Reactive Attachment Disorder, Disinhibited Social Engagement Disorder, adverse childhood experiences, and mental health in an imprisoned young offender population

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Highlights

Research in context

Evidence before this study

Previous studies have examined the prevalence of mental health conditions in prisons, but none have included neurodevelopmental conditions (such as Attention Deficit Hyperactivity Disorder (ADHD) or Autism), maltreatment (i.e. abuse and neglect) and the maltreatment-specific disorders RAD and DSED. Only three studies have examined the population prevalence of RAD and DSED, demonstrating that both are relatively rare in the general population. RAD and DSED are not uncommon in residential care populations (9% RAD; 8% DSED), are distinct from other mental health conditions, and are highly comorbid with other disorders. Outcomes associated with untreated RAD in adolescence can be devastating, including family breakdown, and co-occurring mental health problems.

PubMed was searched up to the 13th of October 2022, with the following terms: ("attachment disorder" OR "reactive attachment disorder" OR "disinhibited social engagement disorder" OR "RAD" or "DSED") AND ("young offender" OR "juvenile offender" OR "juvenile delinquent" OR "youth offender"). No restrictions in terms of date or language were applied. This search yielded one return - a study published by the lead author in 2017. This showed markedly elevated rates of RAD and/or DSED (52%) alongside high levels of early life trauma (86%) in a population of young people attending a forensic child and adolescent mental health service. A positive association between RAD/DSED symptoms and mental health symptoms was found, but the sample was small. Nothing is known about the prevalence or correlates of RAD and DSED in young people in prison.

Added value of this study

To our knowledge, this is the first comprehensive prevalence study of mental health, neurodevelopmental conditions, RAD and DSED, in a young offender population. Nearly all of the 110 participants (96%) had one or more lifetime mental health conditions and 85.5% a current condition. We found a high prevalence of RAD or DSED (53.6%) and a high level of childhood adversity (69% had four or more ACEs; 75% had experienced some form of abuse/neglect) . DSED was associated with a higher number of ACEs. Fewer than half of the participants were currently receiving mental health support in prison and only 2.7% had received a psychiatric/psychological assessment.

Young male offenders almost universally have a history of, or current, mental health problem. A very high prevalence of childhood adversity, especially maltreatment, and RAD and DSED are common. These young prisoners have complex presentations that must be understood to enable treatment and rehabilitation.

Implications of all the available evidence

Awareness of the complex needs in this group will lead to a greater understanding of their presentations and will inform improved intervention and management plans. Highlighting complex presentations also underlines the need for a multidisciplinary approach to assessment and treatment with a focus on a variety of conditions, some associated with trauma, others heritable, and many with evidence-based treatments.

Where the simplistic term “young offender” is used, offending or risky behaviour can become the main service focus, with a consequential lack of consideration afforded to

neurodevelopmental or mental health problems. These findings will reinforce the need to remain aware of both trauma-related and non-trauma-related neurodevelopmental and mental health conditions. Implementing robust assessment and treatment for young offenders and creating trauma- informed and neurodevelopment-informed prisons, will likely improve outcomes. Incarcerating one individual for one year (2016-2017) costs between £49,586 and £87,190, therefore a treatment-focused approach could be highly cost effective.

Reactive Attachment Disorder, Disinhibited Social Engagement Disorder, adverse childhood experiences, and mental health in an imprisoned young offender population

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Background: A high proportion of young people in prison have a history of abuse and neglect, and/or of neurodevelopmental or psychiatric conditions. Despite this, the only two conditions specifically associated with abuse and neglect, Reactive Attachment Disorder (RAD) and Disinhibited Social Engagement Disorder (DSED), have never been included as part of a comprehensive prevalence study.

Methods: A cross sectional study, in 110 male inmates aged 16 to 23, examined the prevalence of, and associations between, adverse childhood experiences (ACEs), neurodevelopmental and mental health conditions, including RAD and DSED.

Outcomes: Virtually all of the young men (96%) had one or more lifetime neurodevelopmental or mental health conditions, 85.5% had a current condition, yet less than

3% had received a mental health assessment in prison. High rates of RAD and/or DSED were found (53.6%) and 74.5% had experienced some form of abuse or neglect.

Interpretation: There is a high prevalence of ACEs, RAD/DSED, neurodevelopmental and other mental health conditions within this population. Comprehensive clinical assessments are required to ensure appropriate support and staff training is needed to ensure that the full implications of the high prevalence of neurodevelopmental and mental health conditions are understood as part of trauma informed care.

Funding: NHS Greater Glasgow and Clyde

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Introduction

Mental health in young offenders

Several studies have demonstrated a high prevalence of mental health conditions in young offenders (50 – 94%).[1-3]

In England and Wales, the rate of suicide in boys aged 15–17, who have been sentenced and remanded in custody, may be as much as eighteen times higher than in non-offenders while mortality rates increase with intensity of criminal justice involvement.[4]

Young offenders and ACEs

Many young offenders have experienced ACEs. Estimates range from 30-65% having experienced multiples ACEs, including child abuse and neglect.[5] Much of the literature points to a strong association between ACEs, especially childhood maltreatment, and crime.[6, 7] In the UK, individuals with more than four ACEs are twenty times more likely to be incarcerated at any point in their lifetime.[8] The mean number of lifetime convictions increases as ACE count increases[6] and those with more ACEs are more likely to become serious, violent, and chronic offenders.[9] Protective factors, such as family and peer support, are often unavailable, since family breakdown and school exclusions have commonly occurred.[10, 11]

Young people who have experienced child maltreatment are also at much higher risk of having neurodevelopmental disorders such as ADHD, Autism, and Intellectual Disabilities (ID) – and these disorders are strongly heritable.[12] Young people who have neurodevelopmental problems and a history of child maltreatment are at twice the risk of developing symptoms of severe mental illness in adolescence.[13] It is therefore crucial that trauma-related disorders (including RAD, DSED and PTSD), neurodevelopmental disorders and mental health conditions are considered in this population.

Reactive Attachment Disorder and Disinhibited Social Engagement Disorder

Although children who have experienced abuse and neglect are at much higher risk than their peers of developing a wide range of psychiatric disorders, RAD and DSED are the only two disorders specifically associated with childhood maltreatment. RAD and DSED manifest as difficulties developing and sustaining intimate relationships with family and peers. DSED's defining characteristics include reduced or absent reticence in approaching and interacting

with unfamiliar adults; over-familiar verbal or physical behaviour; minimal checking back with adults in unfamiliar settings and willingness to go off with strangers. RAD involves minimally seeking or accepting comfort; minimal social and emotional responsiveness; limited positive affect; unexplained episodes of irritability, sadness, or fearfulness.[14]

RAD and DSED are uncommon in the general population with estimates ranging from 0.9 – 1.4%.[15, 16] In high-risk populations, they are quite common: 49% in adopted children aged 6-11[17]; 16% in adolescents in residential care[18]; 52% in young offenders attending specialist child mental health services[19]. No prevalence studies including RAD or DSED in young offenders or other prison populations have been conducted.

What is offered in prison for neurodevelopmental, trauma-related, and other mental health conditions?

Mental health problems associated with maltreatment are rarely identified as a primary focus within juvenile justice services. Yet this population is likely to be at higher risk of the full range of neurodevelopmental and mental health conditions – including, and in addition to, trauma-related disorders. Identification and treatment of presentations, such as ADHD[20] and PTSD[21] in prisoners is predicted to significantly reduce recidivism and societal costs. There is therefore a need to understand the full range of difficulties present so that services can offer more tailored rehabilitation programmes.

This study aims, for the first time, to conduct a comprehensive mental health prevalence study, including prevalence of RAD and DSED, in a UK incarcerated young offender population. It will also detail the histories of childhood adversity and examine whether there are associations between ACEs, RAD/DSED and other conditions.

The hypotheses were:

1. There will be high rates of mental health and neurodevelopmental conditions among young offenders
2. There will be a high prevalence of RAD and DSED diagnosis among young offenders
3. There will be an association between RAD/DSED diagnosis and childhood adversity
4. There will be an association between RAD/DSED diagnosis and current and lifetime conditions
5. There will be an association between RAD and DSED diagnosis and the number of offences.

Method

Design

A cross-sectional study was used to determine the prevalence of neurodevelopmental and mental health conditions, including RAD and DSED, in young offenders.

Participants

The study aimed to include all of the young men serving a sentence or on remand at a Young Offender's Institute (YOI) in Scotland and their nominated carers.

The inclusion criteria were as follows; male, aged 16 to 23, serving a sentence or held on remand and sufficient English fluency to report on their mental health.

A carer was defined as the person with main primary care-giving responsibility for the individual or, in the absence of this, someone who knows them well, e.g. keyworkers such as

prison officers. The young people were asked to nominate a carer to complete measures about them. Any YOI teacher with knowledge of a participant was also given a measure to complete.

Participants were recruited over a 13-month period. Of those approached, 87% (n = 145) agreed to participate (figure 1 below). Data collection came to an unanticipated halt due to the COVID-19 pandemic but 110 of the planned assessments were already complete.

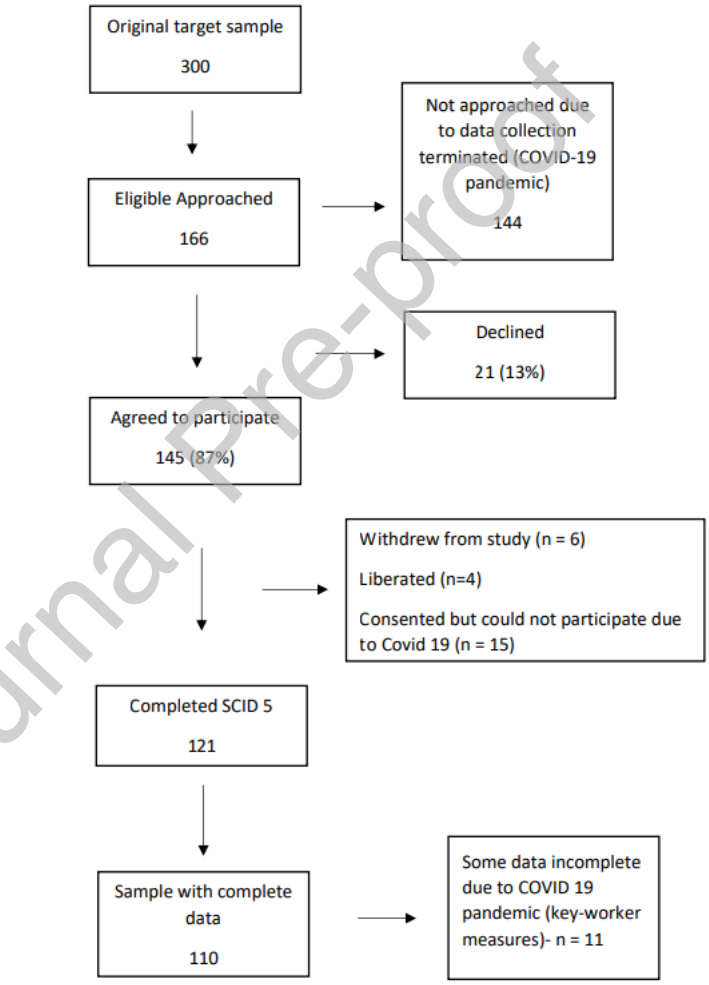

Figure 1. flow chart of participant recruitment

Figure .1 flow chart of participant recruitment

Choice of Primary measure

The Structured Clinical Interview for DSM-5 (SCID-5) Research Version[22] was chosen as it is a semi-structured interview for making major DSM V diagnoses. The categories of conditions included were Mood Disorders, Anxiety Disorders, Psychotic Symptoms, Obsessive Compulsive Disorders, Eating Disorders, Externalizing Disorders, and disorders related to Trauma. The measure is widely used and with slight modification to the wording, may be administered with adolescents. There is a cost for SCID 5 RV permissions ($500) and training materials ($850). The measure takes approximately 45 to 120 minutes to administer. This version is available in Norwegian and Spanish.

Autism-Tics, ADHD, and other Comorbidities (A-TAC): Selected sections (namely the Autism and Tic section) of the ATAC, a structured interview, were used to screen for Autism, ADHD, and Tic Disorder, which are not adequately covered by the SCID 5. The A-TAC has been validated against clinical diagnoses both cross-sectionally and longitudinally.[23, 24]

The Reactive Attachment Disorder and Disinhibited Social Engagement Disorder Assessment[25] is a semi-structured interview for parents/carers which assesses the symptoms of RAD and DSED and has been well validated in young people.

Relationship Problems Questionnaire[26] is a structured questionnaire which assesses for symptoms of RAD and DSED. The scale has an 0.85 internal consistency[26] and it has been well validated against attachment disorder diagnosis in epidemiological research, although not previously used beyond age 16.[16]

Observational Schedule for Reactive Attachment Disorder Youth Version[27] is a structured observation schedule for symptoms of RAD and DSED completed by an observer, after first meeting a young person, regarding the young person's interaction with a stranger. It has good

internal consistency (Cronbach a = 0.75)[28], good specificity, but modest sensitivity in identifying children with Attachment Disorders[25], and has not previously been used in adolescents young adults, therefore it was used in addition to parent/carer diagnostic measures.

Adverse Childhood Experience (ACE) questionnaire (Centres for Disease Control and Prevention, 2003) provides a 10-item measure of childhood experiences of abuse and neglect. It is a reliable and valid measure of childhood adversity.[29]

Procedure

The project received ethical approval from the NHS West of Scotland Research Ethics Committee and the Scottish Prison Service.

Summary information about the study was posted on Prison noticeboards and mentioned on the Prison radio. Staff such as youth workers mentioned the study to their groups and the Research Assistant (RA) had a list of all young people and approached them individually. All those eligible were invited to an information meeting with the RA. Upon meeting the RA, potential participants were provided with an information sheet, which was also read aloud. They had the opportunity to ask questions and were given at least 24 hours to decide whether or not to participate. The Observational Schedule for Reactive Attachment Disorder was completed by the RA for all participants upon first meeting. The young person then completed the SCID-5 in a face-to-face interview with the RA, which took between 1.5-2.5 hours.

The researcher contacted the nominated carer and provided an information sheet and consent form. Once consented, the RA met with each carer and completed the RADA interview, the carer RPQ and the selected sections of the A-TAC. This took approximately one hour. The

ACE questionnaire was completed by the RA through scrutiny of the young person's case-notes and criminal justice social work report. Details and number of offences were also extracted from these reports. Twenty-three young people had a teacher and gave permission to contact them. Once consented, they were asked to complete the teacher RPQ.

RAD/DSED diagnoses were made using a two-step process: 1) the researcher examined data and completed a checklist for the DSM 5 criteria for DSED and RAD. Preliminary categories were *no diagnosis*, *DSED*, *RAD*, or *borderline presentation* (where many but all not diagnostic criteria were met, or where a diagnosis was likely but there was only information from one informant). 2) Participants meeting the criteria for either a full or borderline diagnosis were discussed in a clinical multi-disciplinary (psychology/psychiatry) meeting to make a final decision about diagnosis. This took account of all measures and considered the impact of any other existing diagnoses on the likelihood of a RAD or DSED diagnosis.

Between group comparisons were done using ANOVA or Kruskal-Wallis tests for numerical outcomes and chi-squared tests for categorical data. All analyses were done using Minitab (version 18) at a 5% significance level. Correlations were interpreted using Cohen's guidelines.[30]

Results

Demographics

Table one outlines the key demographics of the sample.

Table 1. Demographics

Age		16-23 (Mean 19.7; SD 1.3)
Ethnicity	White	81.9%
Black/African/Caribbean/Black British		5.5%
Asian/Asian British		8.2%
Mixed/Multiple Ethnic Groups		1.8%
Other Ethnic Group		2.7%
Adverse Childhood Experiences (4+)		69%
Experienced abuse (emotional, physical, sexual) and/or neglect (emotional/physical)		74%

Hypothesis 1 *There will be a high prevalence of mental health and neurodevelopmental conditions among young offenders*

Current and lifetime conditions include, neurodevelopmental, RAD, DSED and other mental health conditions. Eighty-six percent of participants had one or more conditions currently and 48.2% had four or more conditions currently. Ninety-six percent had one or more lifetime conditions, while 70.0% had four or more lifetime conditions. There were especially high rates of lifetime Substance Use Disorders (Drug Misuse 77.3%, Alcohol Misuse 67.3%), Neurodevelopmental Conditions (ADHD 53.6%, ASD 34.5%), Major Depression (40.9%), and Trauma and stress related disorder (PTSD – 30.0%, RAD (11.8%), DSED (30.0%). Please see supplementary Table 2 for further detail.

Hypothesis 2 *There will be a high prevalence of RAD and DSED diagnosis among young offenders*

Fifty-nine (53.6%) of the participants received a diagnosis of RAD or DSED or a Borderline diagnosis. Specifically, 13 young people (11.8%) had RAD, 33 (30.0)% had DSED (including 6 young people, i.e. 5.4%, with both RAD and DSED) and 11.8% had a borderline diagnosis of RAD or DSED.

Hypothesis 3 *There will be an association between RAD/DSED diagnosis and childhood adversity.*

The median number of ACEs was significantly different between the three groups (RAD/DSED/None) (Kruskal-Wallis p=0.003).

There was no evidence of a difference in the median number of ACEs between the group with RAD and the group without (Mann-Whitney unadjusted p=0.924). The median number of ACEs was significantly higher in the DSED group compared to the group with none (Mann-Whitney unadjusted p=0.001).

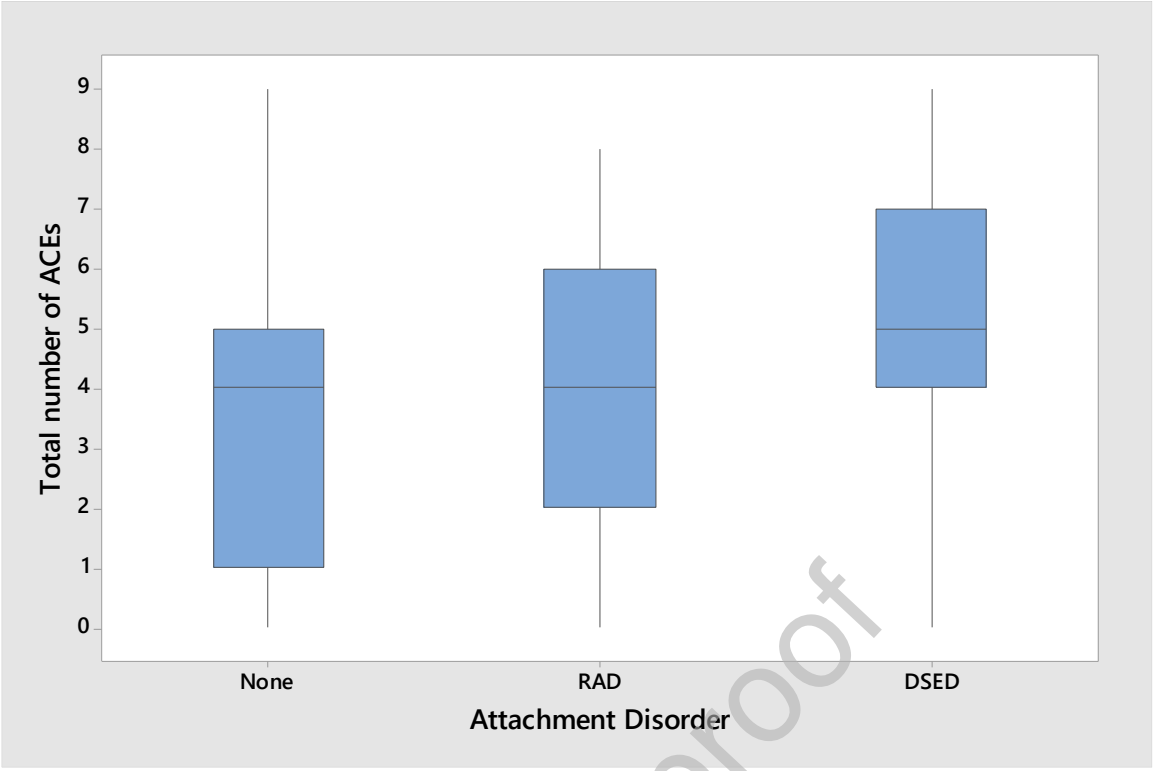

Figure 2 – ACEs within DESD, RAD and No AD group

Seventy-nine per cent of those with DSED had suffered abuse, 64% of those with RAD and 58% of those with neither. There was no association between abuse, RAD and DSED (chi-squared p=0.132). Eighty-six per cent of those with DSED had suffered neglect compared to 55% of those with RAD and 54% of those with neither RAD nor DSED and a statistically significant association between DSED and neglect was found (chi-squared p=0.006).

4. *There will be an association between RAD/DSED diagnosis and other current and lifetime conditions*

Although those with RAD or DSED had more current and lifetime mental health conditions (a mean of 3.1 current and 4.6 lifetime conditions) than those without (a mean of 2.3 current and 3.7 lifetime conditions), the difference between the three groups was not statistically significant (Kruskal-Wallis p=0.081, Kruskal-Wallis p=0.104)

5.*There will be an association between RAD and DSED symptoms and the number of offences.*

The mean; SD total number of offences was highest in the group with DSED (7.19; 7.0)) but there was no significant difference in the mean numbers between the three groups DSED (7.19; 7.0), RAD (5.65; 4.1) and none (5.16; 4.7): ANOVA p=0.226.

Profile of mental health conditions and RAD/DSED

The prevalence of other conditions based on the SCID 5 and ATAC were explored in those with and without RAD and DSED, see Table 2. Sixty-one % of those with RAD and 55.6% of those with DSED had likely ASD according to the ATAC, compared with 15.7% of those with no RAD or DSED. There was a significantly higher percentage of those with RAD or borderline RAD/DSED or borderline DSED with ASD symptoms (50.8% vs. 15.7%, p=<.05) and with multiple suicide attempts (22% vs. 5.9%, p=<.05).

Table 2. RAD, DSED and other diagnoses

	RAD	DSED	None	Total
ATAC likely diagnosis				
Autism	8 (61.5%)	15 (55.6%)	8 (15.7%)	38 (34.5%)
ADHD	10 (79.6%)	17 (63.0%)	25 (49.0%)	59 (53.6%)
SCID 5 likely diagnosis				
Major Depression	6 (46.2%)	12 (44.4%)	21 (41.2%)	45 (40.9%)
Persistent depression	0 (0%)	6 (22.2%)	5 (9.8%)	11 (10%)
Psychotic-like symptoms	2 (15.4%)	5 (18.5%)	5 (9.8%)	15 (13.6%)
Alcohol misuse	11 (84.6%)	18 (66.7%)	34 (66.7%)	74 (67.3%)
Drug misuse	10 (76.9%)	24 (88.9%)	39 (76.5%)	85 (77.3%)
Social anxiety	2 (15.4%)	4 (14.8%)	6 (11.8%)	15 (13.6%)
Generalised anxiety	6 (46.2%)	5 (18.5%)	8 (15.7%)	20 (18.2%)
PTSD	7 (53.8%)	11 (40.7%)	12 (23.5%)	33 (30.0%)

Multiple suicide attempts	4 (30.8%)	9 (33.3%)	3 (5.9%)	16 (14.5%)

N.B we have not displayed data for disorders that were not present in any of the participants or were rare (e.g. mania, tic disorders).

Participants receiving mental health support (self-reported)

Three per cent (2.7%) of participants had received a psychiatric/psychological assessment and forty-nine participants (44.6%) had received input from prison mental health services: 10% drugs and alcohol counselling; 14.5% medication; 7.3% talking therapy; 8.2% a trauma related service (psychotherapy/ art therapy/ trauma counselling); 15.5% had advice from a mental health nurse.

Discussion

Eighty-six per cent (85.5) of participants had one or more current conditions and 48.2% had four or more. Virtually all (96%) had one or more lifetime conditions. This supports previous research demonstrating a high prevalence of disorders in detained youth.[1-3] Only 2.7% of participants had received a clinical assessment, echoing finding that the most commonly unmet need for intervention is that of an assessment.[3]

More than half of YOI inmates had DSED and/or RAD (53.6%) in keeping with previous findings.[19] There were no significant associations between RAD/DSED and most mental health or neurodevelopmental disorders. The overwhelmingly high prevalence of complex psychopathology in this population may have resulted in a lack of sufficient variance for meaningful analysis and produced ceiling effects. This warrants further consideration.

Those with RAD or DSED were significantly more likely to have ASD and also more likely to have made multiple suicide attempts, again highlighting the complexity of needs and the

necessity for holistic assessment focussing on neurodevelopmental, trauma-related, and mental health conditions as well as careful assessment for risk of suicide.

Sixty-nine per cent of participants had experienced four or more ACEs and 74.5% had experienced some form of abuse and/or neglect. This is similar to previously recorded prevalence rates.[5-8, 19] This information, alongside the knowledge that abused and neglected children are at much higher risk of having heritable neurodevelopmental problems, which increases their risk of severe mental illness[12], is yet another strong argument for offering the prison population a comprehensive neurodevelopmental and mental health assessment.

Specifically, in this population, young people with DSED had a higher number of ACEs and there was an association between both RAD and DSED and a history of neglect. Since there was such a high prevalence of both RAD/DSED and abuse/neglect in this population, once again ceiling effects might have obscured more nuanced associations.

Although the mean number of offences between the groups were not statistically significant, the mean total number of offences for those with DSED was over two offences more than the group without DSED/RAD. The mean number of offences for those with RAD was half an offence more than those with no RAD. This information is clinically important and as such will be a topic for further exploration, perhaps including non-imprisoned offenders in whom the variance in severity and number of offences and in RAD/DSED symptoms might be greater.

Overall, the findings reveal the existence of a massive unmet need in this population, especially as regards to comprehensive assessments. Many of the presentations have

evidence-based treatments, so addressing this unmet need is likely to reduce the high suicide rate as well as recidivism and societal costs.

Limitations

This study focussed on obtaining a total sample. Unfortunately this was impacted by the abrupt halt in assessment due to the Covid -19 pandemic. Nonetheless the sample is likely to be highly representative of this population: the response-rate for those offered participation was high, but among the 13% who did not take part, some may have been lost who were liberated early on minor offences, or who had the most severe difficulties. Although the study used well validated tools for mental disorders, including RAD and DSED, neither the *Observational Schedule for Reactive Attachment Disorder Youth Version* nor the *Relationship Problems Questionnaire* had previously been used in adolescents or young adults of this age. Both RAD and DSED symptoms have now been shown to persist into young adulthood, but it is possible that the symptoms identified in these instruments might manifest somewhat differently at different developmental ages and further research would be beneficial to examine this further. In addition, the participants' carers are likely to have had limited information regarding early development and early childhood symptoms, which will inevitably have limited their certainty regarding developmental features of neurodevelopmental conditions.

Implications for practice or policy and future research

This study highlights the very high prevalence of psychiatric disorders and neurodevelopmental conditions in the prison population, and that young men in prison should routinely receive a robust psychiatric and neurodevelopmental assessment with a focus on the

wide variety of symptoms. The complex presentations that are common in these young men must be understood in order to facilitate treatment and rehabilitation and prevent recidivism. There are also important implications for staff training: a trauma-informed and neurodevelopment-informed prison service will likely improve outcomes for this population through better day to day understanding of the population alongside better targeted treatment.

Future prevalence research in female prisoners and older prison populations is warranted to understand how these psychiatric and neurodevelopmental conditions manifest according to gender and age in prisoners. It will also be important, in future research, to examine how conducting more detailed psychiatric and neurodevelopmental formulations might inform treatment and intervention approaches. Since so few of the participants in this study were currently in contact with mental health services, offering much greater mental health support to the prison population is an obvious next step and future research should consider how best to organise mental health services in the prison setting, and after prisoners are released, and whether these measures reduce recidivism. The involvement of health economics in these studies would also be beneficial.

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Author statement

Kate Moran conceived of the study, led the design and the writeup of the findings, including reviewing and editing several drafts including the final draft.

Rebecca Dyas led the data collection and analysis and contributed to the writeup of the findings, including reviewing and editing several drafts including the final draft.

Charles Kelly oversaw the forensic psychology aspects of the study at the prison, contributed to the design and writeup of the study including agreeing the final draft.

David Young oversaw the statistical analysis of the study, and contributed to the writeup, including agreeing the final draft

Helen Minnis supported the design of the study, contributed to the analysis of the data, and contributed to the writeup of the findings, including reviewing and editing several drafts including the final draft.

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