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Construct Validity and Dimensionality of the Measure of Criminal Social Identity within a Sample of American, Pakistani, and Polish inmates.

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VALIDATION AND DIMENSIONALITY OF MEASURE OF CRIMINAL SOCIAL IDENTITY

Abstract

Purpose- The aim of the current study was to test the construct validity and dimensionality of the *Measure of Criminal Social Identity* (MCSI) with a sample of American, Pakistani, and Polish inmates.

Method- Adopting a cross-sectional survey design, the opportunistic sample consisted of offenders incarcerated in three different countries; 351 inmates from Poland, 501 from the United States, and 319 from Pakistan (Total $n = 1171$), with inmates completing anonymous, self-administered, paper-and-pencil questionnaires. Traditional confirmatory factor analysis, along with confirmatory bifactor modelling was used in order to examine the fit of four different models of criminal social identity.

Findings- Results revealed that data were best explained by a three-factor model of criminal social identity (cognitive centrality, in-group ties, and in-group affect) within offender populations. Composite reliability indicated that the three factors were measured with very good reliability.

Conclusions/limitations/implications- Validation of the MCSI within the large cross-cultural prison sample provides substantial support for the measure's reliability and utility across diverse offender populations. Consideration of low factor loadings of items one and three for the Pakistan dataset and item two for the United States dataset, leads the researchers to outline possible recommendations that these questions be reworded and additional items be added.

Originality- This is the first study to validate MCSI cross-culturally and specifically utilising a western prison population, consisting of male and female offenders.

Keywords *Criminal Social Identity, Measure of Criminal Social Identity (MCSI), Confirmatory Factor Analysis, Prison population*

Paper type *Research paper*

VALIDATION AND DIMENSIONALITY OF MEASURE OF CRIMINAL SOCIAL IDENTITY

Construct Validity and Dimensionality of the Measure of Criminal Social Identity within a Sample of American, Pakistani, and Polish inmates.

The notion of social identity has long been drawn upon to account for diverse human behaviors and is widely considered to be one of the most well-established theoretical concepts in social science research. The application of social identity concepts in the development of a specific criminal social identity is however a less well researched concept. Despite obtaining empirical support that a persistent criminal social identity increases the likelihood of development of criminal thinking styles which in turn, increases the likelihood that an individual will engage in criminality (Boduszek & Hyland, 2011), attempts to develop a valid measure of such criminal social identity within the literature require further investigation. The purpose of this paper is therefore to examine the construct validity and dimensionality of Boduszek, Adamson, Shevlin, and Hyland's (2012a) Measure of Criminal Social Identity (MCSI) across culturally diverse offender populations.

The concept of personal identity refers to the self-definition of a specific individual with regards to interpersonal and intra-group differentiations, characterized as an "I" versus "you" mentality. Social identity on the other hand refers to the self-definition as a similar group member in terms of in-group versus out-group differentiations, an "us" versus "them" mentality. The salience of personal identity is established in the same manner as a combined function of fit and readiness. While the salient personal identity highlights the perception of individual differences, a salient social identity functions to make the perception of the self the same as or as similar as possible to other in-group members (Boduszek & Hyland, 2011). A result of this identification process where the individual perceives other in-group members as similar to themselves is that the individual begins to display behavioural preference toward these other in-group members (Boduszek, Adamson, Shevlin, & Hyland, 2012b).

Social identification also leads to actions that are harmonious with the identity and support for institutions that embody the identity (Ashforth & Mael, 1989). Membership to a particular group becomes psychological when the social identity of group members is encompassed by an individual's self-concept and becomes salient when the individuals of that given group are

physically absent (Boduszek & Hyland, 2011). People may additionally feel a strong commitment to a group that confers a negative identity on them (Ellemers, Spears, & Doosje, 2002). Thus, if antisocial activities are congruent with the social identity, then an individual will engage in antisocial behaviour even if doing so extends a negative identity upon the individual.

Research indicates that the most widely applied instrument to measure social identity was that created by Brown and colleagues, in which social identity is treated as a one-dimensional construct (Brown, Condor, Mathews, Wade, & Williams, 1986; Kelly, 1988). However, Deaux (1996), in a review of social identification, argued that interdependence between members of particular group, emotional relationships with others, and cognitive or underlying thought processes are all important factors that contribute to the process of social identification. More recent empirical studies have supported this multidimensional structure of social identification (Boduszek et al., 2012a; Boduszek & Hyland, 2011; Cameron, 2004; Cameron & Lalonde, 2001; Ellemers, Kortekaas, & Ouwerkerk, 1999; Hinkle, Taylor, Fox-Cardamone, & Crook, 1989; Jackson, 2002; Jackson & Smith, 1999; Karasawa, 1991; Obst & White, 2005), as well. Hinkle et al. (1989), provided empirical support for a multidimensional concept of social identity and that the three factors reflect a cognitive process, an affect dimension, and dynamics of a group. In addition, Ellemers and colleagues (1999) and Jackson (2002) provided further support for the standpoint that social identity is most precisely conceptualized by three dimensions, although purporting differing factorial structures within the proposed measures.

Building upon this premise, Cameron (2004) suggested a new and distinctive three-factor measure of social identification. The first component termed *cognitive centrality* demonstrates the cognitive significance of belonging to a certain group; which previous research pertains is compatible with the concept of self-categorization (Ellemers et al., 1999; Jackson, 2002). The second element termed *in-group affect* refers to the positive emotional valence of being a member of a particular group; previously associated with the emotional aspects of identity (Ellemers et al., 1999; Hinkle et al., 1989; Jackson, 2002). The final aspect, termed *in-group ties*, corresponds to the psychological perception of similarities and emotional relationship with other members of a specific group, a concept widely supported (Boduszek, 2013; Ellemers et al., 1999; Hinkle et al.,1989; Jackson, 2002; Karasawa, 1991).

A combination of social identity theory and self-categorization theory, along with viewing social identification as multidimensional in nature, led to the development of criminal social identity (CSI). When an individual emerges with a criminal social identity, this leads to the development of social aspects of the self, which the individual shares with criminal others (Boduszek, Dhingra, & Debowska, 2016a; Boduszek & Hyland, 2011). The formation of CSI, according to Boduszek and Hyland (2011) "increases the likelihood of the development of criminal thinking styles and subsequently an increased possibility of engagement in criminal behaviour" (p. 316). Furthermore, CSI salience is a strong determinant of criminal thinking styles and engagement in a variety of criminal conduct (Boduszek et al., 2012a,b; Boduszek, Adamson, Shevlin, Hyland, & Bourke, 2013a; Boduszek, Dhingra, & Debowska, 2016b, c; Boduszek, Hyland, Shevlin, & Adamson, 2013c; Boduszek, O'Shea, Dhingra, & Hyland, 2014; Boduszek, Shevlin, Adamson, & Hyland, 2013d; Bourke, Boduszek, & Hyland, 201; Shagufta, Boduszek, Dhingra, & Palmer-Kola, 2015a, b; Sherretts, Boduszek, & Debowska, 2016).

The Measure of Criminal Social Identity was first introduced by Boduszek et al. (2012). The MCSI was developed and created on the basis of Cameron's (2004) 12-item Three-dimensional Strength of Group Identification Scale and is an eight-item instrument, which is intended to measure an inmate's degree of criminal social identity. Boduszek et al. (2012a), testing the proposed three-factorial scale of criminal social identity, obtained preliminary evidence to support the MCSI within a sample of male recidivistic Polish inmates. Similarly, recent applications of the measure in a Middle Eastern context obtained further support surrounding the three dimensional composition of criminal social identity with juvenile male offenders (Shagufta et al., 2015a). However, as the MCSI constitutes a new contribution to social identity research, additional examination of construct validity and dimensionality of the measure is necessary in broader offending populations.

Given that the MCSI has previously been validated in just two studies, once in an Eastern European context, once in a Middle Eastern context, and has never previously been implemented or validated in a western prison population, the need for further validation is required. Further still, previous research explorations applied the measure entirely upon male offenders, resulting in the need to examine the construct validity of the MCSI within female offender populations. Thus, the main objective of this study is to provide further evaluation of the validity of the three-factorial

solution of criminal social identification, utilising data from both male and female, violent and non-violent inmates, incarcerated within Poland, Pakistan, and the United States.

Method

Procedure and participants

Sampling Procedure

The appropriate prison staff members were informed by the researchers about procedures involved in conducting this study. Survey booklets were developed and delivered to the correctional facilities by the researchers and participants completed anonymous, self-administered, paper-and-pencil questionnaires. Each participant was provided with a brief description of the study, including how to complete the questionnaire, and the general expected completion time. Participants were assured about the confidentiality of their participation and informed they could withdraw from the study at any time. Participants completed the questionnaires in their living units, taking approximately 20 minutes in total. All inmate participation was voluntary and without any form of reward.

Sample from United States

In total data of five hundred and one ($n = 501$) inmates incarcerated at three Pennsylvania Department of Corrections (PA DOC) facilities in the United States who completed surveys were included in the analysis. The offender sample consisted of two hundred and eight ($n = 208$) female offenders and two hundred ninety-three ($n = 293$) male offenders. The sample was recruited from State Correctional Institute (SCI) Albion (SCI-Albion), SCI-Muncy, and SCI-Greene. The ethical approval for this project was granted by the Pennsylvania Department of Correction (PA DOC).

Sample from Pakistan

In total, three hundred and nineteen ($n = 319$) juvenile male inmates incarcerated in Pakistan (age range 11-21) who completed surveys were included in the analysis. The sample was recruited from prisons in Khyber Pakhtunkhwa (KPK), Pakistan. The ethical approval for this project was granted by the KPK Prison Service.

Sample from Poland

In total three hundred fifty-one (n = 351) male inmates incarcerated in Poland who completed surveys were included in the analysis. The sample was recruited from Nowogard High Security Prison for recidivists. The ethical approval for this project as granted by the Polish Prison Service (PPS).

Materials

The Measure of Criminal Social Identity (MCSI) is an eight-item measure, where each item is scored on a 5-point Likert scale, with 1 being strong disagree, 3 being sometimes, and 5 being strongly agree, with three items scored in a reverse direction. Possible scores ranged from 8 to 40, with higher scores demonstrating elevated levels of criminal social identity (Boduszek et al., 2012a). The measure consists of three subscales: cognitive centrality (three items), in-group affect (two items), and in-group ties (three items).

Analysis

A series of one-way ANOVAs were conducted to compare the three datasets on the three subscales of the previously validated MCSI (Boduszek et al., 2012a). Analysis was conducted in SPSS 22.

Additionally, according to Boduszek, Debowska, Dhingra, and DeLisi (2016a), future research should utilize confirmatory techniques to test competing models, which are derived from past research and theory. Also, bi-factor conceptualization should be used as a comparison model, as well. Furthermore, when examining construct dimensionality and validity using confirmatory factor analysis (CFA), the following fit indices must be provided in order to directly compare competing models: root-mean-square error of approximation (RMSEA; Steiger, 1990), and/or the standardized root mean square residual (SRMR; Bentler, 1995) comparative fit index (CFI; Bentler, 1990), and the Tucker-Lewis index (TLI; Tucker & Lewis, 1973). Finally, in a latent variable modeling context, Boduszek et al. (2016a) also recommended reporting composite reliability, rather than internal consistency (Cronbach's alpha).

The construct validity and dimensionality of the MCSI was examined using traditional CFA techniques, as well as confirmatory bi-factor analysis (see Rise, Moore, & Haviland, 2010). Four alternative models of the MCSI latent structure were specified and tested using AMOS. The first three alternative models of MCSI were originally developed and estimated in AMOS 19 by Boduszek et al. (2012a). Model 1 included criminal social identity as one-factor, comprised of

each of the eight items within the scale. Model 2 is a two-factor solution of criminal social identification: the first subscale consists of the three items measuring a cognitive aspect (centrality; Q1, Q2, and Q3), and a second subscale contains five items (Q4, Q5, Q6, Q7, and Q8), which measured the emotional relationship with other criminal. Model 3 includes three subscales, consisting of cognitive centrality (3items; Q1, Q2, and Q3), in-group affect (2 items; Q4 and Q5) and in-group ties (3 items; Q6, Q7, and Q8). Model 4 is a bi-factor model of MCSI, which contains one general factor (all items) and three subordinate factors (centrality, Q1, Q2, and Q3; affect, Q4 and Q5; and ties, Q6, Q7, and Q8).

Goodness-of-fit indices were used to evaluate the overall fit of each of the four models of criminal social identity and the relative fit between models; the $\chi 2$ statistic, the CFI, and TLI. A non-significant $\chi 2$ result indicates a model with a good fit. However, as $\chi 2$ is strongly related with sample size, good models are oftentimes over-rejected. Therefore, Tanaka (1987) recommended that a model should not be rejected simply on the basis of a significant $\chi 2$ result. For CFI and TLI, values above .95 reflect a good model fit (Hu & Bentler, 1999; Vandenberg, 2000), however values above .90 indicate adequate fit (Bentler, 1990; Hu & Bentler, 1999). Additionally, the RMESA with 90% confidence interval is provided and values less than .05, suggest good fit, and values up to .10 is an indication of a fair fit (MacCallum, Browne, & Sugawara, 1996). Furthermore, a SRMR value of .08 or less is indicative of an acceptable model (Hu & Bentler, 1999). Finally, Akaike information criterion (AIC; Akaike, 1973) is also presented and was used to evaluate the specified models, with the smallest value indicating the best fitting model.

Moreover, contrasting with previous research on the validation of criminal social identity, which assessed internal consistency of the items (Cronbach's α), the current research examined the internal reliability of the MCSI using composite reliability. Values greater than .60 are considered acceptable (Diamantopoulos & Siguaw, 2000).

Results

Descriptive statistics including means (M) and standard deviations (SD) for the MCSI's subscales (cognitive centrality, in-group affect and in-group ties) are presented in Table 1.

In addition to descriptive statistics, Table 1 also presents analysis of variance (ANOVA) results for the three data sets on the criminal social identity subscales. The ANOVA results indicate that all three countries (American inmates, Pakistani inmates, and Polish inmates) differed significantly from each other on in-group ties, in-group affect, and cognitive centrality. On all three subscales Polish and Pakistani inmates scored higher than American offenders. Additionally, inmates from Pakistan scored higher than inmates from Poland on all three subscales.

Insert Table 1 about here

Table 2 reports the fit indices for the four alternative models of criminal social identity for the overall data set, as well as for the data sets from each individual country. The analysis was first run on the combined dataset. The analysis was then run separately for American, Pakistani, and Polish offenders to ensure the criminal social identity construct can be applied to three different criminal populations in isolation.

When examining the results pertaining to the combined dataset, Models 1 and 2 were rejected based on the CFI and TLI (values below .90) and RMSEA (values above .10) statistics. While the CFI value was above the cut-off point (CFI = .91) for Model 4 (bifactor model), it too was rejected as the CFI was below .90 and RMSEA was above .10. Model 3, the three-factor solution, provides the best fit of the data (CFI = .96, TLI = .93, RMSEA = .07 [90% CI = .07/.09], AIC = 31959.91).

These findings remained consistent for the American dataset (CFI = .94, TLI = .90, RMSEA = .06 [90% CI = .05/.07], AIC = 10893.77), the Polish dataset (CFI = 1.00, TLI = .99, RMSEA = .04 [90% CI = .02/.05], AIC = 5945.07), and the Pakistani dataset (CFI = .99, TLI = .98, RMSEA = .04 [90% CI = .02/.05], AIC = 7328.89).

Insert Table 2 about here

The adequacy of Model 3 is also supported by the parameter estimates. Table 3 displays

the standardized factor loadings for each observed variable on their latent variable (factor). As can be seen in Table 3, all items displayed statistically significant (p < .001) factor loadings on their respective factors. Furthermore, all factor loadings were in the expected direction.

Additionally, according to Comery and Lee (1992), in confirmatory factor analyses, standardized factor loadings of .45 and higher are desirable in order to confirm that observed variables identified a priori are represented by a specified latent variable (factor). In the full data, all of the time items loaded from .61 to .94, and in the Polish data, all of the items loaded from .83 to .97. In the American data all of the items loaded from .31 to .82, and from .39 to .95 in the Pakistani data. With exception to question one and question three on the MCSI in the Pakistani data, which loaded at .39 and .42 respectively, and question two in the American data, which loaded at .31, all remaining items of the MCSI satisfied the strict recommendations of Comery and Lee's (1992).

Insert Table 3 about here

Table 4 shows the correlations between the latent factors (full data). All correlations between the three subscales of criminal social identity were statistically correlated and were moderate. As all of the correlations between these latent factors were moderate, this indicates they do not overlap, or share a significant amount of variance.

Insert Table 4 about here

As most research relies on internal consistency of items (Cronbach's α; Cronbach, 1951), the current study examined the internal reliability of the measurement properties of the scale by assessing the composite reliabilities. Composite reliability was calculated using the formula:

Insert Composite Reliability Formula (PDF) about here

where ρ_c= reliability of the factor score, λ_i = standardized factor loading, and θ_i= standard error variance (Boduszek et al., 2013b). Values greater than .60 are generally considered acceptable (Bagozzi & Yi, 1988; Diamantopoulos & Siguaw, 2000). Composite reliability calculations indicate the cognitive centrality factor (ρ_c =0.76), the in-group affect factor (ρ_c = 0.91), and the in-group ties factor (ρ_c = 0.85) of the Measure of Criminal Social Identity possess satisfactory composite reliability (results reported for full data).

Discussion

The primary aim of the current study was to provide additional assessment of the construct validity and dimensionality of the three-factorial model of criminal social identity, as examined by the Measure of Criminal Social Identity (MCSI), a development of items within the Three-Dimensional Strength of Group Identification Scale proposed by Cameron (2004).

The eight-item version of the MCSI was used to collect data from American, Pakistani, and Polish inmate samples in order to measure their social identity as criminals cross-culturally. The results reveal that criminal social identification can be conceptualized and reliably measured by three dimensions: cognitive centrality, in-group affect, and in-group ties. Moreover, fit indices produced by the RMSEA/90 CI, SRMR, CFI, and TLI verified that a three-factor model was, again, the practical option for the construct of criminal social identity. Thus, the present findings are consistent with Boduszek et al. (2012a), Cameron's (2004) and Obst and White's (2005) research and in conflict with findings reported by Brown et al. (1986) and Kelly (1988), which purports social identity to be a one-dimensional construct.

The present findings are therefore important in that the underlying factorial structure of the MCSI has been validated cross-culturally within a combined dataset of American, Pakistani, and Polish inmates. These findings further substantiate Boduszek et al. (2012a)'s results that the three-dimensional Measure of Criminal Social Identity is a valid and reliable scale for measuring criminal social identity among diverse inmate populations, irrespective of offence type and perpetrator gender.

According to Comery and Lee (1992) in confirmatory factor analyses, standardized factor loadings of .45 and higher are desirable in order to confirm that observed variables identified a priori are represented by a specified latent variable (factor). With exception to question one and question three on the MCSI within the Pakistani data, which loaded at .39 and .42 respectively, and question two within the American data, which loaded at .31, all remaining items of the MCSI are consistent with Comery and Lee's (1992) indications, providing additional support for the utility of the three-factor model of criminal social identity.

The criminal social identity subscales also displayed good reliability, as assessed using composite reliability – a more appropriate method for assessing scale reliability than Cronbach's α, given the nature of the analytical approach (CFA) (Novick & Lewis, 1967; Raykov, 1998).

Despite the strength of the present findings, a number of limitations exist which form the basis of future research considerations. Most noteworthy is that questions one and three on the MCSI within the Pakistani data, and question two within the American data had low factor loadings and failed to reach the cut-off point. Due to these low factor loadings, the researchers suggest these items be reworded and that the MCSI may, in its entirety, benefit from the addition of other items in order to better assess the three separate subscales (*cognitive centrality*, *in-group affect*, and *in-group ties*). Another concern is the use of self-report measures and rating scales with a sample of inmates, as it is difficult to ascertain whether they were able to fully comprehend the questions included in the MCSI or whether or not they answered truthfully. Despite this equating to a common concern in most self-report prison research, taking account of this limitation, the survey included specific instructions notifying inmates of their right to seek assistance with any items that were unclear to them. Where possible, researchers directly assisted in the clarification of any items where difficulties arose.

Given that the MCSI's three-factorial scale remains a relatively new contribution to criminal social identity research, in that only three studies to date have sought to validate the measure, further investigation of the validity and applicability of the scale may be beneficial. When the MCSI was first validated, this was conducted upon a sample of Polish male recidivistic offenders from a high security prison. The current sample also consisted of Polish male offenders, as well as American female and male inmates, from medium and maximum security facilities, and male Pakistani offenders. Thus, whilst the current study further validated the MCSI on a more

diverse forensic sample and at different security level facilities, it is important to test the concept in different samples to establish greater validity. Therefore, future studies may seek to consider even more diverse or distinct forensic samples, such as recidivistic or non-recidivist offenders, sex offenders, and female juveniles. Moreover, further consideration of offenders from minimum and super-maximum security facilities, in addition to other detention facilities ought to be made, as well. Despite some evidence of cross-cultural validation and assessment of the MCSI to date, future studies could also continue to assess if the concept can be generalized cross-culturally by using inmate samples from differing countries and diverse cultures (e.g., African or South American context).

This study provides empirical support for Cameron's (2004) concept of a three-factor model of social identification and further validation and substantiation of Boduszek and Hyland (2012) three-factor model of criminal social identity. Based upon confirmatory factor analytic results, criminal social identification as measured by the MCSI, can be successfully conceptualized and reliably measured by three dimensions: cognitive centrality, in-group affect and in-group ties. While this study provides further validation of the Measure of Criminal Social Identity (MCSI), these findings are significant in terms of broader future criminal psychological research. The MCSI is the first established reliable measure of criminal social identity, now validated cross-culturally upon three diverse inmate samples, thereby affording greater opportunities for enhancing our understanding of the processes that underlie criminal thinking and pathways to offending.

References

Akaike, H. (1973), "Information theory and an extension of the maximum likelihood principle", in Petrov, B.N., & Csaki, F. (Eds.), *Second International Symposium on Information Theory*, Academiai Kiado, Budapest, pp. 267-281.

Ashforth, B. and Mael, F. (1989), "Social Identity Theory and the Organization", *Academy of Management Review*, Vol. 14 No. 1, pp. 20-39.

Bagozzi, R. P. and Yi, Y. (1988), "On the evaluation of structural equation models", *Journal of the Academy of Marketing Science,* Vol. 16 No. 1, pp. 74–94.

Bentler, P M. (1990), "Comparative fit indexes in structural models," *Psychological Bulletin,* Vol. 107, pp. 238-246.

Bentler, P. M. (1995), *EQS structural equations program manual*, Multivariate Software Encino, CA.

Boduszek, D. (2013), *Examining The Factor Structure Of Criminal Social Identity Among Violent And Non-Violent Prisoners: Confirmatory Factor Analysis*, PhD thesis, University of Ulster.

Boduszek, D., Adamson, G., Shevlin, M., Hyland, P. and Bourke, A. (2013a), "The Mediating Role of Criminal Social Identity in the Relationship between Criminal Friends and Criminal Thinking Style within a Sample of Recidivistic Prisoners", *Journal of Human Behavior in the Social Environment*, Vol. 23 No. 1, pp. 14-28. doi: 10.1080/10911359.2013.737289

Boduszek, D., Adamson, G., Shevlin, M. and Hyland, P. (2012a), "Development and validation of a Measure of Criminal Social Identity within a sample of Polish recidivist prisoners", *Criminal Behaviour and Mental Health*, Vol. 22, pp. 315-324. doi: 10.1002/cbm.1827

Boduszek, D., Adamson, G., Shevlin, M. and Hyland, P. (2012b), "The role of personality in the relationship between criminal social identity and criminal thinking style within a sample of prisoners with learning disabilities", *Journal of Learning Disabilities and Offending Behaviour*, Vol. 3 No. 1, pp. 12-23. doi: 10.1108/20420921211236771

Boduszek, D., Adamson, G., Shevlin, M., Mallett, J. and Hyland, P. (2012c), "Criminal Social Identity of Recidivistic Prisoners: The Role of Self-Esteem, Family, and

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Criminal Friends", *Journal of Police and Criminal Psychology*, Vol. 28, pp. 15-25. doi: 10.1007/s11896-012-9105-7

Boduszek, D., Debowska, A., Dhingra, K. and DeLisi, M. (2016a), "Introduction and validation of Psychopathic Personality Traits Scale (PPTS) in a large prison sample", *Journal of Criminal Justice*, Vol. 46, pp. 9–17.

Boduszek, D., Dhingra, K. and Debowska, A. (2016b), "The Integrated Psychosocial Model of Criminal Social Identity (IPM-CSI)", *Deviant Behavior*. doi:10.1080/01639625.2016.1167433

Boduszek, D., Dhingra, K. and Debowska, A. (2016c), "The moderating role of psychopathic traits in the relationship between period of confinement and criminal social identity in a sample of juvenile prisoners", *Journal of Criminal Justice,* Vol. 44, pp. 30-35.

Boduszek, D. and Hyland, P. (2011), "The Theoretical Model of Criminal Social Identity: Psycho-social perspective", *International Journal of Criminology and Sociological Theory*, Vol. 4 No. 1, pp. 604-615.

Boduszek, D. and Hyland, P. (2012), "Psycho-Sociological Review of Criminal Thinking Style", *Journal of Humanistics and Social Sciences*, Vol. 1 No. 1, pp. 28-36. doi: http://jhss.eu

Boduszek, D., Hyland, P., Dhingra, K. and Mallett, J. (2013b), "The factor structure and composite reliability of the Rosenberg self-esteem scale among ex-prisoners", *Personality and Individual Differences*, Vol. 55, pp. 877–881.

Boduszek, D., Hyland, P., Shevlin, M. and Adamson, G. (2013c), "Assessment of Psycho-Social Factors Predicting Recidivistic Violent Offences within a Sample of Male Prisoners", *Irish Journal of Psychology*, Vol. 34 No. 1, pp. 24-34. doi: 10.1080/03033910.2012.754324

Boduszek, D., McLaughlin, C. and Hyland, P. (2011), "Criminal Attitudes of Ex-Prisoners: the Role of Personality, Anti-Social Friends, and Recidivism", *Internet Journal of Criminology*, Vol. 9, pp. 1-10.

Boduszek, D., O'Shea, C., Dhingra, K. and Hyland, P. (2014), "Latent Class Analysis of Criminal Social Identity in a Prison Sample", *Polish Psychological Bulletin*, Vol. 45 No. 2, pp. 192-199. doi:10.2478/ppb-2014-0024

Boduszek, D., Shevlin, M., Adamson, G. and Hyland, P. (2013d), "Eysenck's personality
model and criminal thinking style within a violent and nonviolent offender sample:
Application of propensity score analysis", *Deviant Behavior*, Vol. 34 No. 6, pp. 483-
493.

Boduszek, D., Shevlin, M., Mallett, J., Hyland, P. and O'Kane, D. (2012d), "Dimensionality
and construct validity of the Rosenberg self-esteem scale within a sample of
recidivistic prisoners", *Journal of Criminal Psychology*, Vol. 2, pp. 19–25.

Brown R., Condor S., Mathews A., Wade G. and Williams, J. (1986), "Explaining intergroup
differentiation in an industrial organization", *Journal of Occupational Psychology*,
Vol. 59, pp. 279–304.

Bourke, A., Boduszek, D. and Hyland, P. (2013), "The role of criminal cognitions and
personality traits in non-violent recidivism: Empirical investigation within a prison
sample", *Journal of Criminal Psychology*, Vol. 3 No. 1, pp. 40-48.
doi:10.1080/14681811.2012.760448

Cameron, J. (2004), "A three-factor model of social identity", *Self and Identity*, Vol. 3 No. 3,
pp. 239-262.

Cameron J. and Lalonde, R. (2001), "Social identification and gender related ideology in
women and men", *British Journal of Social Psychology,* Vol. 40, pp. 59–77.

Comery, A.L. and Lee, H.B. (1992), *A first course factor analysis (2nd ed.)*, Routledge,
London.

Cronbach, L. J. (1951), "Coefficient alpha and the internal structure of tests", *Psychometrika,*
Vol. 16, pp. 297–334.

Deaux, K. (1996), "Social Identification", in Higgins, E. and Kruglanski, A. (Eds.), *Social
Psychology: Handbook of basic principles,* Guildford, New York, pp. 777-798.

Diamantopoulos, A. and Siguaw, J. A. (2000), *Introducing LISREL*, Sage Publications,
London.

Ellemers N., Kortekaas P. and Ouwerkerk, J. (1999), "Self-categorisation, commitment to the
group and group self esteem as related but distinct aspects of social identity",
European Journal of Social Psychology, Vol. 29, pp. 371–389.

Ellemers, N., Spears, R. and Doosje, B. (2002), "Self and Social Identity", *Annual Review of Psychology*, Vol. 53, pp. 161-186.

Hinkle S., Taylor, L., Fox-Cardamone, D. and Crook, K. (1989), "Intragroup identification and intergroup differentiation: A multicomponent approach", *British Journal of Social Psychology*, Vol. 28, pp. 305–317.

Hu, L. and Bentler, P. M. (1999), "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives", *Structural Equation Modeling*, Vol. 6 No. 1, pp. 1-55.

Karasawa, M. (1991), "Towards an assessment of social identity: The structure of group identification and its effects on in-group evaluations", *British Journal of Social Psychology,* Vol. 30, pp. 293–307.

Kelly, C. (1988), "Intergroup differentiation in a political context", *British Journal of Social Psychology*, Vol. 27, pp. 319–332.

Jackson, J. (2002), "Intergroup attitudes as a function of different dimensions of group identification and perceived intergroup conflict", *Self and Identity,* Vol. 1, pp. 11–33.

Jackson, J., and Smith E. (1999), "Conceptualizing social identity: A new framework and evidence for the impact of different dimensions", *Personality and Social Psychology Bulletin*, Vol. 25, pp. 120–135.

MacCallum, R.C., Browne, M.W. and Sugawara, H.M. (1996), "Power Analysis and Determination of Sample Size for Covariance Structure Modeling", *Psychological Methods*, Vol. 1 No. 2, pp. 130-149.

Novick, M.R. and Lewis, C. (1967), "Coefficient alpha and the reliability of composite measurements", *Psychometrika*, Vol. 32 No. 1, pp. 1–13.

Obst, P. and White, K.M. (2005), "Three-dimensional strength of identification across group memberships: A confirmatory factor analysis", *Self and Identity*, Vol. 4, pp. 69–80.

Raykov, T. (1998), "Coefficient alpha and composite reliability with interrelated nonhomogeneous items", *Applied Psychological Measurement*, Vol. 22 No. 4, pp. 375–385.

Reise, S.P., Moore, T.M. and Haviland, M.G. (2010), "Bifactor models and rotations:

exploring the extent to which multidimensional data yield univocal scale scores", *Journal of Personality Assessment*, Vol. 92, pp. 544–559.

Shagufta, S., Boduszek, D., Dhingra, K. and Palmer-Kola, D.(2015a), "Criminal Social Identity and Suicide Ideation among Pakistani Young Prisoners", *International Journal of Prisoner Health*, Vol. 25 No. 2, pp. 98-107.

Shagufta, S., Boduszek, D., Dhingra, K. and Palmer-Kola, D.(2015b), "Latent classes of delinquent behavior associated with criminal social identity among juvenile offenders in Pakistan", *Journal of Forensic Practice*, Vol. 17 No. 2, pp. 117-126.

Sherretts, N., Boduszek, D. and Debowska, A. (2016), "Period of incarceration and criminal social identity: the moderating role of interpersonal manipulation psychopathy factor in a sample of adult prisoners", *Law and Human Behavior*. doi: 10.1037/lhb0000188.

Steiger, J.H. (1990), "Structural model evaluation and modification", *Multivariate Behavioral Research*, Vol. 25, pp. 214-12.

Tanaka, J.S. (1987), "How big is big enough? Sample size and goodness of fit in structural equation models with latent variables", *Child Development*, Vol. 58, pp. 134–146.