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Further insights into the construct of criminal social identity: Validation of a

revised measure in a prison population

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Abstract

The current study objective was to develop a revised version of the Measure of Criminal Social Identity (MCSI) with an increased number of indicators to more reliably capture three MCSI dimensions. Dimensionality and construct validity of the Measure of Criminal Social Identity – Revised (MCSI-R) was examined among a sample of systematically selected inmates ($N = 2,192$). Four competing models of the MCSI-R were specified and tested using M*plus* with weighted least squares with mean and variance adjustment (WLSMV) estimation. Bifactor model with three meaningful factors (cognitive centrality, in-group affect, and in-group ties) while controlling for the general factor was the best fit for the data. Good composite reliability of the three MCSI-R dimensions was established. The three subscales of the MCSI-R evidence differential predictive utility for prisonization, number of incarcerations, self-esteem, and violent offending. Practical implications and directions for future research are discussed.

Key Words: Criminal social identity; The Measure of Criminal Social Identity – Revised; Bifactor modelling; Prison population

Further insights into the construct of criminal social identity: validation of a revised measure in a prison population

Identity is composed of meanings that an individual assigns to the roles they play in different social situations (Stryker & Burke, 2000). Turner (1982) argued for the existence of two types of identities, namely personal and social. Personal identity stresses an individual's uniqueness and is largely resistant to change. In contrast, social identity is formed in the process of interpersonal interactions and, as such, highlights an individual's similarities with others (Vryan, Adler, & Adler, 2003).

According to Social Identity Theory (SIT; Tajfel & Turner, 1979), the attainment of a positive social identity is vital for an individual's self-esteem. A positive social identity can be developed through favourable comparisons between in-group and out-group members - a process referred to as in-group favouritism (Tajfel & Turner, 1979). In the event of an unsatisfactory outcome of such an evaluation, a different group membership can be assumed (*social mobility*; Hogg & Reid, 2006; Tajfel & Turner, 1979). Individuals consigned to groups negatively valued, membership of which cannot be easily or voluntarily changed, may adopt a *social creativity* strategy, whereby the meaning of the group position is re-constructed (e.g., through comparisons against a different dimension or a more deprived group) to allow for positive evaluations (Tajfel, 1978). Whilst the latter tactic can enhance the subjective status of an in-group, it cannot change the reality of disadvantage (Jackson, Sullivan, Harnish, & Hodge, 1996). Furthermore, although social identity is an important source of self-esteem, empirical research demonstrated that members of high status groups compared to low status groups report higher self-esteem levels (Ellemers, Kortekaas, & Ouwerkerk, 1999). It has also been noted that individuals with lowered self-esteem are more likely to engage in social differentiation (Reicher, Spears, & Haslam, 2010), which may subsequently lead to a strong identification with a particular group. This indicates that increased social

identity prominence may be a function of low self-esteem and is not always predictive of positive self-evaluations.

Derived from the SIT and seeking to provide a more cognitive outlook on social relations, Self-Categorization Theory (SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; Turner, Oakes, Haslam, & McGarty, 1994) is concerned with social cognitive processes which influence an individual's identification with specific groups, the inclination towards construing oneself in group terms, and the propensity to engage in group behaviours. As such, it expands the remit of SIT from group relations to group behaviour (Reicher *et al.*, 2010). SCT considers the process of self-categorisation to be fundamental in the construction of personal and social identities. Indeed, people tend to classify themselves and others into certain social categories, such as nationality, gender, and religious affiliation. This leads to the formation of an important cognitive structure, which (*a*) introduces order to the social environment, (*b*) impacts an individual's self-concept and feelings, and (*c*) transforms individual views into *shared* beliefs, values, and behaviours (Hogg & Reid, 2006).

Given the importance of both emotional and cognitive aspects to the construct of social identity, it has been argued to be multidimensional in nature (Cameron, 2004; Tajfel, 1978). Measures of identification have attempted to grasp the following three components: awareness of group membership, group evaluation, and emotional aspects of belonging (Brown, Condor, Mathews, Wade, & Williams, 1986; Hinkle, Taylor, Fox-Cardamone, & Crook, 1989). Although not all research managed to identify those three separate dimensions (e.g., Brown *et al.*, 1986; Karasawa, 1991; Kelly, 1988), more recent studies reported the existence of one cognitive and two emotional facets of social identity (Cameron, 2004; Jackson, 2002).

Further, most social identity measurement has assumed a context-neutral stance. An alternative approach has been proposed by Criminal Social Identity (CSI; Boduszek & Hyland, 2011) theory and its updated version, the Integrated Psychosocial Model of Criminal Social Identity (IPM-CSI; Boduszek, Dhingra, & Debowska, 2016c), which expound the roots and consequences of identity specifically within an antisocial context. In order to facilitate the measurement of criminal social identity, Boduszek, Adamson, Shevlin, and Hyland (2012) developed the Measure of Criminal Social Identity (MCSI). Grounded in Cameron's (2004) research into the dimensionality of the Strength of Group Identification Scale, the MCSI was proposed to consist of the following three dimensions: cognitive centrality, in-group affect, and in-group ties. Cognitive centrality highlights the cognitive importance of belonging to a particular group. For individuals scoring high on this factor of CSI, criminal identity is interpreted as crucial for their self-concept. As such, they are likely to endorse the norms of their reference group and act accordingly even in the absence of other group members. Another factor, in-group affect, refers to the positive emotional valence of belonging to a criminal group and may be developed to reduce anxiety associated with the discrepancy between ideal and actual self. Finally, in-group ties factor refers to the psychological perception of resemblance and emotional connection with other members of a particular group. Enhanced scores on this CSI dimension are associated with an increased likelihood to conform to the group's norms and display behaviours condoned by the group (Boduszek *et al.*, 2012; Boduszek, Adamson, Shevlin, Mallett, & Hyland, 2013b; Boduszek, O'Shea, Dhingra, & Hyland, 2014).

The MCSI is composed of eight items, with responses indexed on a 5-point Likert scale (1= *"strongly disagree"* to 5 = *"strongly agree"*). Scores range from 8 to 40, with higher scores indicating increased levels of criminal social identity. In a study by Boduszek *et al.* (2012), confirmatory factor analyses among an opportunistically selected sample of

recidivistic incarcerated offenders ($N = 312$) demonstrated that the MCSI scores were best captured by a three-factorial solution, reflecting the aforementioned dimensions: cognitive centrality (three items), in-group affect (two items), and in-group ties (three items). Alternative one-factorial and two-factorial (composed of cognitive centrality and in-group affect/ties) solutions were also tested, but these models did not fit the data (as evidenced by all fit statistics). In another study with 1,171 offenders from three different countries (the United States, Poland, and Pakistan), a three-factor model of criminal social identity (cognitive centrality, in-group ties, and in-group affect) was uncovered within both combined and individual offender samples (Sherretts & Willmott, 2016). Mixed research findings have been reported with regard to internal consistency (as measured using Cronbach's alpha) of the three subscales and the MCSI total score; ranging from critical (Sherretts *et al.*, 2016), acceptable (Boduszek, Dhingra, & Debowska, 2016b; Sherretts, Boduszek, & Debowska, 2016), good (Boduszek, Debowska, Dhingra, & DeLisi, 2016a), to strong (Boduszek, Adamson, Shevlin, Hyland, & Bourke, 2013a).

Additionally, understanding of the predictive validity of the MCSI facets (e.g., correlations with external criteria) is vital for the development of effective risk assessment and treatment (Boduszek & Debowska, 2016). Past research demonstrated that cognitive centrality associated significantly with violent criminal behaviour, whereas higher in-group affect was related with non-violent criminal behaviour (Boduszek, Hyland, Bourke, Shevlin, & Adamson, 2013c). Increased scores on in-group affect facet were also found to serve as a protective factor against suicide ideation within a sample of 415 imprisoned juvenile offenders (Shagufta, Boduszek, Dhingra, & Palmer, 2015). In a recent study by Sherretts *et al.* (2016) among 501 male and female offenders incarcerated in three prisons in Pennsylvania State, cognitive centrality formed a significant positive association with antisocial behaviour psychopathy factor, in-group affect correlated with antisocial behaviour

and interpersonal manipulation psychopathy factors, whereas in-group ties associated with erratic lifestyle, antisocial behaviour, and interpersonal manipulation psychopathy factors. Additionally, in-group ties dimension was related with the female gender, indicating that women are more likely to form stronger bonds and identification with in-group members than males because of their greater need to be an accepted and supported member of a group (see Brown & Lohr, 1987; Kiesner, Cadinu, Poulin, & Bucci, 2002; Newman, Lohman, & Newman, 2007).

Nevertheless, it appears that the MCSI does not work equally well across different samples. More specifically, as long as most factor loadings for the scale items were strong in Sherretts and Willmott's (2016) study, some factor loadings for the U.S. and Pakistani samples were below the critical value (< .40). Further, critical internal consistency ($\alpha = .69$) of the cognitive centrality facet was reported by Sherretts *et al.* (2016). It was thus suggested that the MCSI should be revised and extended in order to increase its reliability and provide a better coverage of the theoretical construct (as recommended by Hair, Black, Babin, & Anderson, 2010).

The current study

In line with the above, the MCSI is in need of elaboration. Although largely successful, the first attempt at forming a scale to capture criminal social identity resulted in an eight-item measure (with only two items for in-group affect dimension), which may be insufficient to reflect three latent factors of such a complex psychological construct. Given significant associations between criminal social identity dimensions and psychosocial as well as behavioural consequences (e.g., Boduszek *et al.*, 2013c; Shagufta *et al.*, 2015; Sherretts *et al.*, 2016), further research into developing a reliable and valid tool to measure the phenomenon is warranted. Consequently, the main objective of the current study was to

develop a revised version of the MCSI with an increased number of indicators to more reliably capture the three MCSI dimensions (cognitive centrality, in-group affect, and in-group ties), in a large systematically, rather than opportunistically (see Boduszek *et al*., 2012; Sherretts & Willmott, 2016), selected sample. Second, we investigated the factor structure of the Measure of Criminal Social Identity – Revised (MCSI-R) using confirmatory factor analysis. As per Boduszek and Debowska's (2016) recommendations, we adopted an inquisitive approach to the assessment of scale dimensionality by testing four competing, theoretically and methodologically sound, factorial solutions, including bifactorial solution. Finally, we assessed the internal consistency of the scale using composite reliability (see Boduszek & Debowska, 2016; Debowska, Boduszek, Kola, & Hyland, 2014; Sherretts & Willmott, 2016) and explored the differential predictive validity of the MCSI-R factors.

Method

Sampling procedure

To minimise sampling bias and maximise the generalisability of findings, systematic sampling procedure was applied in the present research. First, five maximum, five medium, and five low security prisons were randomly selected for participation. Access to those prisons was granted by regional prison wardens. Printed self-reported anonymous surveys were delivered by the authors to all selected institutions and systematically distributed among prisoners, with stratification based on prison blocks. Data collection took place in inmates' living units and was monitored by one prison personnel on each block/wing. The prison personnel, trained by the authors, clarified the nature and purpose of the study, explained that data collection was anonymous, and provided a summary of the informed consent to all participating prisoners. Given inmates' standing as a vulnerable population and the potential that they may feel compelled to participate, it was made clear both in the consent form and

verbally that participation was voluntary, without any form of reward. Prisoners were also

informed verbally that they should not participate in the study if they could not read, but they

were not required to provide the specific reason for not participating. Inmates consenting to

participate were instructed to place completed surveys in envelopes and return them to a data

collector or place them in a correspondence box available on each prison block (the latter

option was not available in maximum security units). Completed surveys were collected from

all participating prisons by the research team and posted to the home university in the United

Kingdom.

Sample

The authors approached $N = 3,200$ inmates in total and $N = 2,192$ returned completed

surveys (response rate = 68.5%[1]). Due to the significant missing data (Little's MCAR test: χ^2

$= 14.58$, $p > .05$), $N = 1,431$ of inmates were included in the current analysis (age range from

18 to 77, $M = 34.78$, $SD = 9.89$, $Mdn = 34$, and Mode = 35). Five hundred and eighty ($N =$

580) participants were from maximum, 477 from medium, and 374 from low security prisons.

Further, 584 participating inmates were sentenced for violent crimes (such as assault, sex

offences, domestic violence, and homicide) and 847 participants were convicted of non-

violent offences (such as theft, burglary, drug-related offences, and financial crimes). Four

hundred and ninety-nine ($N = 499$) participants were incarcerated for the first time, 382 for

the second time, and 550 were in prison three times or more (range from 1 to 17 times, $M =$

2.62, $SD = 1.98$, $Mdn = 2$, Mode = 1). Total time spent in prisons for the whole sample

ranged from 1 to 477 months ($M = 65.52$, $SD = 62.11$, $Mdn = 48$, Mode = 48) and the current

incarceration from 1 to 292 months ($M = 24.59$, $SD = 27.09$, $Mdn = 16$, Mode = 12).

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[1] This rate is satisfactory by present survey research standards (Kohut, Keeter, Doherty, Dimock, & Christian, 2012).

Measures

The Measure of Criminal Social Identity - Revised (MCSI-R) consists of 18 items scored on a 5-point Likert scale (1= *"strongly disagree"* to 5 = *"strongly agree"*). Scores range from 18 to 90, with higher scores suggesting enhanced levels of criminal social identity. The scale consists of three subscales: cognitive centrality (six items) subscale measures the psychological salience of a criminal's group identity; in-group affect (six items) subscale measures a criminal's felt attitude toward other in-group criminals; and in-group ties (six items) subscale assesses the level of personal bonding with other criminals.

Organizational Structure and Prisonization Scale (OSPS; Thomas & Zingraff, 1974). Prisonization refers to "the adoption of the folkways, mores, customs, and general culture of the inmate subculture" (Clemmer, 1940, p. 270). The OSPS is composed of eight statements assessing prisoners' feelings about being in prison. Responses are measured on a 5-point Likert scale (1 = *"strongly disagree"*, 5 = *"strongly agree"*). Scores range from 8 to 40, with higher scores indicating increased levels of prisonization (Cronbach's alpha = .71).

Self-Esteem Measure for Prisoners (SEM-P; Debowska, Boduszek, & Sherretts, 2016) is an 8-item self-report scale assessing self-esteem among incarcerated adult populations. The measure is composed of two subscales: prison-specific self-esteem (4 items), looking at self-esteem in a specific context, and general self-esteem (4 items), inquiring into self-esteem in a context-free manner. Responses are indexed on a 4-point Likert scale (1 = *"never"*, 4 = *"always"*). Scores for the total scale range from 8 to 32, with higher scores indicating higher levels of self-esteem (Cronbach's alpha = .82).

Number of incarcerations was measured using a single question: "How many times have you been in prison?".

Lie scale (Francis, Brown, & Philipchalk, 1992) is a 6-item subscale of the Eysenck

Personality Questionnaire Revised-Abbreviated (EPQR-A) devised to control for social

desirability bias. It is scored on a *"yes"* (1) / *"no"* (0) format (Cronbach's alpha = .72).

All questionnaires were translated to Polish by a professional translator. To ensure

that the meaning of the original inventories has been retained, the Polish versions were

translated back to English. Original translations and back-translations were then shown to

three experts in translation who suggested minor changes.

Scale development

It was recognised that, while useful, the original MCSI has limitations. Specifically,

prior research reported a critical internal consistency for the cognitive centrality subscale

(Sherretts *et al*., 2016) and some factor loadings below the critical value (Sherretts &

Willmott, 2016). Additionally, the eight-item scale may be too brief to grasp the concept of

criminal social identity in its full complexity. These limitations have prompted the present

attempt at extending the content of the MSCI in order to better reflect the three CSI facets

(cognitive centrality, in-group affect, and in-group ties). Item generation for the MCSI-R

relied on the theoretical conceptualisation of CSI and its three dimensions, as well as

discussions with a panel of experts (three criminal/forensic psychologists and one research

methodologist). Initially, the authors assembled 36 items (including eight original items of

the MCSI), indexed on a 5-point Likert scale (1 = *"strongly disagree"*, 5 = *"strongly*

agree"). Given the short attention span exhibited by prisoners, however, it was advised by

the experts that a 36-item measure would be too long. Additionally, since criminal social

identity is intended to be studied in relation to other external criteria (Boduszek *et al*., 2016c),

the aim of this study was to create an instrument which would be quick to administer.

Consequently, after two rounds of consultations with the panel, the initial item pool was

reduced to 18 (six for each dimension), six of which were reverse-scored. Two items from the original MCSI with low factor loadings reported in prior research were excluded. The proposed scale was initially administered to 53 male inmates from one maximum security prison for cognitive testing. Forty-one ($N = 41$) participants returned fully completed surveys. Sixteen ($N = 16$) participating prisoners agreed to provide feedback on item comprehension and response format. Most prisoners reported difficulty understanding items scored reversely, which may be due to the reduced literacy levels found amongst representatives of the prison population[2]. As such, the problematic items were re-written and all statements incorporated in the final version of the MCSI-R are scored in the same direction.

Analytical procedure

The dimensionality and construct validity of the MCSI-R was investigated using traditional CFA techniques and confirmatory bifactor analysis (see Reise, Moore, & Haviland, 2010). Four alternative models of the MCSI-R were specified and tested using M*plus* version 7.4 (Muthén & Muthén, 1998-2015), with weighted least squares means and variance adjusted (WLSMV) estimation.

Model 1 is a one-factor solution where all 18 MCSI-R items load onto a single latent factor of criminal social identity. Model 2 is a correlated two-factor solution where items load on cognitive centrality factor (items 1, 4, 7, 10, 13, and 16) and affective traits (all remaining items) factor (this solution was suggested by Jackson, 2002). Model 3 is a correlated three-factor solution where items load on cognitive centrality factor (items 1, 4, 7, 10, 13, and 16), in-group affect factor (items 2, 5, 8, 11, 14, and 17), and in-group ties factor (items 3, 6, 9,

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[2] Indeed, the British government data revealed that 46% of individuals entering the prison system have literacy skills comparable with those expected of an 11-year-old child (Harding, Romanou, Williams, & Peters, 2012). Along similar lines, Herrington (2009), in a study with 185 young adult male prisoners, found that 10% of the sample had an IQ of 69 or below, suggesting a significant impairment in cognitive functioning.

12, 15, and 18). Model 4 (see Figure 1) is a bifactor conceptualisation with one general factor of criminal social identity and three subordinate factors described in Model 3.
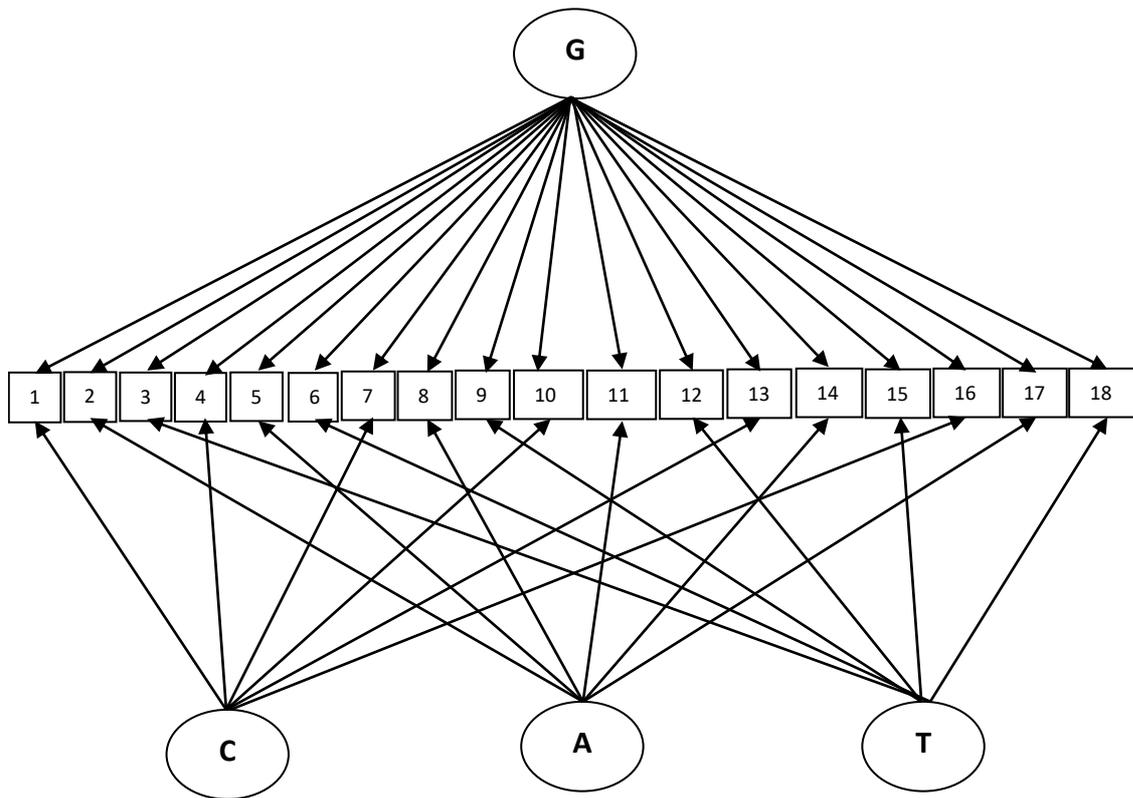
Figure 1. Bifactor solution of the MCSI-R (G = general factor of CSI; C = cognitive centrality; A = In-group affect; T = In-group ties).

The overall fit of each model and the relative fit between models were assessed using a range of goodness-of-fit statistics: the χ2 statistic, the Comparative Fit Index (CFI; Cronbach, 1990), and the Tucker Lewis Index (TLI; Tucker & Lewis, 1973). For CFI and TLI, values above 0.95 indicate good model fit (Bentler, 1990; Hu & Bentler, 1999). In addition, the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990) with 90% confidence interval is presented. Ideally, this index should be less than 0.05 to suggest good

fit (Bentler, 1990; Hu & Bentler, 1999). Furthermore, the Weighted Root Mean Square

Residual (WRMR) was used to evaluate the alternative models, with the smaller value

indicating the best-fitting model.

Alpha coefficients as indicators of internal consistency have been criticised within a

latent variable modelling context due to their reliance on both the number of items tested as

well as correlations between them (see Cortina, 1993; Raykov, 1998). Thus, this research

assessed the internal reliability of the MCSI-R using composite reliability (for procedure see

Raykov, 1997; for application in empirical research see Boduszek, Dhingra, Hyland, &

Debowska, 2015; Debowska *et al.,* 2014). Values greater than .60 are generally considered

acceptable (Diamantopoulos & Siguaw, 2000).

Results

Descriptive statistics for three MCSI-R factors, prisonization, number of

incarcerations, and self-esteem are presented in Table 1.

Table 1

Descriptive Statistics for the MCSI-R Factors, Prisonization, Number of Incarcerations, and
Self-esteem

Variables	*M*	*SD*	*Mdn*	Observed Min.	Observed Max.
Cognitive centrality	10.78	4.59	10	6	30
In-group affect	11.54	4.90	10	6	30
In-group ties	14.09	5.26	13	6	30
Prisonization	25.09	5.74	25	10	40
Number of incarcerations	2.56	1.90	2	1	17
Self-esteem	27.12	3.79	28	10	32

Fit indices for four alternative models of MCSI-R are presented in Table 2. One-factor

model, correlated two-factor model, and correlated three-factor model were rejected based on

the CFI and TLI (values below .95) and RMSEA (value above .05) statistics. Bifator model

of the MCSI-R provides the best fit to the data based on all statistics (CFI = .97, TLI = .96,

RMSEA = .06 [90%CI = .06/.07], WRMR = 1.12).

Table 2

Fit Indices for Four Alternative Models of the MCSI-R

Models	χ^2	*df*	CFI	TLI	RMSEA	90% CI	WRMR
1. One-factor	1518.16*	135	.90	.88	.12	.10/.13	2.09
2. Correlated 2 factors	1499.41*	134	.92	.90	.11	.10/.12	2.00
3. Correlated 3 factors	1341.90*	132	.93	.92	.09	.09/.10	1.85
4. Bifactor	650.34*	114	.97	.96	.06	.06/.07	1.12

Note. CFI = Comparative Fit Index; CI = Confidence Interval; *df* = degrees of freedom; RMSEA = Root-Mean-Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; TLI = Tucker Lewis Index; χ^2 = chi square goodness of fit statistic. * Indicates χ^2 are statistically significant (*p* < .05).

The appropriateness of the bifactor model of the MCSI-R can also be determined

based on statistically significant factor loadings (Table 3). Inspection of the factor loadings

for the three criminal social identity factors provides imperative evidence regarding the

correctness of including these latent factors in the scoring of the MCSI-R. The items load

more strongly on each of the three criminal social identity factors and less strongly on general

factors. This indicates the supremacy of the three factors of criminal social identity over the

general factor in the conceptualisation of the factor structure of the MCSI-R. These results

advocate that the criminal social identity is composed of three subscales (cognitive centrality, in-group affect, and in-group ties) while controlling for the general factor.

The correlations between three criminal social identity factors were high (cognitive centrality and in-group affect $r = .82$; cognitive centrality and in-group ties $r = .74$; in-group affect and in-group ties $r = .79$), which indicates a significant overlap between the variables. Boduszek and Debowska (2016; see also Carmines & Zeller, 1979) suggested that when the best model fit is multidimensional and some factors are highly correlated ($r \geq .50$), a differential predictive validity has to be established in order to verify whether the dimensions are associated differentially with external variables. Table 4 presents the outcome of regression analyses. Based on the results, cognitive centrality and in-group ties (but not in-group affect) form positive significant correlations with prisonization. The only significant predictor of number of incarcerations is the in-group ties factor. Cognitive centrality forms a significant negative correlation with self-esteem, whereas a positive relationship is observed between in-group ties and self-esteem. Both cognitive centrality and in-group ties associated positively with violent offending. These results confirm that cognitive centrality, in-group affect, and in-group ties should be included as separate subscales in the MCSI-R.

Table 3

Standardized Factor Loadings for the Three MCSI-R Factors (C = Cognitive centrality; A = In-group affect, T = In-group ties) and General Factor (G)

MCSI-R items	G	C	A	T
1. I have a strong sense of inner security that comes from knowing others criminals	.44***	.62***		
4. It is important to me to think of myself as a criminal	.51***	.43***		
7. I have accepted the fact that I am a criminal as a part of who I am	.24***	.62***		
10. Most of my opinions and views are similar to my fellow criminals	.23***	.73***		
13. Being a criminal is an important part of who I am	.56***	.58***		
16. I believe that because I am a criminal, I am stronger than an average person	.66***	.52***		
2. I share my personal experiences with my criminal friends	.21***		.64***	
5. Whatever affects my fellow criminals affects me	.27***		.60***	
8. Being with my fellow criminals helps me to feel better about myself	.42***		.65***	
11. I feel comfortable when I am with my fellow criminals	.16**		.76***	
14. When I am with my fellow criminals I feel I belong somewhere	.59***		.65***	
17. Being connected with my fellow criminals gives me a source of strength for whatever I do	.69***		.64***	
3. I have a lot in common with other people who have committed a crime	.23***			.73***
6. I feel close to other people who have committed a crime	.53***			.62***
9. I find it easy to form a bond with other people who have committed a crime	.16**			.76***
12. I meet up with people who have committed a crime when I'm not in prison	.17**			.73***
15. I find it relatively easy to get close to other criminals	.15**			.79***
18. Generally, I'm there for my fellow criminals when they really need me	.17**			.74***

Note. Factor loadings are statistically significant at * *p* < .05; ** *p* < .01; *** *p* < .001

Table 4

Associations between the Three MCSI-R Factors and External Variables

Variable	Prisonization β (95% CI)	Number of incarcerations β (95% CI)	Self-esteem β (95% CI)	Violent offending OR (95% CI)
Cognitive Centrality	.13** (.03/.22)	.03 (-.08/.14)	-.23*** (-.32/-.12)	1.21*** (1.18/1.27)
In-group Affect	.07 (-.03/.19)	-.03 (-.13/.12)	-.04 (-.15/.07)	.99 (.95/1.04)
In-group Ties	.27*** (.19/.36)	.13** (.03/.23)	.17*** (.07/.27)	1.06*** (1.01/1.10)

Note. **p < .01, *** p < .001

Internal reliability of the MCSI-R factors was investigated using composite reliability instead of Cronbach's alpha, as suggested by Boduszek and Debowska (2016; see also Raykov, 1997). Composite reliability was calculated using the following formula:

$$CR = \frac{\left(\sum \lambda_i \right)^2}{\left(\sum \lambda_i \right)^2 + \sum Var(\varepsilon_i)}$$

where CR = reliability of the factor score, λ_i = standardized factor loading, and $Var(\varepsilon_i)$ = standard error variance. Results suggest that all three criminal social identity factors (cognitive centrality = .76, in-group affect = .82, and in-group ties = .87) and general factor (.73) demonstrate good internal reliability.

Discussion

Criminal social identity was previously associated with important psychosocial and mental health implications (e.g., Boduszek *et al.*, 2013c; Shagufta *et al.*, 2015), which highlights the significance of the construct within the criminal justice context. In order to facilitate the process of risk assessment and enhance its effectiveness, a reliable and valid measure of criminal social identity is needed. The original Measure of Criminal Social Identity (MCSI; Boduszek *et al.*, 2012) consists of eight items, which may be insufficient to grasp the complex psychological construct of criminal social identity conceptualised to reflect three separate dimensions (cognitive centrality, in-group affect, and in-group ties). Further, prior research demonstrated problems with regard to the MCSI internal consistency and factor loadings (Sherretts *et al.*, 2016; Sherretts & Willmott, 2016), indicating that the content of the MCSI is in need of reconsideration. Here, our central objective was to develop a revised version of the MCSI with an increased number of items in a large systematically selected prison sample. Another aim was to validate the Measure of Criminal Social Identity – Revised (MCSI-R) as well as assess the differential predictive validity of its three facets.

According to Boduszek and Debowska (2016), a number of conceptually sound solutions should be tested in order to fully explore the factor structure of a measure. In the current study, we identified and examined four alternative models of the MCSI-R (a one-factor model, two-factor model, three-factor model, and a bifactor model with three grouping factors), using confirmatory factor techniques. Results indicated that the only acceptable solution (as shown by all fit statistics) for the 18-item MCSI-R was the bifactor model with three grouping factors (cognitive centrality, in-group affect, and in-group ties), while controlling for a general factor. Since the majority of covariation between observable indicators was explained by the three grouping factors, they formed the basis for creating the instrument's subscales (see Reise *et al*., 2010). Compared with traditional CFA techniques, bifactor modelling allows for assessing the validity of a single general factor, while incorporating aspects of construct multidimensionality (Boduszek & Debowska, 2016; Hyland, 2015). Thus, this approach to data modelling facilitated the representation of CSI as a complex, multidimensional psychological concept.

Further, the three MCSI-R facets were found to be highly associated (ranging from .74 – to .82) with one another. Very high correlations between factors (.50 and above) may indicate that they measure the same concept (Carmines & Zeller, 1979). Consequently, a test of differential predictive validity was necessary to determine theoretical, as opposed to statistical, supremacy of the extracted factors (see Boduszek & Debowska, 2016). Indeed, the present results demonstrated that the three CSI factors correlated differentially with external measures, confirming their conceptual distinctiveness. For example, cognitive centrality and in-group ties associated significantly with prisonization in the positive direction, indicating that exposure to the prison culture together with a limited access to the outside world, may enhance identification with and loyalty towards other offenders. Further, in-group ties positively predicted number of incarcerations (recidivism level), which suggests that some

individuals re-offend because criminal behaviour has been normalised within their social circle. In line with prior research, violent offending associated with both cognitive centrality and in-group ties, hence providing further evidence that enhanced scores on these two dimensions increase the likelihood to conform to the group's norms and behave in a way condoned by the group (Boduszek *et al.*, 2012, 2013b, c, 2014; Sherretts *et al.*, 2016). Prior research utilising the original MCSI found significant associations only between cognitive centrality and self-esteem (Boduszek *et al.*, 2013b) as well as violent criminal behaviour (Boduszek *et al.*, 2013c). Therefore, the current revision has resulted in improved predictive validity of the CSI scale.

A particularly interesting finding pertains to the associations between cognitive centrality as well as in-group ties and self-esteem. Sherretts *et al.* (2016) have previously showed that high interpersonal manipulation psychopathy scores (1 SD above the mean) combined with period of incarceration result in increased CSI scores. The relationship between period of incarceration and CSI total score for those low in interpersonal manipulation (1 SD below the mean), on the other hand, was significantly negative. Accordingly, it was suggested that inmates, through impression management, aim to elicit positive evaluations from others in order to maintain positive self-esteem (see Goffman, 1963, 1990). Nonetheless, the study failed to control for participants' self-esteem scores and, as such, the authors could only speculate that the observed intensification of CSI was due to the need for self-enhancement. The relationship between CSI and self-esteem, however, was explored by Boduszek *et al.* (2013b), who established a statistically significant association between cognitive centrality and negative self-esteem. Indeed, this prior finding has been supported by the current results. Specifically, we found a significant negative association between cognitive centrality and self-esteem. As earlier indicated, self-esteem is generally lowered among low status group members (Ellemers *et al.*, 1999). Moreover, those who form

a strong identification with such a group, may do so due to negative self-evaluations. Our results suggest that enhanced group centrality, however, does not result in improved self-esteem ratings. Additionally, a significant positive relationship between in-group ties and self-esteem was reported. Therefore, it appears that self-appraisals are more positive when they take place in relation to similar others. Whilst, given the cross-sectional nature of the present research design, we were not able to verify the temporal order of these associations, it appears that prison professionals should focus on enhancing inmates' self-esteem in order to prevent them from forming criminal cognitive structures and strong ties with other criminals.

The results of the current study ought to be considered in light of some limitations. First, the assessment of CSI relies on self-report and, as such, is subject to response bias. Second, the current sample consisted solely of Polish adult male prisoners and hence future studies should seek to validate the MCSI-R among female offenders, youth offenders, inmates from different cultural backgrounds, as well as non-incarcerated criminal samples in order to verify its factorial invariance. Third, longitudinal studies are required to corroborate the temporal order of associations reported here. Finally, since in-group affect dimension did not form any significant correlations with external criteria, future studies employing the MCSI-R should control for other factors which could be related to this emotional aspect of CSI.

In spite of the aforementioned limitations, the present research adds to the literature in the area of criminal social identity and its psychometrics. We created an updated measure of CSI and demonstrated its complex psychological nature through the application of bifactor modelling. We showed that the MCSI-R scores are best captured by three grouping factors (cognitive centrality, in-group affect, and in-group ties), whilst controlling for a general factor. The three grouping factors, although highly correlated with one another, evidenced a good differential predictive utility for prisonization, number of incarcerations, self-esteem,

and violent offending. This indicates that CSI is an important construct to be considered during risk assessment and treatment within the criminal justice and prison contexts. For example, since cognitive centrality refers to the cognitive processes associated with forming an identification with a criminal group, it appears that inmates with increased ratings on this CSI dimension would benefit from cognitive behavioural therapy or related programmes. Based on the current findings, it is envisaged that such treatment could both curb the process of prisonization, i.e., the assimilation of prison norms into own cognitive structures, and lead to reduced violent offending through encouraging fundamental changes to inmates' thinking style. Consequently, to aid practice and further research in the field, the aim of this study was to develop a valid and reliable measure of CSI which would be easy to administer and freely available.

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