Non-Suicidal Self-Injury, Suicidal ideation, and Suicide attempt: Prevalence and predictors in a sample of youth offenders in the UK

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Abstract

The first aim of this study was to examine the prevalence of suicide attempts (SA), suicidal ideation (SI), as well as non-suicidal self-injury (NSSI) within a sample of community-based youth offenders (*M* age = 15.33 years) engaging with an urban town Youth Offending Team (YOT). The second aim was to investigate whether trauma exposure, posttraumatic stress disorder (PTSD) symptomology, self-esteem, drug/alcohol abuse, criminal social identity (CSI), associations with criminal friends, and gender were significantly associated with SA, SI, and NSSI. Data were collected using self-report instruments, semi-structured interviews, and institutional records. Findings revealed the highest prevalence rates for NSSI (20.6%), followed by SI (12.7%), and SA (5.9%). Thirteen (12.7%) participants met, or exceeded, the threshold score for probable PTSD. Both SA and SI were significantly correlated with trauma exposure, self-esteem, and PTSD. NSSI formed significant associations with trauma, self-esteem, and gender. The present results offer further insight into the risk factors of SA, SI, and NSSI in an under-researched population, providing scope for development of effective interventions. The findings also highlight the need to screen for self-destructive impulses among youngsters in YOTs.

Keywords: Youth offenders; Suicide attempt; Suicide ideation; Non-suicidal self-injury; Risk factors

The importance of the phenomenon of suicide is reflected in the fact that approximately 804,000 people per year take their lives, making suicide a leading cause of death among adolescents and young adults (American Foundation for Suicide Prevention, 2010; Eaton *et al*., 2010; World Health Organisation [WHO], 2016). In spite of enhanced prevention efforts, suicide rates have been increasing over the past several decades (WHO, 2016), which may in part be due to the lack of population-specific suicidality measures and interventions, as well as dynamic factors such as gross domestic product (GDP) and access/barriers to care (WHO, 2014).

The prevalence of suicidal behaviour has been demonstrated to differ across populations. For example, suicide rates (both attempts and suicide deaths) in prisons are considerably higher than within community samples, particularly among youth offenders (Abram *et al*., 2008; Carli *et al*., 2010; Eaton *et al*., 2010; Esposito & Clum, 2002; Fazel, Grann, Kling, & Hawton, 2011; Gunter, Chibnall, Antoniak, Philibert, & Hollenbeck, 2011; Laye-Gindhu & Schonert-Reichl, 2005; Moran *et al*., 2012; Muehlenkamp & Gutierrez, 2004; Nock *et al*., 2013; Power, Brown, & Usher, 2013; Scott, Pilkonis, Hipwell, Keenan, & Stepp, 2015). Within populations of adolescents who offend, reported lifetime suicide attempt rates vary from 11% to 33% (Abram *et al*., 2008; Esposito & Clum, 2002; Nock *et al*., 2013). Additionally, it appears that the occurrence of other suicide-related phenomena, such as suicide ideation (SI)[1], may also be elevated among those individuals. Research among the general population reveals that SI emerges in adolescence and is more prevalent in youths than adults (Evans, Hawton, Rodham, & Deeks, 2005). Lifetime prevalence of SI amounts to approximately 30% and point prevalence oscillates between 15-25% (Nock *et al*., 2013), with rates reaching as high as 40% in a sample of community girls (Scott *et al*., 2015). Figures on

[1] The thoughts that people possess prior to taking any suicidal action (Harris & White, 2013).

rates of SI in youth offender populations are slightly higher yet vary considerably, from 10.3% to as much as 51% (Abram *et al.*, 2008; Carli *et al*., 2010; Ruchkin, Schwab-Stone, Koposov, Vermeiren, & King, 2003). The most valid conclusions are drawn from studies comparing both offender and non-offender populations, using the same measures and timescales. For example, Suk *et al*. (2009) demonstrated that 21.5% of incarcerated male adolescents reported SI within the prior year, compared with 6.7% of school boys. In this same study, 58.1% of detained females reported SI, compared with 14.4% of school girls.

Another behaviour often considered within suicide research is non-suicidal self-injury (NNSI). NSSI relates to self-inflicted physical injury, such as cutting, where there is no intention to die from such injury (Nock, 2010). It has been suggested that NSSI serves the purpose of emotion regulation through decreasing aversive affective/cognitive states and increasing desired states (Klonsky, 2007). Although NSSI may occur regardless of age, adolescents and young adults seem to be at a greater risk (Fliege, Lee, Grimm, & Klapp, 2009). The prevalence of youths in the general population reporting NSSI has been suggested to oscillate between 5-23.2% (Carli *et al*., 2010; Laye-Gindhu & Schonert-Reichl, 2005; Moran *et al*., 2012; Muehlenkamp, Claes, Havertape, & Plener, 2012; Muehlenkamp, Peat, Claes, & Smits, 2012; Muehlenkamp & Gutierrez, 2004; Zoroglu *et al*., 2003). Young offenders appear to be more likely to engage in self-injurious behaviour than their non-offending counterparts (Morgan & Hawton, 2004; Putnins, 2005), with lifetime NSSI ranging from 6.2% to 44% (Casiano, Katz, Globerman, & Sareen, 2013).

In recognising the gravity of SA, SI, and NSSI, research has attempted to elucidate pathways leading to self-injurious thoughts and behaviour. One of the factors studied in relation to the three phenomena has been trauma exposure. Indeed, witnessing or being the victim of a traumatic event (such as child abuse, domestic violence, violent assault) has been shown to influence all aspects of psychological functioning (Wilson & Keane, 2004), including the

occurrence of NSSI, SI, and SA (Dhingra, Boduszek, & Sharratt, 2016a; Paolucci, Genuis, & Violato, 2001; Smith, Kouros, & Meuret, 2014). The prevalence of exposure to traumatic events is higher in offender populations than the general population; with 27-43% of youths in the community (Adams, 2010; Breslau, Davis, & Andreski, 1995; Giaconia *et al*., 1995) and 75-93% of youths in the juvenile justice system reporting being a victim or witness to at least one traumatic event in their lifetime (Abram *et al*., 2004; Adams, 2010; Wilson *et al*., 2013). Of the rare studies on offenders, Carli *et al*. (2010) found an association between NSSI and frequent childhood physical abuse in incarcerated adult males in Italy. In studies of incarcerated youth, an association between trauma exposure and SI has been found (Chapman, Gratz, & Brown, 2006; Coleman, 2005). Further, trauma exposure is considered to be a risk factor of SA, independent of other factors (Gunter, Chibnall, Antoniak, Philibert, & Black, 2013).

Although not all potentially traumatic events result in trauma symptoms, experiencing a number of traumatic events was shown to *elevate* the risk of developing posttraumatic stress disorder (PTSD) (Troop & Hiskey, 2013; Moran & Britton, 1994; Green, 1994). As such, it may be that PTSD symptoms are also associated with SA, SI, and NSSI. Indeed, consistent correlations have been shown between past childhood sexual abuse (CSA), current PTSD and NSSI (Lang & Sharma-Patel, 2011; Smith *et al*., 2014; Wabnitz, Catani, & Franzke, 2015); as well as PTSD and SI (Gradus, Suvak, Wisco, Marx, & Resick, 2013; Selaman, Chartrand, Bolton, & Sareen, 2014) and non-lethal suicide attempts (Lewis, 2005; Krysinska & Lester, 2010). It is important to note, however, that CSA experiences were found to contribute little to no unique variance (mean weighted aggregate ø=0.23) in NSSI in a 2008 meta-analysis (Klonsky & Moyer, 2008). Consequently, it appears crucial to control for psychological risk factors, such as PTSD, and environmental factors, when examining the trauma-NSSI relationship.

Research also reports that self-esteem is generally lower in people who have experienced trauma (Debowska & Boduszek, 2017). Low self-esteem following trauma, in turn, is more likely to result in the development of PTSD (Cauffman, Feldman, Waterman, & Steiner, 1998). It may, therefore, be expected that self-esteem would be related to NSSI, SI and SA, alike trauma and PTSD. Some research suggests that vulnerability to self-injury is significantly affected by childhood trauma, low emotional expressivity, and low self-esteem (see Fliege *et al*., 2009 for a review). Self-esteem has also been shown to moderate the relationship between child sexual abuse and NSSI, whereby low self-esteem was found in those with NSSI (Low, Jones, MacLeod, Power, & Duggan, 2000). Another study among high school adolescents, highlights that self-esteem is a significant direct predictor of NSSI (Tatnell, Kelada, Hasking, & Martin, 2014). Evidence has also been found for lowered self-esteem to be associated with SI among a variety of samples, including adolescents (Evans, Hawton, & Rodham, 2004), undergraduate students (De Man & Gutierrez, 2002), and imprisoned offenders (Zhang, Liang, Zhou, & Brame, 2010). Finally, suicide attempters are more likely to have lower self-esteem than non-attempters (Kuhlberg, Peña, & Zayas, 2010; Yoder, 1999).

Although crucial for the development of effective prevention programmes, research into protective factors against NSSI, SI and SA is rare. A salient psychosocial construct which may protect against suicidal behaviour among populations who offend appears to be criminal social identity (CSI; Boduszek & Hyland, 2011; Boduszek, Dhingra, & Debowska, 2016). CSI is a development of the Social Identity Theory (SIT; Cameron, 2004; Tajfel & Turner, 1979), whereby focus is on offenders. In line with the tenets of SIT, the attainment of a positive social identity is vital for an individual's self-esteem. Both Social Identity Theory and CSI, draw on three aspects of identity. These are cognitive centrality (the importance of belonging to a group), in-group affect (intrinsic emotional attractiveness of belonging to a group), and in-group ties (psychological perception and emotional connection to members of the group).

Boduszek and Hyland (2012) identified a relationship between low self-esteem and engagement in criminal associations, suggesting that offenders with low self-esteem develop a strong CSI. Despite being a risk factor of offending, developing a strong CSI enhances self-esteem (Tajfel & Turner, 1979) and could therefore reduce the likelihood of NSSI, SI and SA – all of which are known to be related to low self-esteem. Further support notes that having social support moderates the relationship between trauma and self-esteem (Reiland & Lauterbach, 2008) and protects against developing PTSD (Ozer, Best, Lipsey, & Weiss, 2003; Weinberg, 2013). In line with this, Shagufta, Boduszek, Dhingra, and Kola-Palmer (2015), using a sample of male incarcerated juvenile Pakistani offenders, have shown that in-group ties CSI dimension acts as a protective factor against SI. In considering the preliminary nature of this finding and the lack of similar studies among more diverse samples (including participants drawn from Western populations), there is a need to explore this relationship in other ethnicities, and to verify whether similar associations will be found for SA and NSSI.

The current study

SA, SI, and NSSI are of great concern within youth populations who offend. In light of the elevated rates of suicide and NSSI among youngsters in the juvenile justice system, in-take screening to identify at-risk individuals ought to be a standard procedure in all juvenile justice facilities. Effective screening, however, cannot be achieved without an evidence-based and population-specific suicide risk assessment strategy. Nevertheless, of the limited existing research into adolescents with criminal justice involvement, most is based upon incarcerated individuals - despite the fact that only a small minority (less than 5% in the UK) of youth offenders receive a custodial sentence (Abram *et al*., 2008; Power *et al*., 2013; Suk *et al*., 2009; Youth Justice Board, 2015). Given that individuals receiving a custodial sentence may not be representative of the wider youth offender population, there is a need for further research among youth offenders in the community.

In an attempt to address the above limitations, the current study aims to establish the prevalence of SA, SI, and NSSI among community-based youth offender population. Another goal is to identify any independent risk or protective factors of NSSI, SI, and SA. Selection of the independent variables (i.e., risk and protective factors) was based on the previous literature and input from the YOT manager, who was keen to examine PTSD among youth attending the study site. It is envisaged that this research will provide an insight into the pervasiveness of the problem behaviour/cognitions as well as identify risk and/or protective factors of the three outcome variables, subsequently resulting in a greater awareness for potential interventions.

Methods

Participants

An urban town Youth Offending Team (YOT) located in the North East of England was approached in respect of the present study. The only inclusion criterion was that youths were currently serving a sentence with the YOT and were aged between 12 and 17 years old. Although the YOT engages with young persons from the age of 10, it was deemed that the nature of the study could cause some unnecessary discomfort or distress to those under the age of 12 and that they might struggle to understand certain concepts. Over the two-month study period, all young people engaging with the YOT ($N = 115$) were approached with details of the study. Of those who were approached, 102 agreed to participate, resulting in an 88.7% response rate. The sample was recruited over a period of two months (June–July, 2015).

The sample consisted of 102 youth offenders (males = 60, females = 42), aged between 12 and 17 years ($M = 15.33$, $SD = 1.54$). Of the total sample, 37.3% ($n = 38$) had committed violent offences as their index offence and 62.7% ($n = 64$) committed non-violent offences. Of the most frequent index offences, 34.3% committed assault, 24.5% committed theft, 8.8%

committed criminal damage, 7.8% committed possession of drugs, 5.9% committed public order offences, and 3.9% committed arson. All other offences fell below 3%.

Data Collectors and Procedures

The YOT is split into two teams. The Early Intervention Team, who work with young people prior to prison and are referred to YOT primarily through the police or courts, whereby the young person is given conditions to work with YOT as opposed to having to go to court or prison. The second team comprises YOT workers working with young people who are on licence from prison or are currently imprisoned. Each young person is allocated to a YOT worker, who they work with for a set period of time addressing the individual's needs in terms of reducing risk of reoffending. In line with this, young persons may be allocated to work with other agencies who form part of the YOT, such as health, education, substance abuse workers, and housing officers. Contact with the YOT was made through the manager, who in turn discussed the research with the mental health workers and YOT workers. Each of the YOT workers and mental health workers were given the opportunity to opt-out of participation (i.e., data collection for this project), and, had they done so, they were aware that this would not impact on them, or their job, in any way. All of the YOT and mental health workers were fully supportive of the research and agreed to conduct structured interviews among the youths as a part of this study.

The questionnaires were devised and delivered to the YOT by the authors. The YOT employees conducted structured interviews with young people on an individual basis. To ensure that youths did not provide information that may be perceived as influencing their treatment, it was explicitly stated that participation or non-participation would not influence any decisions made by prison authorities or impact upon their treatment by the YOT. Questionnaires were administrated among those youths who agreed to participate in the study,

either at the YOT as part of a standardised appointment, or at home as part of a home visit by the YOT worker. The questionnaires were compiled into a booklet along with an instruction sheet and a consent form attached to the front of the booklet. Participation was entirely voluntary and only the YOT workers were aware of the identity of the youth offenders. Parental or guardian consent was also provided for participants below the age of 16 years. Participants were informed that they could withdraw from the study at any time. Additional information regarding each participant was provided by the YOT workers, including information extracted from the Asset (i.e., a structured assessment tool for assessing risk and need in young offenders to predict future offending); this data was attached to the respective questionnaire booklet and returned to the authors.

The ethical approval for this project was granted by the University of Huddersfield School Research Ethics Panel (SREP) and supported by the YOT management.

Measures

The Posttraumatic Stress Disorder-Checklist version 5 (PCL-5; Weathers, Litz, Herman, Huska, & Keane, 1993) is a commonly used measure of PTSD symptomology (Elhai, Gray, Kashdan, & Franklin, 2005). Weathers *et al*. (2013b) adapted the PCL so that items map directly onto DSM-5 symptom criteria for PTSD. Respondents indicated how distressed they were by each of the 20 symptoms over the past month by rating items on a five-point Likert scale (0 = "*not at all*" to 4 = "*extremely*"). Respondents were instructed to anchor their ratings to their worst nominated traumatic event. Previous research suggested a cut score of 38 as optimal for PTSD diagnosis (Spoont *et al*., 2013). This measure had a very good internal consistency ($\alpha = .96$).

The Life Events Checklist (LEC-5; Weathers *et al*., 2013a) is a self-report measure designed to screen for exposure to Criterion A events (i.e., traumatic events). It consists of 16

potentially traumatic events and one catch-all category labelled "any other very stressful event or experience", each rated on a 3-point nominal scale (1 = "*happened to me*"; 2 = "*witnessed it*"; 3 = "*does not apply*"). Life events that were presented to participants consisted of the following; LEC 1 = Natural disaster (e.g., flood, hurricane, tornado, earthquake), LEC 2 = Fire or explosion, LEC 3 = Transportation accident (e.g., car accident, boat accident, train wreck, plane crash), LEC 4 = Serious accident at work, LEC 5 = Exposure to toxic substances (e.g., dangerous chemicals, radiation), LEC 6 = Physical assault (e.g., being attacked, hit, slapped, kicked, beaten up), LEC 7 = Assault with a weapon (e.g., being shot, stabbed, threatened with a knife, gun, bomb), LEC 8 = Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm), LEC 9 = Other unwanted or uncomfortable sexual experience, LEC 10 = Combat or exposure to a war zone (in the military or as a civilian), LEC 11 = Captivity (e.g., being kidnapped, abducted, held hostage, prisoner of war), LEC 12 = Life-threatening illness or injury, LEC 13 = Severe human suffering, LEC 14 = Sudden violent death (e.g., homicide, suicide), LEC 15 = Sudden accidental death, LEC 16 = Serious injury, harm, or death caused to someone else, LEC 17 = Any other stressful event or experience. Consistent with prior research, a total score was calculated by totaling all potentially traumatic events reported (both personally experienced and being a witness of). In the present sample, 95.1% of the participants had experienced at least one potentially traumatic event in accordance with the A1 criterion, and the mean frequency score was 3.03 (*SD* = 1.73, range = 0-8). The most commonly endorsed directly experienced (witnessed or being a victim of) traumas included physical assault (*n* = 88; 86.3%), assault with a weapon (*n* = 40; 39.2%), and life-threatening illness or injury (*n* = 38; 37.3%).

The Measure of Criminal Social Identity - Revised (MCSI-R; Boduszek & Debowska, 2017) consists of 18 items and is based on Cameron's (2004) Three-dimensional Strength of Group Identification Scale and Boduszek *et al*.'s (2012) original measure. Each item is scored

on a 5-point Likert scale (1 = "*strongly disagree*" to 5 = "*strongly agree*"). The scale is composed of three subscales: cognitive centrality subscale measures the psychological salience of a criminal's group identity, in-group affect subscale measures a criminal's felt attitude toward other in-group criminals, and in-group ties subscale measures the level of personal bonding with other criminals. In the present sample, the internal consistency of the measure was very good (α = .96).

Self-Esteem Measure for Prisoners (SEM-P, Debowska, Boduszek, & Sherretts, 2016) consists of eight items. Each item is scored on 4-point Likert scale (1 = "*never*" to 4 = "*always*"). Higher scores indicate lower self-esteem. The scale is composed of two subscales, each consisting of four items: personal self-esteem which is context-free (e.g., "How often do you think that you are worthless?") and self-esteem specific for prisoners. For the purpose of the current study, items of the latter subscale were re-written to adjust them to the delinquent group (e.g., item "How often do you worry that other prisoners might have an unfavourable opinion of you?" was changed to "How often do you worry that other delinquents might have an unfavourable opinion of you?"). This measure has shown to have good internal consistency in the present study (α = .80).

Data extracted from the 'Asset' assessment. Asset is a structured assessment tool for assessing risk and need in young offenders to predict future offending (Youth Justice Board, 2014). Information on the Asset is not based on self-report data, but is assessed by the YOT worker on the basis of information available to them from a semi-structured interview with the young person along with various other agencies, including family/carer, school, social services, police, general practitioner, mental health services, and young offenders' institution (if currently serving a sentence). Data extracted from Asset for this study included: gender; age; primary index offence; number of previous convictions; amount of custodial sentences; who the young person had been residing with over the last six months; whether the young person's

lifestyle was characteristic of (a) lack of age-appropriate friendships, (b) associating predominantly with pro-criminal peers, (c) lack of non-criminal friends, (d) lack of activities to do in spare time, and (e) participating in reckless activities; whether the young person abuses drugs and/or alcohol; whether the young person had a history of self-injury, suicidal thoughts/feelings and/or had ever attempted suicide; whether the young person ever engaged in any of the following behaviours: (a) destruction of property (b) aggression towards others (c) sexually inappropriate behaviour (d) attempt to manipulate or control others. Given the confusion about the term "self-injury" in the literature - specifically conflation of suicidal and non-suicidal self-injury – the research team ensured that YOT and mental health workers used the term self-harm to refer to intentional damage to one's body without suicidal intent, and suicidal thoughts/feelings to refer to thoughts of engaging in behaviour intended to end one's life. The current research used the substance misuse section of the Asset (section 6), which looks at alcohol misuse as well as other drug misuse and includes questions on whether the young person has ever used a variety of substances including alcohol. A score of two or more initiates a referral to colleagues specializing in assessment and intervention to ameliorate substance use. Thus, a score of two or more was used for both alcohol and drug misuse.

Analysis

All analyses were conducted in SPSS 23. Frequencies and percentages were calculated for all categorical variables. Chi-square test for independence was used to explore associations between suicide attempts, suicide ideations, and NSSI. Univariate logistic regressions were performed to assess the association between outcome variables (NSSI, suicide ideations, and suicide attempts) and 17 independent variables (PTSD, trauma, alcohol abuse, drug abuse, violent offences, custodial sentence, lack of non-criminal friends, associations with criminal friends, lack of activities in spare time, number of previous convictions, personal self-esteem, delinquent self-esteem, cognitive centrality, in-group affect, in-group ties, age, and gender).

Results

Descriptive Statistics

Descriptive statistics for all categorical variables are presented in Table 1. There were 20.6% (N = 21) of participants who engaged in NSSI, 12.7% (N = 13) of participants who reported suicide ideations, and 5.9% (N = 6) of participants who had attempted suicide. Chi-square test for independence showed a significant association between suicide ideations and suicide attempts ($\chi^2(1) = 43.64$; $p < .001$; Cramer's V = .65), SA and NSSI ($\chi^2(1) = 15.35$; $p < .001$; Cramer's V = .39), and between suicide ideations and NSSI ($\chi^2(1) = 37.36$; $p < .001$; Cramer's V = .61).

Thirteen (12.7%) participants displayed symptoms of posttraumatic stress which was severe enough to be identified as PTSD (scores 38 or above on the PCL-5). Other variables measured consisted of substance abuse, which reported a higher percentage of participants with drug abuse (n = 34, 33.3%) than alcohol abuse (n = 26, 25.5%). The sample was a mixture of those who had served prison sentences and those who had not. Most of the sample had not served a custodial sentence (n = 86, 84.3%). Additionally, more than half the sample associated with criminal friends (n = 55, 53.9%) and 31.4% (n = 32) of the sample lacked non-criminal friends. A smaller percentage of the sample were deemed to lack activities to do in their spare time (n = 27, 26.5%).

Table 1

Frequencies and Percentages for NSSI, Suicide Ideation, Suicide Attempts, PTSD, Alcohol Abuse, Drug Abuse, Violent Crimes, Custodial Sentence, Lack on Non-Criminal Friends, Associations with Criminal Friends, Lack of Activities in Spare Time, and Gender

Variable	*N* = 102	%
NSSI	21	20.6
Suicide Ideation	13	12.7
Suicide Attempts	6	5.9
PTSD	13	12.7
Alcohol Abuse	26	25.5
Drug Abuse	34	33.3
Violent crimes	38	37.3
Custodial Sentence	16	15.7
Lack of non-criminal friends	32	31.4
Associations with criminal friends	55	53.9
Lack of activities in spare time	27	26.5
Gender		
Males	60	58.8
Females	42	41.2

Note. NSSI = Non-suicidal self-injury; PTSD = Posttraumatic stress disorder.

Descriptive statistics for all continuous variables are presented in Table 2. The average number of previous convictions recorded was 2.33 (*SD* = 2.23, *Mdn* = 2, Mode = 2), with a range between 0 and 11. The maximum number of traumatic events that any participant reported witnessing or being a victim of was eight (*M* = 3.03, *SD* = 1.73, *Mdn* = 3, Mode = 0). The mean score on the PTSD questionnaire was 15.25 (*SD* = 17.12, *Mdn* = 8, Mode = 1, reported range of scores = 0 – 56). Therefore, some participants (*n* = 36, 35.3%) displayed no signs of PTSD symptomology. As for criminal social identity dimensions, participants in the

present sample reported moderate levels of in-group affect (*M* = 20.23, *SD* = 7.92, *Mdn* = 20, Mode = 10, reported range of scores = 10 – 36). Similar scores were noted for cognitive centrality (*M* = 19.44, *SD* = 6.06, *Mdn* = 20, Mode = 18, reported range of scores = 9 – 33). Participants presented the lowest scores of CSI for in-group ties factor (*M* = 14.37, *SD* = 6.09, *Mdn* = 16, Mode = 6, reported range of scores = 6 – 24). Finally, participants displayed marginally higher scores for delinquent self-esteem (*M* = 5.93, *SD* = 2.60, *Mdn* = 5, Mode = 4, reported range of scores = 4 – 14) than personal self-esteem (*M* = 5.66, *SD* = 2.24, *Mdn* = 4, Mode = 4, reported range of scores = 4 – 12).

Table 2

Descriptive Statistics for Previous Convictions, Trauma Exposure, PTSD, Criminal Social Identity (Total Score and Three Subscales), and Self-esteem (Total Score and Two Subscales)

Variable	Min	Max	*M*	*SD*	*Mdn*	Mode
Number of previous convictions	0	11	2.33	2.23	2	2
Trauma exposure	0	8	3.03	1.73	3	0
PTSD total score	0	56	15.25	17.12	8	1
CSI total score	25	92	53.78	18.83	56	63
Cognitive centrality	9	33	19.44	6.06	20	18
In-group affect	10	36	20.23	7.92	20	10
In-group ties	6	24	14.37	6.09	16	6
Self-esteem total score	11	29	17.51	4.47	10	8
Self-esteem (personal)	4	12	5.66	2.24	4	4
Self-esteem (delinquent)	4	14	5.93	2.60	5	4

Note. CSI = Criminal Social Identity; PTSD = Posttraumatic stress disorder.

Logistic regression models

Univariate logistic regressions were performed to assess the impact of a number of theoretically and empirically derived factors on the likelihood that respondents would engage in NSSI, SI, and SA. More specifically, the models contained 17 independent variables (PTSD, trauma, alcohol abuse, drug abuse, violent offences, custodial sentence, lack of non-criminal friends, associations with criminal friends, lack of activities in spare time, number of previous convictions, personal self-esteem, delinquent self-esteem, cognitive centrality, in-group affect, in-group ties, age, and gender). Full results are presented in Table 3. Participants who witnessed or were victims of trauma were more likely to report NSSI (OR = 1.43, 95% CI = 1.08/1.88, $p < .01$, Cohen's $d = .20$), suicide ideations (OR = 1.94, 95% CI = 1.35/2.79, $p < .001$, Cohen's $d = .37$), and suicide attempts (OR = 1.83, 95% CI = 1.16/2.89, $p < .01$, Cohen's $d = .33$). Additionally, participants with higher scores of personal and delinquent self-esteem were more likely to report NSSI (personal self-esteem OR = 1.34, 95% CI = 1.09/1.65, $p < .01$, Cohen's $d = .16$; delinquent self-esteem OR = 1.23, 95% CI = 1.04/1.45, $p < .05$, Cohen's $d = .11$), suicice ideations (personal self-esteem OR = 1.65, 95% CI = 1.26/2.15, $p < .001$, Cohen's $d = .27$; delinquent self-esteem OR = 1.33, 95% CI = 1.10/1.61, $p < .01$, Cohen's $d = .16$), and suicide attempts (personal self-esteem OR = 1.56, 95% CI = 1.12/2.19, $p < .01$, Cohen's $d = .25$; delinquent self-esteem OR = 1.33, 95% CI = 1.04/1.71, $p < .05$, Cohen's $d = .16$). PTSD was a significant predictor of suicide ideations (OR = 6.33, 95% CI = 1.67/23.99, $p < .01$, Cohen's $d = 1.02$) and suicide attempts (OR = 8.60, 95% CI = 1.53/48.47, $p < .01$, Cohen's $d = 1.19$), but not NSSI (OR = 1.88, 95% CI = .52/6.85, $p > .05$). Gender significantly predicted NSSI (OR = 2.91, 95% CI = 1.08/7.85, $p < .05$, Cohen's $d = .59$) and suicide ideations (OR = 3.82, 95% CI = 1.09/13.38, $p < .05$, Cohen's $d = .74$), with females being more likely to engage in both.

Table 3

Univariate Logistic Regression Results for NSSI, Suicide Ideations, and Suicide Attempts

Variable	NSSI OR (95% CI)	Cohen's *d*	Suicide Ideation OR (95% CI)	Cohen's *d*	Suicide Attempts OR (95% CI)	Cohen's *d*
PTSD (cut off 38)	1.88 (.52/6.85)		6.33** (1.67/23.99)	1.02	8.60** (1.53/48.47)	1.19
Trauma	1.43** (1.08/1.88)	.20	1.94*** (1.35/2.79)	.37	1.83** (1.16/2.89)	.33
Alcohol abuse	2.15 (.77/6.00)		1.35 (.38/4.83)		1.50 (.26/8.71)	
Drug abuse	1.30 (.48/3.53)		1.87 (.58/6.07)		2.09 (.40/10.98)	
Violent crimes	1.35 (.51/3.57)		1.06 (.32/3.51)		.83 (.15/4.78)	
Custodial sentence	.87 (.22/3.39)		.97 (.19/4.87)		2.93 (.49/17.53)	
Lack of non-criminal friends	1.46 (.54/3.98)		1.44 (.43/4.79)		2.31 (.44/12.13)	
Associations with criminal friends	1.18 (.45/3.10)		1.43 (.43/4.71)		1.77 (.31/10.09)	
Lack of activities in spare time	.84 (.27/2.56)		.47 (.10/2.25)		.54 (.06/4.83)	
Number of previous convictions	.98 (.78/1.22)		1.01 (.78/1.31)		1.13 (.82/1.55)	
Self-esteem (personal)	1.34** (1.09/1.65)	.16	1.64*** (1.26/2.15)	.27	1.56** (1.12/2.19)	.25
Self-esteem (delinquent)	1.23* (1.04/1.45)	.11	1.33** (1.10/1.61)	.16	1.33* (1.04/1.71)	.16
Cognitive centrality	.99 (.92/1.08)		.99 (.90/1.09)		.97 (.85/1.12)	
In-group affect	1.01 (.95/1.07)		1.01 (.94/1.09)		.99 (.89/1.10)	
In-group ties	1.02 (.95/1.11)		1.01 (.91/1.10)		.99 (.87/1.14)	
Age	.95 (.70/1.30)		.83 (.57/1.19)		.93 (.55/1.57)	
Gender (1 = female)	2.91* (1.08/7.85)	.59	3.82* (1.09/13.38)	.74	7.97 (.90/70.96)	

Note. NSSI = Non-suicidal self-injury; PTSD = Posttraumatic stress disorder. Cohen (1977) suggested that $d = 0.2$ be considered a small effect size, 0.5 represents a medium effect size, and 0.8 denotes a large effect size.

*p <.05, **p <.01, ***p <.001.

Discussion

The aims of the present study were, firstly, to identify the prevalence of NSSI, SI and SA in community-based youth offenders and, secondly, to identify any independent risk or protective factors of NSSI, SI, and SA, by analysing direct relationships between external factors and the three outcome variables. Results revealed some differences between NSSI, SI and SA in terms of both prevalence and risk factors, supporting earlier suggestions that risk assessment should consider the three phenomena as separate entities (Dhingra, Boduszek, & Klonsky, 2016b; Nock, 2010). Greater knowledge in these areas is vital for the development of effective screening procedures and implementation of intervention (Dixon-Gordan *et al*., 2012; Smith & Kaminski, 2010).

To date, research has been very limited in terms of identifying the prevalence of NSSI, SI, and SA, particularly in youth offenders in the UK. The present study, therefore, addressed this void. We found the highest prevalence rates for NSSI (20.6%), followed by SI (12.7%) and SA (5.9%). This is in contrast with some previous research, which suggests the highest rate for SI, followed by NSSI and then SA (e.g., Gunter *et al*., 2011). This discrepancy, however, could be partly explained by the differences in samples utilised. Specifically, while the present study focused predominantly on UK adolescents, in Gunter *et al*.'s (2011) study all participants were adult community-based offenders from the United States. Cultural differences could also account for such inconsistencies, however, due to the lack of UK-based studies on offenders, this possibility remains to be verified. Further, the present findings suggest that rates of NSSI are higher among adolescent offenders than youths drawn from the general population, which average at 18% (Muehlenkamp *et al*., 2012). This is in line with previous research indicating that adolescents are more likely to engage in NSSI compared with adults (see Nock, 2010 for a synthesis of empirical evidence).

The SI rates reported here are consistent with point prevalence among juveniles in detention (Abram, 2010). In considering past research, the prevalence of SI appears to be much higher among incarcerated female than male adolescents (58.1% and 21.5% respectively) (Suk *et al*., 2009). Indeed, findings of the present study revealed that females, compared with males, were more likely to report NSSI and SI, but not SA. To extend the scope of the current examination, future studies should also consider gender-specific risk and protective factors, as well as examine more recent (past year, past month) NSSI, SI, and SA. Finally, although SA in the current sample was much less common than previously found in studies among juvenile offender populations (11 – 33%; Abram *et al*., 2008; Esposito & Clum, 2002), this may be due to the present focus on *community-based* rather than *imprisoned* participants. Thus, it may be that suicidal behaviour, but not NSSI, is fostered by the restrictive prison environment and aggravated by the loss of liberty (Clemmer, 1966; Sykes, 1958).

Consistent with prior research among people with a history of criminal offending (e.g., Abram *et al*., 2004; Adams, 2010; Giaconia *et al*., 1995; Wilson *et al*., 2013), the majority of the present sample reported having been exposed to at least one potentially traumatic event (95.1%). Trauma exposure, in turn, formed significant positive relationships with NSSI, SI, and SA; indicating that self-destructive behaviors and cognitions may serve to reduce emotional distress ensuing from traumatic events (Klonsky & Moyer, 2008; Van der Kolk, Perry, & Herman, 1991). Indeed, previous research has linked trauma exposure to NSSI, SI, and SA, but mainly through child sexual abuse and physical abuse (Borges *et al*., 2008; Bornovalova, Tull, Gratz, Levy, & Lejuez, 2011; Coleman, 2005; Gould & Jacobson, 2007; Klonsky & Moyer, 2008; Yates, Carlson, & Egeland, 2008). Although a high percentage of participants in the present sample (76.47%) had been a victim of or witnessed a physical assault and 11 participants (10.78%) witnessed or were a victim to sexual assault, the current study utilised an aggregate score for all traumatic events experienced as opposed to separate scores

for different forms of trauma. Although this is consistent with prior usage of the scale, it means that we were unable to determine whether levels of suicide risk and NSSI engagement differ depending on the trauma type and whether the trauma was simple (i.e., a discrete event) or complex (i.e., repeated and prolonged). For instance, interpersonal trauma, such as childhood abuse, may have a more deleterious impact upon individuals because it is more often chronic, can erode social support, particularly in cases where the abuse perpetrator is a family member, represents a 'betrayal' of trust, more clearly shatters assumptions about the world, and leads to greater self-blame or other maladaptive cognitions (Clarke *et al*., 2016; Debowska, Willmott, Boduszek, & Jones, in press; Finkelhor & Browne, 1985). Thus, future studies might account for the complexity of trauma, whether a potentially traumatic event was witnessed or personally experienced, and the context within which the trauma occurred (e.g., within or outside the family). Such analyses could provide more detailed information in regard to the consequences of different forms of childhood trauma on mental health and hence contribute towards designing more tailored intervention programmes for troubled youths.

Previous research has consistently reported an enhanced risk of SA (Lewis, 2005; Krysinska & Lester, 2010), SI (Gradus *et al*., 2013; Selaman *et al.*, 2014), and NSSI (Lang & Sharma-Patel, 2011; Smith *et al*., 2014; Wabnitz *et al*., 2015) among individuals with PTSD symptoms. The current findings are partly supportive of this past research. Namely, we found increased odds of PTSD among those engaging in SI and SA, but not among adolescents who self-injure without suicidal intent; suggesting that PTSD is only related to suicidal behaviours. Although NSSI has been traditionally conceptualised as operating along a continuum of self-harm with suicide as the ultimate endpoint (e.g., Kapur, Cooper, O'Connor, & Hawton, 2013), the findings of the present study imply that NSSI may be associated with different risk factors than SI and SA (see also Dhingra *et al.*, 2016b).

Finally, a significant relationship between lowered self-esteem levels and SI, SA, and NSSI among mixed gender samples, including adolescents (e.g., De Man *&* Gutierrez, 2002; Evans *et al*., 2004; Tatnell *et al*., 2014) has been previously demonstrated. It appears that the risk of NSSI, SI, and SA may be increased in individuals with lower self-esteem due to their persistent negative views of the self, resulting in feelings of worthlessness (Brausch *&* Gutierrez, 2010). Prior research, however, tended to assess self-esteem in a context-free manner, which precludes any conclusions regarding the effect of domain-specific self-evaluations on self-destructive impulses from being made. To elaborate, a multidimensional perspective on self-esteem has been found useful in other areas of psychological research. For example, Rosenberg, Schooler, Schoenbach, and Rosenberg (1995), in a study examining consequences of global and academic self-esteem, reported that while the former was a strong predictor of psychological wellbeing, the latter was a better predictor of school performance. In the current study, low personal (i.e., context-free) and delinquent (i.e., evaluations made in relation to other delinquents) self-esteem significantly increased the odds of engaging in NSSI, SI, and SA. Thus, no differential predictive validity of the two types of self-esteem in regard to youth offenders' mental wellbeing has been found. It appears, therefore, that domain-specific self-esteem may be important for predicting behaviours/attitudes within this particular context only.

As with all research, the current study presents limitations. First, the small sample size and low endorsement rates for the three outcome variables (NSSI, SA, and SI) prevented us from investigating theoretically important moderating effects, such as the moderating effect of self-esteem on the relationship between trauma/PTSD and NSSI/SA/SI. It is therefore recommended that future research employs larger samples which would allow for such analyses. Second, we utilised a cross-sectional design and hence concurrent rather than temporal validity could only be established. Although we have theorised that trauma leads to

NSSI, SA, and SA, a longitudinal design would provide a better insight into the direction of relationships reported here. Third, as noted earlier, different forms of childhood trauma have been earlier associated with self-destructive impulses. Here, we looked at the total score for all traumatic events. Although some prior research argued for non-specific effects of child maltreatment on internalising and externalising problems (e.g., Vachon, Krueger, Rogosch, & Cicchetti, 2015), it would be useful to consider them separately in relation to NSSI, SA, and SI in future investigations among community-based youth offenders. Next, self-report measures have been criticised for their lack of reliability due to response bias (Ross & Heath, 2002). Even though self-report inventories were employed in the current study, we also used data from the Asset, which relies on information provided by professionals. Related to this, although the use of Asset data may be considered more reliable and valid in relation to certain constructs assessed (e.g., criminal history), the validity of comparing self-reported suicidal behaviours from other studies of young offenders with the current study's indirect approach warrants further investigation, as does the validity of measuring SA, SI and NSSI based on the YOT worker assessment.

In spite of the above limitations, the present research has some important practical implications. Specifically, since knowledge in the area of NSSI, SI, and SA among youths who offend in the UK is limited, offender managers tend to neglect such issues for this reason. As such, self-destructive impulses among youngsters in YOTs are not generally screened for. This research, hence, provides some useful insights into the concepts of NSSI, SI, and SA as well as their respective risk factors in community-based youth offenders, with the ultimate goal of facilitating prevention and treatment efforts. For example, it appears that youths who have experienced trauma and developed symptoms of PTSD, should be offered additional support to address those issues in order to prevent both other- and self-directed violence. In support of this, past research suggested that unresolved childhood trauma may lead to internalising and

externalising problems (e.g., Berzenski & Yates, 2011; Debowska & Boduszek, 2017). Additionally, since the rates of NSSI, SI, and SA are higher among females than males, professionals working with adolescent girls who offend should pay special attention to recognising potential psychological and physical signs of self-destructive cognitions and behaviours. Based on current findings, it is anticipated that providing youngsters with the right, more tailored, treatment may help them alter their lifestyle, increase psychological wellbeing, and subsequently prevent future offending. An increase in knowledge in these areas will also assist in designing a more time and cost efficient assessment of risk and needs of offenders and the implementation of interventions, which to date are non-existent (Dixon-Gordan, Harrison, & Roesch, 2012; Smith & Kaminiski, 2010).

Conclusion

To summarise, we found the highest prevalence rates for NSSI, followed by SI and SA among community-based youth offenders in the UK. Participants who witnessed or were a victim of trauma were more likely to report NSSI, SI, and SA. Additionally, lowered personal and delinquent self-esteem was significantly positively associated NSSI, SI, and SA. PTSD was a significant correlate of SI and SA, but not NSSI. Lastly, females in the current sample were more likely than males to engage in NSSI and experience SI. These findings can be utilised for the development of effective prevention and treatment programmes among community-based youth offenders.

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