Criminal Social Identity of Recidivistic Prisoners: The Role of Self-Esteem, Family and Criminal Friends

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Abstract The aim of this paper is to focus on the factors that can significantly contribute to the presence of criminal social identity within a sample of recidivistic prisoners ($N=$ 312) using structural equation modelling. Six latent variables were identified: criminal associations with close friends, positive self-esteem, negative self-esteem, cognitive centrality, in-group affect, and in-group ties. Results suggest that criminal social identity is characterized by various internal and external factors including the direct effects of associations with criminal friends, which is influenced by insufficient or absent parental supervision at an early stage of development. It was also found that early peer rejection is not a sufficient predictor of associations with criminal friends and the criminal social identity. This study also provides further support for Social Identity Theory with regards to the role of self-esteem in the development of criminal social identification.

Keywords Criminal social identity · Criminal friends · Self-esteem · Prisoners · Structural equation modelling

Introduction

According to Social Identity Theory (SIT; Tajfel and Turner 1979), individuals' perceptions of, and attitudes toward, in-group and out-group members ultimately develop from their need to identify with and belong to groups that are perceived to be relatively superior, as a means of enhancing their own

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level of self-esteem. The result of these processes is that an individual is disposed to perceiving other in-group members as sharing a greater degree of similarity to oneself as compared to members of any out-groups, and consequently exhibit attitudinal and behavioural preferences toward these in-group members. Factor analytic studies indicate that social identity is best conceptualized as a multidimensional construct (Cameron 2004; Cameron and Lalonde 2001; Ellemers et al. 1999; Jackson 2002; Jackson and Smith 1999; Obst and White 2005).

Based on previous research findings, Cameron (2004) proposed a three factor measure of social identity (see also Obst and White 2005). The first factor is termed *Cognitive centrality* reflecting the cognitive importance of belonging to a particular group; this factor corresponds to the concept of self categorization which was suggested in Ellmers et al.'s (1999) and Jackson's (2002) investigations. The second factor is termed *In-group affect* and this describes the emotional valence of belonging to a given group; this factor corresponds to the emotional aspects of identity which has been reported by previous scholars (Ellemers et al. 1999; Hinkle et al. 1989; Jackson 2002). The third factor is termed *In-group ties* which is related to the psychological perception of resemblance and emotional connection with other members of particular group; this concept has also been noted in previous studies (Ellemers et al. 1999; Hinkle et al. 1989; Jackson 2002).

Criminal social identity is an application of SIT (Tajfel and Turner 1979) to a specific social group. The theory of Criminal Social Identity (Boduszek and Hyland 2011) hypothesises that an individual engages in criminal behaviour due to the presence of a persistent criminal identity which develops from a series of psychological processes such as associations with criminal peers, perceptions of self-esteem, and early childhood experiences with family

and peers. The model of Criminal Social Identity is proposed to share a similar three factor structure as that indicated by Cameron (2004).

The model of Criminal Social Identity (Boduszek and Hyland 2011) predicts that criminal identity will be influenced by levels of self-esteem, and associations with criminal friends. Furthermore, associations with criminal friends are hypothesised to emerge as a consequence of insufficient parental supervision, peer-rejection, and poor educational performance. Higgins (1987) suggested that individuals who fail to successfully develop a pro-social identity, experience a sense of discrepancy in terms of their actual and ideal selves which is associated with depression or a sense of agitation. These unconstructive feelings of self-derogation, anger, frustration, jealousy, antipathy and hostility (Salovey and Rodin 1984) may be aggravated by external family factors, including a lack of tenderness, parental rejection, or inappropriate parenting style (Shaw and Scott 1991; Simons et al. 1991). A lack of parental tenderness and affection can retard the development of empathy and guilt (Baumeister et al. 1994), while emotional, psychological, and physical isolation of individuals from their parents can have a negative impact on the bonds of social control (Hirschi 1969) and reduce any motivation to engage fully in pro-social accomplishments or to conform with existing institutions of authority. An empirical study conducted by Downs and Rose (1991) found that members of criminally oriented peer groups are deviant with respect to avoiding involvement in pro-social activities and the engagement in non-conforming social behaviours. Members of this group are rejected by the other pro-social groups and manifest more psychosocial problems than individuals from the other groups and tend to report lower level of self-esteem.

The role of peer rejection is hypothesised to indirectly influence the development of Criminal Social Identity through its influence on associations with criminal friends. Parker and Asher (1987), followed by Juvonen (1991), have suggested that the consequences of peer rejection include lowered levels of self-esteem, increased violent tendencies, increased risk of dropping out of school or social activities, and the development of criminal behaviours.

The development of criminal social identity creates a mutual agreement among various members of the social in-group who have collectively agreed to reject the conventional model of social norms in favour of an alternative set of anti-social norms. McGarty et al. (1993) have suggested that this has the effect of uncertainty reduction and is likely to be a source of self-enhancement (see also Kaplan 1978). As such, this group of individuals tend to engage in criminal behaviours in spite of their sense of self-derogation (Fischer and Bersani 1979). This is in contrast to those individuals who maintain strong psycho-social bonds with the family

and the society, and who tend to report decreased levels of self-esteem subsequent to engagement in criminal behaviour (McCarthy and Hoge 1984).

Once a criminal identity has been established, members of a criminal group then achieve a sense of self-consistency through a manifestation of their new identity in terms of criminal behaviours (Breakwell 1986). Therefore, once criminal social identity becomes salient, members tend to display behaviours that are exemplary of the criminal group model and may participate with other in-group members to express their conformity (Thornberry et al. 1993; Turner 1982).

It has been postulated in the Situational Theory of Delinquency (Sykes and Matza 1957; Matza 1964) that criminals tend to drift in and out of non-conforming or anti-social behaviour. Under certain circumstances, such as in the company of a criminal group, individuals can be expected to think and behave in a manner consistent with non-conventional norms (Turjeman et al. 2008). Thus, anti-social behaviour is manifested only when the criminal identity is salient. Individuals are expected to be more delinquent in the presence of criminal in-group others, although the physical company is not essential for salience to take place. The most significant element is the psychological identification with the criminal in-group members. In other words, it is suggested that when an individual has a salient personal identity as a family member, for example, that individual will exhibit less anti-authoritarian or anti-social attitudes and behaviours as compared to when that same individual is surrounded by fellow criminal-group members and the social identity as a criminal is the dominant and salient identity.

Previous studies have suggested complex interactions between psychological and social factors in the development of one's social identity. However, to date no research has examined the role of self-esteem, peer relations, and family variables in relation to the presence of criminal social identity. The primary objective of the current study is to test the proposed theoretical structural model of criminal social identity (see Fig. 1). In order to investigate this theoretical model it is necessary to determine the correct factor structure of both criminal social identity and self-esteem in order to appropriately incorporate these variables within the suggested model. These constitute the secondary aims of the current research. Additionally, within the psychological research there is much debate regarding the correct factor structure of Rosenberg's Self-Esteem Scale (Rosenberg 1989). While much of the work within this area has been plagued with methodological flaws, well designed studies have been inconsistent with respect to the correct factor structure of RSES with some authors reporting a single factor solution (e.g. Shevlin et al. 1995) while others have

reported a two factor solution (e.g. Kaufman et al. 1991). Given that no research has been conducted on the factor structure of the RSES within a prisoner population, this study will also provide empirical evidence regarding the factor structure of the RSES for the criminal population.

Method

Participants and Procedure

The data was collected from three hundred and twelve ($N=$ 312) male prisoners incarcerated in Nowogard High Security Prison for recidivists. The offender sample consisted of 89 burglars and thieves, 68 violent offenders, 25 murderers, 18 drug dealers, 7 addicted thieves, 2 sex offenders, and 103 mixed 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 % ($n=142$) 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. The 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 devised and delivered to prison by the principal researcher. 362 offenders volunteered their participation however only 312 (due to substantial missing values) were considered for final analysis. 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. All participants received an identical questionnaire booklet with each measure presented in the same order. The order of the measures presented to the respondents reflected the temporal order of the theoretically specified model (retrospective measures were presented first). Participants were assured about the confidentiality of their participation and informed that they could withdraw from the study at any time. Participants completed the questionnaires in prison in their living units. After completing the questionnaire, prisoners were asked to return it to the prison educational coordinator in sealed envelopes.

Measures

Parental supervision (Ingram et al. 2007) is a 6-item retrospective instrument including questions regarding parental knowledge about range of aspects of offenders' lives when they were at the school age. These aspects included parental knowledge of participants' close friends, friends' parents and school teacher; what they were doing with friends; who they were with when they were not at home; and what they were doing at school. Answers were based on a 4-point Likert type scale ranging from 1 (*knows nothing*) to 4 (*knows everything*). Thus, the possible total score can range from a minimum of 6 to a maximum of 24, with higher scores indicating greater indirect parental supervision.

Peer Rejection (Mikami et al. 2005) is 7-item inventory with a 5-point Likert scale response format ranging from a positive answer (5) to a negative (1) with one reverse-scored question. Thus, the possible total score can range from a minimum of 7 to a maximum of 35, with higher scores reflecting more positive peer relations and lack of rejection. Participants are asked to indicate the number of peers they liked versus disliked in the class they attended before incarceration (Sample question: "How many students in your class did you get along with?"). In addition, they had to estimate the amount of peers who respected them versus those who tend to picked on them (Sample question: "How many students in your class teased you, put you down, or picked on you?").

The Measure of Criminal Attitudes and Associates (MCAA; Mills and Kroner 1999) is a two-part self-report measure of criminal thinking style and associations with criminal friends. For the purpose of current research only part A was included. Part A of the measure intends to quantify criminal associations. Participants were asked to recall four individuals with whom they spent most of their time before incarceration and then answered four questions regarding the degree of 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?". Responses were used to analyze two measures of criminal associations. The first, "Number of Criminal Friends" which was calculated by adding up the number of friends to which the participant answered "yes" to any of question on criminal association. The second measure was the "Criminal Friend Index" calculated by assigning 1 through 4 to the percent of time options (0–25 %; 25–50 %; 50–75 %; 75–100 %) available for each friend. That number was then multiplied by the number of "yes" responses to the four questions of criminal association. All answers were summed as the Criminal Friend Index. The potential scores for the Criminal Friend Index (CFI) ranged from 0 to 64, with higher scores indicating stronger association with criminal friends.

Rosenberg Self-Esteem Scale (RSES; Rosenberg 1989) consists of 10 Likert-type scale items designated to assess positive and negative evaluations of self. Respondents indicate their level of agreement ranging from 1 (strongly disagree) to 4 (strongly agree). Thus, the possible total score can range from a minimum of 10 to a maximum of 40, with higher scores reflecting more positive evaluations of self.

The Measure of Criminal Social Identity (MCSI: Boduszek et al. 2012) is an 8-item measure which was adopted and modified from Cameron's (1999) Social Identity Scale (12 items). The instrument 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*. 3 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 3 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 criminal group"); and In-group Ties (e.g., "I have a lot in common with other people who committed a crime").

Recidivism and Demographic Questionnaire was provided as a standard measure in the process of data collection. It requested information regarding respondents' age, location (urban, rural), education, relationship status, number of arrests, type of crime. Additionally, recidivism was estimated on the frequency of continual criminal behaviour ("How many times have you been in prison or other places of detention?").

Analysis

The current analysis contains two levels: measurement and structural levels. In relation to the measurement level, alternative models of Criminal Social Identity and Self-Esteem were specified and estimated in MPLUS version 6 (Muthen and Muthen 1998–2010) using confirmatory factor analysis (CFA) techniques which helps to determine the factor structure and factor loadings of measured variables, and to assess the fit between the data and pre-established theoretical models. Goodness-of-fit indices were used to compare different models: chi-square (X^2), Root Mean-Square Residual (RMSR), Root-Mean-Square Error of Approximation (RMSEA; Steiger 1990) with 90 % confidence interval (90 % CI), Akaike Information Criterion (AIC; Akaike 1974), Comparative Fit Index (CFI; Bentler 1990), and

Tucker Lewis Index (TLI; Tucker and Lewis 1973). A non-significant chi-square (Kline 2005) and values above .95 for the CFI and TLI are considered to reflect a good model fit (Hu and Bentler 1999; Vandenberg 2002). However, for CFI and TLI, values above .90 indicate adequate fit (Bentler 1990; Hu and Bentler 1999). RMSEA and RMSR values less than .05 suggest good fit and values up to .08 indicate reasonable errors of approximation in the population (Browne and Cudeck 1989). AIC was used to compare alternative models, with the smallest value indicating the best fitting model.

In terms of the structural level, the conceptual model of criminal social identity (Fig. 1) was specified and estimated in MPLUS 6 with restricted maximum likelihood estimation (Muthén and Muthén 1998–2010), using structural equation modelling (SEM). SEM is a broad data analytic method for the quantification and statistical testing of theoretical constructs. The common structural equation model is a combination of two data analytic methods; path analysis (PA) and factor analysis (FA). PA is a technique of pictorially demonstrating the associations among observed variables in a path diagram. This is normally presented in a multiple regression analysis (Cohen and Cohen 1983). The benefit of PA is that it allows the direct, indirect, and total effect of one observed variable on another to be obtained. Thus, within a SEM method, the structural and measurement elements of analysis are estimated simultaneously (McCallum and Austin 2000). In the current research, the structural part of the analysis determines the relationship among latent variables. For the purpose of the current study six latent variables were identified: criminal associations with close friends, positive self-esteem, negative self-esteem, cognitive centrality, in-group affect, and in-group ties.

Results

### Descriptive Statistics and Correlations

Descriptive statistics including means (M), standard deviations (SD), and range for the all variables are presented in Table 1, together with Cronbach's Alpha reliability (Cronbach 1951).

The relationships among all variables were investigated using Pearson product–moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. All correlations are presented in Table 2.

Three Alternative CFA Models of Criminal Identity

The first model specified included criminal social identity as a one-factor phenomenon comprising eight items

Fig. 1 Empirically tested structural equation model of criminal social identity. C = centrality, A = in-group affect, T = in-group ties; CA = criminal associations, NF = number of criminal friends, TF = time spend with criminal friends, S = parental supervision, PR = peer relation, EDU = education, PSE = positive self-esteem, NSE = negative self-esteem, x1- x8 = items included in the Measure of Criminal Social Identity, y1- y10 = items included in Rosenberg Self-Esteem Scale. * significant at $p<.05$
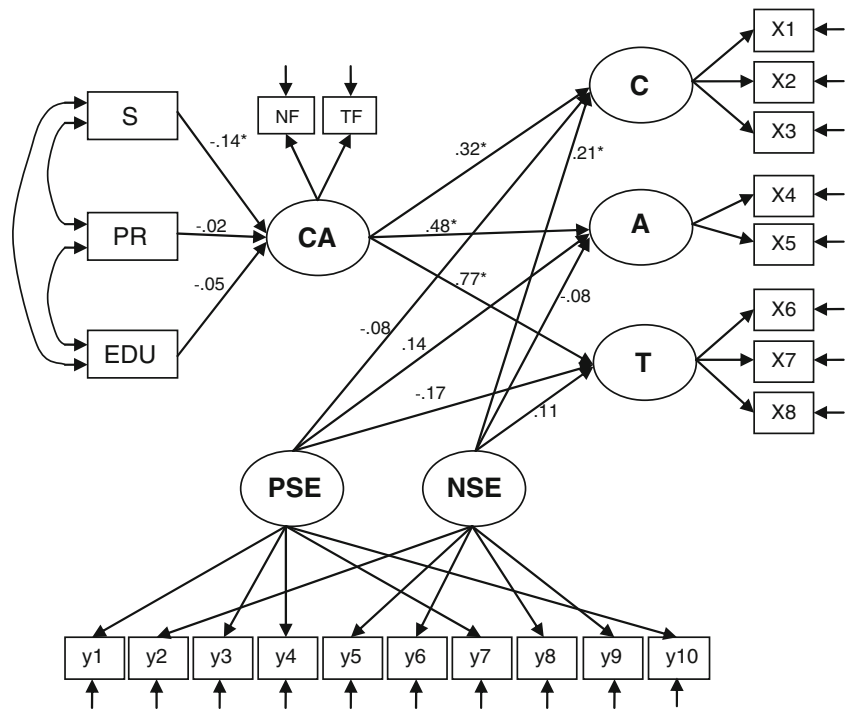
within the scale. The second model reflected two dimensions of criminal social identification: a first dimension comprising the three items measuring a cognitive aspect (centrality), and a second dimension comprising five items measuring the emotional relationship with criminal others. The third model of criminal social identity included three factors comprising of cognitive centrality (3items), in-group affect (2 items) and in-group ties (3 items).

Table 3 reports the fit indices for the three alternative models of criminal identity. As can be noted all fit indices indicate improvement in the three factorial model of criminal social identity above the one and two factor models. The three factor model showed statistically significant

improvement in the chi-square value X^2 (17)=23.18 with p=.14 over the one factor model and the two factor model. The chi-square findings for the three factor model indicate that there is no significant difference between the data and the pre-established theoretical model of criminal social identity. Additionally, the AIC also suggests that three factor solution has the most parsimonious model fit. The RMSEA and SRMR values were reported to be below .05 which indicates very close model fit to the population covariance matrix. Further support for three factor model can also be observed in increased values reported by CFI and TLI; they all exceeded the .95 cutoff. Table 4 demonstrates the standardized and unstandardized factor loadings (with standard errors) for each

Table 1 Descriptive statistics and reliability of the measures included in the study

Scale	M	SD	Range	Possible range	Cronbach's alpha (α)
Number of criminal friends	7.25	4.60	1–16	0–16	–
Time with criminal friends	8.28	3.11	4–16	4–16	–
Education	1.5	.54	1–3	1–3	–
Peer relations	20.54	4.98	7–35	7–35	.75
Self-Esteem (SE)	21.57	5.26	7–35	7–35	.79
Positive SE	9.51	3.21	12–44	11–44	.77
Negative SE	12.06	3.13	6–24	6–24	.83
Parental supervision	13.46	3.52	6–24	6.24	.83
Criminal identity	21.41	6.49	8–38	8–40	.86
Centrality	8.70	3.37	3–15	3–15	.96
In-group affect	4.05	2.14	2–10	2–10	.92
In-group ties	8.67	3.12	3–15	3.15	.92

Table 2 Correlations between all continuous variables

Variables	CI	C	A	T	ED	NF	TF	PR	SE	PSE	NSE
Criminal Identity (CI)	–										
Centrality (C)	.78*	–									
In-group Affect (A)	.67*	.31*	–								
In-group Ties (T)	.78*	.33*	.38*	–							
Education (ED)	−.05	−.02	.06	−.13*	–						
Number Friends (NF)	.41*	.37*	.29*	.48*	−.09	–					
Time Friends (TF)	.17*	.09	.25*	.23*	−.06	.25*	–				
Peer Relations (PR)	−.10	−.06	.03	−.09	.16*	−.20*	.00	–			
Self-Esteem (SE)	.12*	.12*	.09	.05	−.11	.05	.10	.23*	–		
Positive SE (PSE)	.06	.06	.08	.00	.−12*	.05	.15*	−.12*	.84	–	
Negative SE (NSE)	.14*	.15*	.07	.08	−.06	.02	.01	−.16*	.83*	.39*	–
Parental Supervision (PS)	−.34*	−.16*	−.29*	−35*	.20*	−.32*	−.07	.26*	−.14*	−.17*	−.06

Statistical significance: *$p<.05$

observed variable on their latent variable (factor) and Table 5 correlations between latent factors.

Two Alternative CFA Models of Self-Esteem

The analysis involved comparing two alternative CFA models of the RSES. The two models included a one-factor model (all items in the RSES) and a two-factor model (positive self-esteem comprising of items 1, 3, 4, 7, 10; and negative self-esteem comprising of items 2, 5, 6, 8, 9). The specified models in this research allowed items to load only onto a single factor, with uncorrelated measurement error terms.

Table 3 presents both absolute and comparative fit indices for each model. As can be seen in Table 3, all indices show improvement in the two-factor model. Although the chi-square is large in relation to the degree of freedom, and statistically significant, Tanaka (1987) suggests that a model should not be rejected on this basis since large sample sizes amplify the power of test. Additionally, the CFI=.90;

TLI=.85; RMSEA=.07; and RMSR=.06 indicate an adequate fit of data. The AIC also shows that the two-factor model is a more parsimonious model compared to the one-factor model. The standardized and unstandardized factor loadings for each item on their respective factors are presented in Table 4 and correlations between latent factors in Table 5.

SEM Model of Criminal Social Identity

Thus, the proposed structural equation model of criminal social identity (Fig. 1) was developed based on CFA results obtained above, and included six latent variables; *criminal associations* measured by number of criminal friends and time spent with them; *self-esteem* measured by positive and negative factors; and *criminal social identity* measured by cognitive centrality, in-group affect, and in-group ties.

The fit of the proposed SEM model of criminal social identity (Fig. 1) was satisfactory ($\chi2$ (208)=373.91, $p>.05$; RMSEA=.05; SRMR=.05; CFI=.94; TLI=.93) and

Table 3 Fit indices for the alternative CFA models of criminal social identity and Rosenberg self-esteem scale

Item	Criminal Social Identity			Self-Esteem	
	1 Factor Model	2 Factor Model	3 Factor Model	1 Factor Model	2 Factor Model
X^2	913.58	348.04	23.18	192.45	95.49
df	20	19	17	35	34
p	.00	.00	.14	.00	.00
RMSEA	.39	.24	.03	.12	.07
90 % CI	.368 .412	.22 .27	.00 .07	.11 .14	.05 .09
SRMR	.23	.12	.02	.09	.06
AIC	6175.59	5511.67	5164.41	7557.05	7439.12
CFI	.49	.82	.99	.71	.90
TLI	.29	.73	.99	.62	.85

RMSEA root-mean-square error of approximation; *CI* confidence interval; *SRMR* standardized root mean square residual; *AIC* Akaike information criterion; *CFI* comparative fit index; *TLI* Tucker Lewis index

Table 4 Standardized and unstandardized factor loadings (and standard errors) for the three-factor model of criminal social identity, two-factor model of self-esteem, and associations with criminal friends

Item	β	B	SE
Criminal Social Identity			
Factor 1 (Centrality)			
1. Being a criminal has little to do with how I feel about myself in general	.92	1.00	–
2. Being a criminal is an important part of my self image	.97	1.08	.03
3. The fact I am a criminal rarely enters my mind.	.93	1.06	.04
Factor 2 (In-group Affect)			
4. In general I'm glad to be a part of criminal group	.88	1.00	–
5. Generally I feel good about myself when I think about being a criminal	.97	1.07	.07
Factor 3 (In-group Ties)			
6. I have a lot in common with other people who committed a crime	.92	1.00	–
7. I feel strong ties to other people who committed a crime	.94	.94	.03
8. I find it difficult to form a bond with other people who committed a crime	.83	.78	.04
Self-Esteem			
Factor 1 (Positive Self-Esteem)			
1. On the whole, I am satisfied with myself.	.40	1.00	–
3. I feel that I have a number of good qualities.	.72	1.58	.30
4. I am able to do things as well as most other people.	.72	1.75	.33
7. I feel that I'm a person of worth, at least on an equal plane with others.	.63	1.35	.28
10. I take a positive attitude toward myself.	.75	1.83	.32
Factor 2 (Negative Self-Esteem)			
2. At times, I think I am no good at all.	.76	1.00	–
5. I feel I do not have much to be proud of.	.39	.53	.11
6. I certainly feel useless at times.	.74	1.06	.09
8. I wish I could have more respect for myself.	.16	.24	.13
9. All in all, I am inclined to feel that I am a failure.	.53	.74	.10
Criminal Associations (CA) by			
Number of Criminal Friends	.68	1.00	–
Time Spend with Criminal Friends	.36	.35	.10

All Factor loadings are statistically significant ($p<.001$)

explained 14 % of the variance in cognitive centrality, 26 % of variance in in-group affect, 59 % of variance in in-group ties, and 24 % of variance in associations with criminal friends.

Table 6 shows standardized and unstandardized (direct and indirect) regression weights for the specified

Table 5 Correlations between the latent factors included in particular measures

Item	C	A	T	PSE	NSE
Centrality (C)	–				
In-group Affect (A)	.34	–			
In-group Ties (T)	.35	.41	–		
Positive Self-Esteem (PSE)	n/a	n/a	n/a	–	
Negative Self-Esteem (NSE)	n/a	n/a	n/a	.56	–

All Factor correlations are statistically significant ($p<.001$)

structural equation model of criminal social identity. As can be observed, parental supervision has significant, negative direct influence on associations with criminal friends ($\beta=-.14$, $p<.001$) whereas peer relations and level of education did not contribute significantly to explaining why criminals tend to establish relationships with criminal others. Current results also show direct positive, moderate-to-strong influence of associations with criminal friends on cognitive centrality ($\beta=.32$, $p<.001$), in-group affect ($\beta=.48$, $p<.001$), and in-group ties ($\beta=.77$, $p<.001$). Additionally, there was a positive influence of negative self-esteem on cognitive centrality ($\beta=.21$, $p<.001$). The only indirect influence was observed between supervision on cognitive centrality ($\beta=-.15$, $p<.01$), supervision on in-group affect ($\beta=-.22$, $p<.001$), and supervision on in-group-ties ($\beta=-.35$, $p<.001$). All indirect effects occurred through associations with criminal friends.

Table 6 Standardized and unstandardized regression weights (with Standard Errors) for the specified structural equation model of criminal social identity

Variables	β	B	SE
Direct Influence			
Supervision ==>Criminal Associations (CA)	.14*	−.40	.06
Peer Relation ==>Criminal Associations	−.02	−.05	.05
Education ==>Criminal Associations	−.05	.−15	.42
Criminal Associations ==>Centrality	.32*	.11	.04
Criminal Associations ==>In-groups Affect	.48*	.15	.04
Criminal Associations ==>In-groups Ties	.48*	.15	.04
Positive Self-Esteem ==>Centrality	.77*	.28	.06
Positive Self-Esteem ==>In-groups Affect	−.08	−.22	.25
Positive Self-Esteem ==>In-groups Ties	.14	.037	.28
Negative Self-Esteem ==>Centrality	−.17	−.50	.31
Negative Self-Esteem ==>In-groups Affect	.21*	.33	.15
Negative Self-Esteem ==>In-groups Ties	−.08*	−.11	.14
Indirect Influence			
Supervision ==>Centrality via CA	−.15	−.04	.02
Supervision ==>In-groups Affect via CA	−.22	−.06	.02
Supervision ==>In-groups Ties via CA	−.35*	−.11	.02
Peer Relation ==>Centrality via CA	−.03	−.11	.02
Peer Relation ==>In-groups Affect via CA	−.04	−.01	.01
Peer Relation ==>In-groups Ties via CA	−.06	−.02	.01
Education ==>Centrality via CA	−.01	−.02	.05
Education ==>In-groups Affect via CA	−.01	−.02	.06
Education ==>In-groups Ties via CA	−.02	−.04	.12

R^2

Centrality R^2=.14, SE=.06, p<.05; In-groups Affect R^2=.26, SE=.08, p<.001; In-groups Ties R^2=.59, SE=.13, p<.001; Criminal Associations R^2=.24, SE=.06, p<.001;

Fit Indices

X^2=373.91, df=208, p>.05; RMSEA=.05, CI=.04–.06; SRMR=.05; CFI=.94; TLI=.93

Statistical significance: * p<.05

An alternative specified model was investigated in order to test the direct effect of peer relations (peer rejection) on self-esteem and supervision on criminal social identity. These paths were added to the specified model presented in Fig. 1. SEM analysis showed insufficient model fit ($\chi2$= 541.69, df=214, p>.05; RMSEA=.08; SRMR=.10; CFI=.87; TLI=.85).

Discussion

The main objective of this project was to empirically test the conceptual model of criminal social identity (Fig. 1) within the structural equation modelling framework using a sample of recidivistic prisoners, which provides the first such contribution to the field of criminal psychology. The overall results suggest that the proposed model fits the observed data very well. In order to analyse this model, there was a need to test the dimensionality and construct validity of the Rosenberg Self-Esteem Scale (RSES) and the Measure of Criminal Social Identity (MCSI) using CFA techniques. The aim of these pre-analyses was to accommodate these variables into an appropriate statistical latent framework. On the basis of the RSES fit indices, the two-factor model, consisting of both a positive and a negative latent variable, was considered to be an adequate fitting model, and to provide a far superior fit of the data as compared to the one-factor model. The one-factor model, which is consistent with Rosenberg's construction of the scale, was rejected as a very poor fitting model of the data, with none of the respective fit-indices values meeting, or even approaching, the necessary cut-off criteria for an adequate fitting model.

In relation to MCSI, the results demonstrate that criminal social identification can be successfully conceptualized and reliably measured by three dimensions: cognitive centrality, in-group affect, and in-group ties. Moreover, fit indices

produced by the CFA indicated that a three-factor model was the only viable solution for the hypothesized construct of criminal social identity. This research finding is consistent with Cameron's (2004) and Obst and White's (2005) investigations.

However, the main objective was to investigate what factors can explain why individuals display criminal social identity. The suggested SEM model of criminal social identity partially supports previous research on interactions between social identities, peer rejection, self esteem, family variables, and criminal peers. However, in terms of direct or indirect effects of peer relations (or peer rejection) on associations with criminal friends, and on criminal social identity, results of the current study do not support the existence of any such relationships between these variables. This finding is contradictory to those of Parker and Asher (1987) and Juvonen (1991) whose findings suggested that peer rejection has an influence on criminal associations and can contribute to the process of categorization which is a part of an individual's group identity development (Turner et al., 1987). Present analyses suggest that regardless of the quality of peer relations at an early stage of development the most significant factor that contributes toward the existence of criminal social identity is the association with criminal friends; and association with criminal friends was found to be statistically correlated with low levels of parental supervision. One possible explanation of why individuals associate with criminal others was indicated by Boduszek and Hyland (2011). They suggested that an individual joins a criminal group in order to achieve a noticeable identity, and one's motivation to join such a group is dependent upon a particular individual's need for assimilation or differentiation (see also Brewer, 1991). The strongest direct effect identified was between associations with criminal friends and in-group ties, a finding which is consistent with previous studies (Turjeman et al. 2008; Thornberry et al. 1993; Turner 1982). Thus, current research indicates that associations with criminal friends play the most significant role in understanding what factors can contribute to the development of the psychological perception of resemblance and emotional connection with other in-group criminals.

Furthermore, associations with criminal others are also significantly correlated with cognitive centrality. This finding suggests that through relationships with friends who are involved in criminal activity, individuals develop a strong and evaluative belief about the importance and worth of belonging to a criminal group (cognitive centrality). For such an individual, being part of a criminal group becomes a central aspect of their life and their self-concept. However, the exact nature of this phenomenon remains distinctly opaque. As proposed by the Situational Theory of Delinquency (Sykes and Matza 1957; Matza 1964), criminals tend to drift in and out of criminal behaviour depending upon the presence and proximity of other criminals. On the basis of which, it may be hypothesised that cognitive centrality is only activated when in the presence of other criminal group members, however future research employing specific research methodologies will be necessary to appropriately test this hypothesis. Associations with criminal friends are also correlated with the emotional component of criminal group membership, which is consistent with the predictions of Social Identity Theory (Tajfel, 1978; Tajfel and Turner 1979). This suggests that the more an individual interacts with criminal peers the greater the likelihood there is of that individual developing positive emotional feeling towards belonging to the criminal group.

This study also supports Social Identity Theory in terms of the role of self-esteem in the development of social identification. Statistical analysis indicates significant direct effects of negative aspects of self-esteem on cognitive centrality. Those criminals who reported higher levels of negative attitudes towards themselves tended to show a greater propensity to represent their criminal social identity as a central part of their life. Following Tajfel and Turner's theory (1979), it can be suggested that for the criminals who participated in this study, the cognitive centrality of their criminal identity serves the purpose of increasing the positivity of their self-evaluations. It should be noted however that previous research studies among the general population (e.g. Abrams and Hogg 1988) has indicated that self-esteem and social identity have a mutually reinforcing relationship, in that self-esteem levels may encourage identification with certain groups but that changes in self-esteem can also occur as a result of identification with a particular social group.

Current results, however, are inconsistent with studies suggesting that peer rejection (peer relation) plays a significant role in prediction of self-esteem (Downs and Rose 1991; Parker and Asher 1987; Juvonen 1991). This was tested by specifying a distinct alternative model where a direct path was estimated between peer relations (peer rejection) and self-esteem. Although very weak associations between the two variables were observed, SEM analysis showed that this model did not fit the observed data and was thus rejected.

The only significant negative indirect effect was found between parental supervision and criminal identity. Current findings suggest that parental supervision can influence cognitive centrality, in-group affect, and in-group ties through associations with criminal friends. Such a model was previously proposed by Shaw and Scott (1991) and Simons et al. (1991). The picture is essentially the following: criminals who reported low levels of parental supervision were more likely to develop ongoing relationships with criminal friends which in turn, contributed to their criminal social identity, particularly the emotional element of their

association with other in-group criminal members. This indirect relationship also indicates that, for the current criminal sample, the role of parental supervision had a significant determining effect in the type of friends these individuals associated with, irrespective of the nature of early peer relations.

Limitations and Further Directions

In terms of limitations related to the measurement and generalizability of the findings, there are a number of factors which ought to be considered. The nature of the sample is limited to male recidivistic prisoners, thus future research should consider more diverse offender populations such as white collar criminals, sexual offender, youth criminals, and youth at-risk groups. Future studies should also endeavour to include female offenders. This project has focused entirely on inmates from a high security prison whereas further investigations should preferably consider different categories of prisoners and places of detentions. Additionally, in order to improve the reliability of the proposed structural equation model of criminal social identity, it is necessary to increase sample size.

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 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 (such as parental control, or relationship with peers in school) 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 a recidivistic population.

One of the benefits of this research was the use of a sample of adult prisoners who reported relatively high levels of criminal social identity, which make them an appropriate target sample for this type of investigation. 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 developmental factors involved in the development of such a social identity. Longitudinal research designs are however ultimately necessary to obtain a reliable developmental picture of criminal social identity. In addition, previous studies within the identity domain indicated various single interactions among parental variables, peer associations, and self-esteem. However, the current research project incorporated and empirically tested the nature of these associations within a single structural equation model of criminal social identity.

Conclusion

In conclusion, this project contributes to existing literature on social identity in a unique and distinct manner by virtue of its investigation of criminal social identity. It suggests that criminal social identity is characterized by external factors including the direct effect of associations with criminal friends, which itself is influenced by insufficient and often times an absence of parental supervision during the early part of the individual's childhood development. It is also the case that early peer rejection is not a significant predictor of associations with criminal friends and further development of criminal identity. The current findings are the first to demonstrate the relationships that exist between early childhood experiences, criminal associations, and self-esteem with criminal identity. Future research programs will hopefully further explore the impact of developmental psychological processes on criminal social identity through the use of longitudinal methodologies in order to gain a more concrete understanding of the impact of these important early psychological processes in the development of criminal social identity. This study also provides further support for Social Identity Theory with regards to the role of self-esteem in the development of social identification. It is empirically suggested that prisoners who hold negative attitudes towards themselves tend to display a greater penchant for holding their criminal social identity as a central component in their cognitive framework.

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