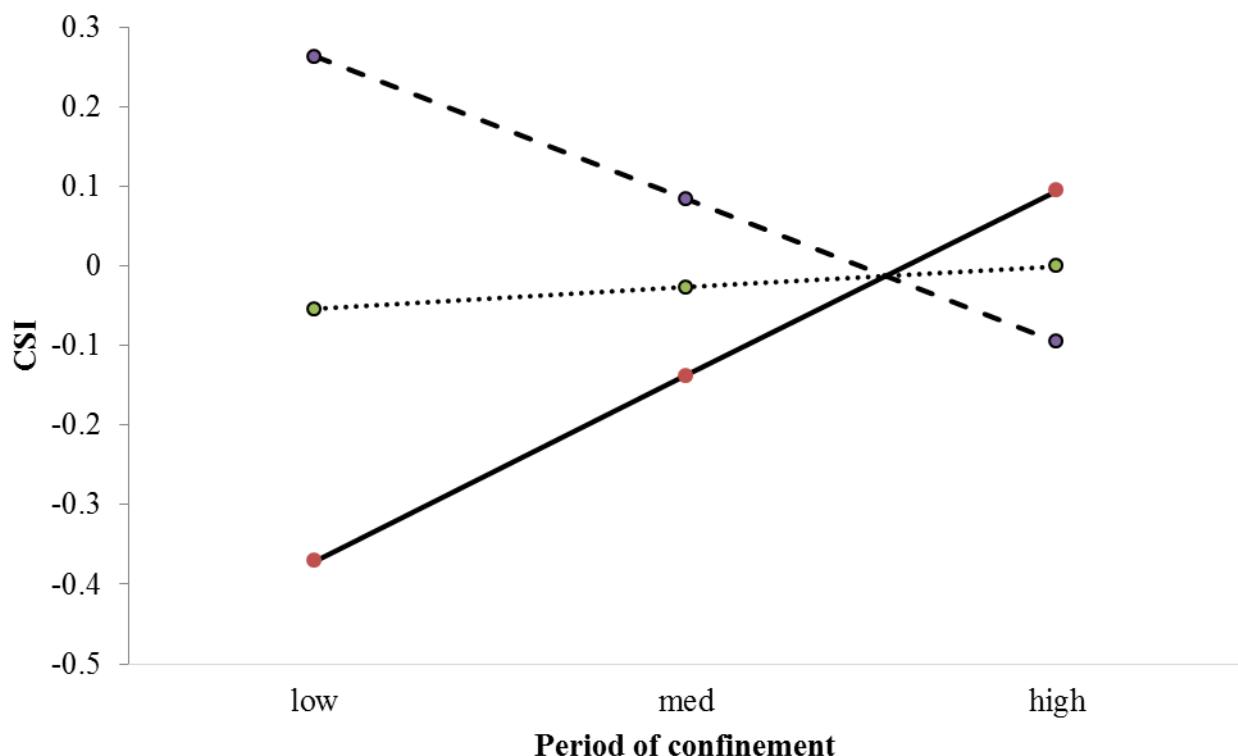
*Note:* \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Table 3. Simple slopes for moderating role of primary psychopathy in relationship between period of confinement and criminal social identity

Simple slopes	$\beta$	SE
High level of the Primary Psychopathy (+1 SD)	.23*	.10
Medium level of the Primary Psychopathy ( $M$ )	.03	.10
Low level of the Primary Psychopathy (-1 SD)	-.10	.15

Note: \*  $p < .05$

Figure 1. Moderating effect of primary psychopathy in relationship between period of confinement (time in prison) and criminal social identity (CSI)



Note: solid line = high level of psychopathy (+1SD); dotted line = medium level of psychopathy (M); dashed line = low levels of psychopathy (-1SD)

## Discussion

Prior research has indicated that prisons can exacerbate criminal cognitions and behaviours that engender recidivism (e.g., Akers, Hayner, & Gruninger, 1977; Clemmer, 1940; Hochstetler & DeLisi, 2005; Paterline & Petersen, 1999; Wheeler, 1961; Reisig & Lee, 2000), as well as inhibit re-integration into society. In this way, imprisonment may serve as a causal force for recursive criminal careers. The current research sought to further Clemmer's (1940) prisonization hypothesis by examining the direct relationship between period of incarceration and CSI scores, as well as the interaction between period of confinement and primary psychopathy scores in predicting CSI scores in a sample of juvenile offenders incarcerated in Pakistan.

Prior research has shown that environmental factors, such as being subject to incarceration, can affect an individual's cognitive processes (Clemmer, 1940). Rhodes (1979), for example, found that incarcerated offenders, due to constant exposure to other prisoners, tended to develop deviant attitudes while serving their sentence. While, in a study with Polish male prisoners and a sample of males drawn from the general population, a positive significant effect of imprisonment on cognitive distortions relating to rape and rape victims was found (Debowska et al., *in press*). Thus, it was expected that a similar effect might be found for CSI in the present study. Inconsistent with our first hypothesis, however, the results of the present study indicate that period of incarceration may not be sufficient to influence an individual's criminal social identity in isolation. Instead, the results point to an additive effect whereby period of incarceration and high primary psychopathy scores combined predict higher CSI scores. This inconsistency with previous research (e.g., Rhodes, 1979; Walters, 2003), which has found a direct effect of incarceration on deviant identity in novice inmates, might be due to participants in the present study being from a different cultural context and younger than in previous studies. Alternatively, it may be the case that

the effect of incarceration alone is not sufficient to explain the intensification of either CSI or cognitive distortions (e.g., Debowska et al., 2015) in prison contexts, when controlling for the influence of other factors.

Although the interaction between period of confinement and primary psychopathy scores was positive and significant as predicted, the reason for this is not entirely clear. However, it is known that identity change is not a result of a passive response to environmental stimuli. Instead, individuals can enact this change by identifying what they want, setting appropriate targets, and acting towards those specific goals (Blumer, 1966). Thus, individuals higher in primary psychopathy might have learned to show concern for potential allies (such as in-group members) because of the benefits such behaviour might provide, such as increased status within a group and self-esteem (Cooley, 1998; Goffman, 1963; 1990). Such an interpretation is in keeping with research documenting a fundamental need to manipulate others among psychopaths (e.g., Blackburn, 2006), as well as research that has shown that dispositionally selfish people do care about others if those others are in-group members (De Cremer & Van Vugt, 1999), or share similar characteristics (Konrath, Bushman, & Campbell, 2006). Another possibility is that the greater concern for others found among those higher in primary psychopathy and who have served longer sentences is a form of self-interest, such that in-group members are seen as part of the self. Self-categorization theory (Turner et al., 1987) posits that when individuals are in a group and think of themselves as part of a group, self-interest becomes group-interest. This latter suggestion is consistent with work by Widom (1976) that found that individuals with heightened psychopathic traits are unable to distinguish their own evaluations and appraisals from those of others. Thus, for incarcerated juveniles in Pakistan with greater primary psychopathic traits, the formation and/or intensification of CSI may be an adaptive response to incarceration. This is consistent with Schmid and Jones' (1991) suggestion that inmates can

form inauthentic temporary identities to conceal certain vulnerabilities. Indeed, while in custody, juveniles in Pakistan have been found to be subject to physical maltreatment and abuse by adult prisoners. Therefore, it is assumed that incarceration in such difficult environments contributes to the development of CSI for survival purposes only for those who score high on primary psychopathy (see also Boduszek & Hyland, 2011).

It is also interesting to note that, although not significant, the relationship between period of confinement and CSI for those low in primary psychopathy (1 SD below the mean) was negative. This indicates that the direction of the slopes changes between those high and low in psychopathy. Although further research is needed, this suggests that the results obtained for those high in primary psychopathy may reflect a desire to exploit their social environment for personal benefit(s) (i.e., to make their lives easier and to gain status as a criminal in prison), rather than a true adoption of attitudes and values consistent with criminality; or that individuals high in psychopathy can care about others if they are sufficiently motivated to do so.

As inmates with stronger criminal identifications manifest poorer post-release adjustment (Wormith, 1984), psychoeducation programmes that target criminal cognitions, and thus reduce inmate positive outcome expectancies from criminal offending and increase inmate negative outcome expectancies from criminal offending, are recommended. Since prisonization adversely affects programme participation (Zingraff, 1980), early interventions are likely to be more successful in preventing the intensification of criminal cognitions during incarceration among those with more intense primary psychopathic traits.

The sample is limited to male prisoners incarcerated in Pakistan, thus future research should endeavour to include female offenders and consider different cultures and places of detention. Another limitation is associated with the use of self-report measures and rating scales within prisoner populations who generally display short attention spans and poor

reading and writing abilities, although one of the selection criteria was the ability to read and write in Urdu. Even though the instruments applied in this project allowed the investigators to gather a satisfactory amount of data in a relatively short period of time (a necessity given the nature of the population from which the sample was drawn), what is uncertain is the extent to which participants were capable of fully understanding the questions included in the survey. Additionally, due to the fact that the measures are based on respondents' self-reports, some of the observed results might be the effect of response bias. However, this part of the research design could not be controlled by researchers carrying out such investigations within this population. Moreover, the present research utilized a cross-sectional design and hence causality could not be inferred. Longitudinal research designs are ultimately necessary to obtain a reliable developmental picture of criminal social identity. The present findings can prove useful in generating hypotheses for such studies. Having said that, this research project contributes significantly to the scientific communities understanding of the phenomena of criminal social identity and begins to provide an understanding of the potential personality factors involved in the development of such identity, the role of which was initially proposed by Boduszek et al. (2012). This significant contribution is further enhanced by the use of a unique sample, drawn from a hard-to-reach population. Specifically, no known prior research has examined criminal cognitions among incarcerated Pakistani youths. As such, the present investigation is the first to identify factors associated with criminal social identity among this specific population.

Overall, the results suggest that personality traits that might seem antithetical to group cooperation, such as interpersonal manipulation, selfishness or lack of empathy/concern for others, do not necessarily disrupt social identity. It is assumed that incarceration in such difficult environments contributes to the development of criminal social identity for survival purposes only for those who score high on primary psychopathy.

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