

Exploring factors associated with dual harm among young adult men in prison

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Abstract

Dual harm (coexisting self-harm and violence) is more frequently exhibited by people in prison than community populations. No research has solely investigated dual harm by young adults in prison. Using national, routinely collected data from His Majesty's Prison and Probation Service ($n = 20,403$), this study explored whether young men (aged 18-21) who dual harmed in prison could be distinguished from young men who either sole harmed or did not engage in either harmful behaviour, based on demographic, developmental, criminological and clinical factors. Twelve percent of the sample dual harmed in prison. Exploratory analyses revealed that for young men who dual harmed, poor education skills related more strongly to early police contact, and drug misuse was more strongly related to having a history of harm to self, compared to those who did not dual harm. Confirmatory analyses found that young men who dual harmed were younger when first in contact with the police and admitted to prison, spent longer in custody aged 18-21, and had fewer qualifications than the comparison groups. This study reports that young men who dual harm in prison have unique profiles that can be identified using prison data, and highlights the importance of upstream, preventative interventions.

Keywords

Dual harm; self-harm; violence; prison; young adult men

Introduction

Internationally, self-harm and violence in prisons is problematic (Robinson & Forrester, 2023), with young men disproportionately engaging in such behaviours (Davies et al., 2023). In England and Wales, young men represent approximately 15% of the prison population, yet account for up to 46% of violence and 26% of all recorded self-harm incidents in prison (Davies et al., 2023; Her Majesty's Inspectorate of Prisons [HMIP], 2021a). As a result, over 40% of admissions to hospital among young men in prison involve self-harm and violence-related injuries or poisonings, around double that of older adults (Davies et al., 2023). Young men in prison therefore place undue demand on health care services and custodial establishments. Relatedly, a sub-population account for higher proportions of both self-harm and violence (herein referred to as dual harm; Slade, 2018, p. 98) in prisons (Smith et al., 2024), and engage in more institutional misconduct (Slade et al., 2020). By managing individuals who dual harm, rates of self-harm and violence, and the health care and justice costs associated with them, could reduce.

There is strong evidence of an overlap between those who self-harm and those who are violent. Up to 5% of adolescents and young adults dual harm in the community (Chen et al., 2020; Harford et al., 2012; Harford et al., 2016; Richmond-Rakerd et al., 2018; Swahn et al., 2013), with rates doubling between ages 16 and 22 (Steeg et al., 2023). Prevalence rates are considerably higher among adolescents with behavioural and emotional problems (17%; Spaan et al., 2022) and adult men in prison (11%-26%; Butler et al., 2022, 2023; Slade, 2018; Slade et al., 2020). Young adults in prison are more likely to be diagnosed with a behavioural and emotional disorder than their adult counterparts (Davies et al., 2023), and self-harm and violence are typically first exhibited by young adulthood (Mok et al., 2016; Sahlin et al., 2017). As such, the prevalence of dual harm by young adults in prison, which currently remains uncertain, may exceed that of adults. Identifying this rate is crucial to understand if

dual harm by young adults in prison is prominent, before establishing nuances such as the nature and characteristics of those who display it.

Although research remains scarce, theoretical frameworks of dual harm have been proposed. These define dual harm as a unique construct and propose that biological traits and/or dysfunctional life experiences predispose the use of emotional and behavioural regulation strategies (e.g., Shafti et al., 2021; Slade et al., 2020). The frameworks include developmental, clinical, criminological, and demographic characteristics which have frequently distinguished dual harming populations. Developmentally, studies have shown that adverse childhood experiences (ACEs), particularly violence victimisation, are more prevalent among community and prison dual harming populations and are associated with increased dual harm risk (Carr et al., 2020; Chen et al., 2020; Richmond-Rakerd et al., 2019; Webb et al., 2017). Adolescents who dual harm in the community have also been found to achieve lower educational grades (Chen et al., 2020; Swahn et al., 2013), and adults who dual harm in US prisons spend fewer years in education, have lower reading scores and IQ on admission to prison, and demonstrate little improvement with reading during their sentence (Slade et al., 2022; Smith et al., 2024). This may reflect low school bonding (Steinhoff et al., 2022), or early contact with the criminal justice system (Harford et al., 2016; Richmond-Rakerd et al., 2019). However, no research has explored whether learning difficulties or poor school attendance are common among young adults who dual harm in prison. Though directionality would be difficult to study (i.e., whether dual harm is an outcome or a cause of such factors), ascertaining risk factors would help shed light on early identification opportunities.

Clinically, adolescents in the community who dual harm are more likely to self-report depression or have a major depressive disorder diagnosis than those who are solely violent or do not harm (Richmond-Rakerd et al., 2019; Steinhoff et al., 2022; Swahn et al., 2010).

Depression also increases the likelihood of progressing from sole harm to dual harm between ages 16 and 22 (Steeg et al., 2023). Albeit no research has explored depression among people in prison who dual harm, and therefore its relevance remains unknown. If relevant, clinical assessments and interventions aimed at depression may be prioritised to help reduce the large-scale prison disruption associated with dual harm (Slade, 2019). However, clinical characteristics associated with dual harm have been found to differ between age groups. Substance use disorders and misuse have repeatedly been associated with dual harming adolescents (Chen et al., 2020; Harford et al., 2012; Harford et al., 2016; Spaan et al., 2022; Swahn et al., 2013), but findings are mixed for adults (Harford et al., 2018). Similarly, drug-related index offences and substance-related incidents in prison do not consistently distinguish adults who dual harm in prison (Kottler et al., 2018; Slade, 2018; Slade et al., 2022; Slade et al., 2020). Despite this, young adults in prison span both knowledge bases, and therefore more research is needed to discern whether they have unique factors associated with dual harm, or whether they share similar characteristics to either community adolescents or imprisoned adults.

As a group, people who dual harm also have unique criminological histories. They have early and endured contact with the criminal justice system (e.g., more prison sentences and spend longer in prison), and perpetrate more institutional misconduct (Butler et al., 2022; 2023; Richmond-Rakerd et al., 2019; Slade et al., 2022; Slade et al., 2020). However, no research has explored how these criminological markers may interlink with other factors relevant to dual harm. For instance, ACEs or a disrupted education may link to early deviant behaviours (Kent et al., 2023) and early contact with the criminal justice system (Harford et al., 2016; Richmond-Rakerd et al., 2019). If so, prison-based interventions focussed on processing trauma and increasing educational skills may protect against, or prevent

reoccurring incidences of, dual harm. Therefore, understanding how risk characteristics relate to each other is crucial to understand the distinct nuances of the group.

In summary, research indicates that as a group, people who dual harm are inherently different and have unique histories, psychopathologies and risk characteristics. However, no research has explored how these characteristics relate to each other, and whether they can distinguish young adults who dual harm in prison from those who sole harm (i.e., engage in self-harm or violence) and those who do not engage in either harmful behaviour. By doing so, this study is the first to solely explore dual harm among young adults in prison, and thus bridge the gap between research conducted with community adolescents and that conducted with adults (21+) in prison. This study will therefore provide greater context and understanding regarding the development of dual harm to support and inform interventions.

The Present Study

This study aims to test the current model of dual harm outlined above and will utilise 5 years' worth of routinely collected secondary data from His Majesty's Prison and Probation Service (HMPPS), concerning 18-21-year-old men imprisoned in England and Wales. Specifically, this study will:

1. Ascertain the prevalence of dual harm by young adult men imprisoned in England and Wales.
2. Identify the likelihood of engaging in dual harm among those who exhibit one sole-harming behaviour (either self-harm or violence).
3. Explore the unique relationships between a range of factors (categorised into demographic, developmental, criminological, and clinical) across young adult men who exhibit different types of harm in prison (dual harm, sole violence, sole self-harm, and those who do not

exhibit either harmful behaviour) and explore differences between groups using a partial correlation network.

4. Confirm, using a hold-out sample, which factors successfully distinguish young adult men who dual harm in prison from those who engage in sole self-harm, sole violence, and those who do not exhibit either harmful behaviour.

Method

Ethics

A favourable opinion for the research was obtained from HMPPS National Research Committee and Nottingham Trent University's College Research Ethics Committee.

Study Population

This study analysed the records of 20,403 18-21-year-old men imprisoned in England and Wales between 01 January 2014 and 31 December 2019 with a completed layer three Offender Assessment System (see 'Data Sources' section for more information). Dates excluded the COVID-19 pandemic during which people in prison were confined to their cells for approximately 22.5 hours a day, likely driving a decline in violence (HMIP, 2021b). Around 47% of all young adults in prison between the dates specified ($N= 43,515$) had the assessment of interest completed. A small number (likely <50) of high-profile individuals were excluded due to their data being suppressed from records. An unknown number of individuals whose assessment data could not be linked to a prison identification number were deleted by data controllers in HMPPS. With such cases, it remains unknown whether individuals did not have the relevant assessment completed, or whether they did but data controllers were unable to match it to a prison identification number. Females were not included in the current study due to the lower prevalence rate of dual harm by females in

prison (2.6%; Kottler et al., 2018), paired with the small number (<100) of 18–21-year-old females imprisoned in England and Wales (MoJ, 2024).

Data Sources

Data were sought from the Prison National Offender Management Information System (p-NOMIS) and the Offender Assessment System (OASys).

p-NOMIS is an operational database used in prisons in England and Wales to document a person's demographic and offence-related information, as well as their behaviours and movements in prison. This study utilised the 'Deliberate Self-Harm Report' and the 'Incident Involvement Report' which prison staff complete following an incident of self-harm or violence, respectively. OASys is a risk assessment and management system used by prison and probation services in England and Wales. It is considered a semi-structured professional tool which supports professionals to identify areas of risk and need and is used to support other risk assessment tools (Moore, 2015). OASys assessments are completed via an interview between a person in prison and an OASys assessor, usually within eight weeks of a person entering prison (HMPPS, 2015a). For this study, data from OASys layer three assessments¹ were used to capture various factors pertaining to a person's life, which the researcher categorised into demographic, developmental, criminological, and clinical variables.

The HMPPS Prison and Probation Analytical Services Team extracted and matched the p-NOMIS and OASys data prior to the data share. As per the OASys scoring, data were predominantly coded as either binary (e.g., present or absent history) or categorical (e.g., 0-

¹ A layer three assessment contains all OASys sections, including an offence analysis, criminogenic needs, a risk management plan and a sentence plan. Criminogenic needs relating to a person's offending behaviours are assessed, including accommodation, education, training and employability, relationships and substance misuse.

no problems, 1- some problems, 2-severe problem). Age first admitted to custody was a continuous variable.

Variables of Interest

Variables of interest were extracted from an individual's first completed OASys layer three assessment upon entry to prison. If multiple OASys layer three assessments existed for an individual, the earliest record (i.e., that closest to the date of admission to prison) was selected (for more information on an OASys, and the variables listed below, see OASys Manual, 2002).

Demographic: Current relationship status (*in a relationship living together, in a relationship not living together, not in a relationship*), current educational or vocational qualifications at or above GCSE level (*some qualifications, no qualifications*), current accommodation status (*stable/permanent housing, no fixed abode*), ethnicity (*White, Black, Asian, Mixed, other*), and primary offence category (*violence, drug, property, sexual, other*).

Developmental: Current problems with reading, writing or numeracy skills (*no revealed deficits or difficulties, reasonably confident in abilities with some problems impact day-to-day life, problems in any of these areas*), a history of learning difficulties (*no evidence of learning difficulties, mild learning difficulties, severe learning difficulties*), previous problematic childhood relationships (*stable and satisfying relationships during childhood, short-term fostering during childhood, inconsistent care, neglect or abuse*), and previous problems with school attendance (*no disruption to education, taunted occasionally, were excluded, expelled or did not attend school for long periods*).

Criminological: Age first in contact with the police, and age at first conviction (*18+, age 14-17 years, younger than 14*), age first admitted to custody (*ranged from 12 to 20 years*), number of convictions both under and over the age of 18 (*0, 1-2, 3+ convictions*), and

time in custody aged 18-21 (*less than 1 month, 1-6 months, 6-12 months, 1-2 years, 2-3 years*).

Clinical: Current problems with coping (*feels able to cope with day-to-day life, poor concentration or upset for no known reason, unable to cope with day-to-day life*), problem-solving skills (*recognises and works through problems effectively, recognises the need to solve problems, albeit struggles to do so, uses aggression to solve problems*), psychological problems/depression (*no recorded history of depression, unknown duration of documented psychological problems, documented, prolonged history of depression*), psychiatric problems (*no evidence of diagnosed psychiatric problem, has been recommended for psychiatric assessment, documented psychiatric problems over prolonged periods*), and a history of aggressive/controlling behaviour (*no evidence that violence has been used to control others, does not consistently use violence in their offences or lifestyle, prolonged history of aggression and violence*). A history of self-harm, attempted suicide, suicidal thoughts or feelings (*no previous acts or thoughts or harm to self, previous acts of thoughts of harm to self*), and previous drug misuse (*no evidence of drug misuse, previous drug misuse*).

Classification of Harm

This was extracted from p-NOMIS and categorised into four groups based on reported behaviours during any custodial sentence served as an 18-21-year-old, between the dates specified.

Sole Self-Harm: At least one self-harm incident recorded in prison (e.g., cutting/scratching), irrespective of intent, method, or the severity of the injury, but no violent incidents.

Sole Violence: At least one violent incident recorded in prison (e.g., assault), in which the individual was classified as a 'Fighter' or 'Perpetrator', but no self-harm incidents.

Dual Harm: At least one recorded incident of both self-harm and violence. Individuals did not have to self-harm and be violent during the same custody period.

No Harm: No incidents of either self-harm or violence.

Data Analysis

Descriptive analyses were performed to establish the prevalence of each of the four harm groups and sample characteristics (see Appendix A). In addition to raw prevalence rates, prevalence was adjusted for total years in prison to account for the differential opportunity for incidents to occur. This was achieved by including years in prison aged 18-21 estimated from the mid-point of the coded categories and total n as an offset in a Poisson model (see Baguley, 2012). Logistic regression analyses predicted the risk of violence given that an individual had also self-harmed and vice-versa. Prior to analysis half of the data ($n = 10,202$) was randomly selected for exploratory modelling with the other half retained as a hold-out sample for confirmatory analysis.

A Gaussian Graphical Model (GGM; Epskamp & Fried, 2018) was conducted to explore partial correlations between the demographic, developmental, criminological, and clinical variables for each type of harm group. A partial correlation is the correlation between two variables whilst controlling for all other variables in the model (Bushan et al., 2019; Epskamp et al., 2018). The GGMs were estimated using the *Bayesian Gaussian Graphical Model* (BGGM) package (Williams & Mulder, 2020) in R version 4.1.2. Each variable was depicted as a ‘node’ (a small circle) and partial correlations between nodes were depicted by ‘edges’ (lines between variables indicating the direction and strength of the relationship). Negative partial correlations were depicted by orange lines and positive by green lines, with thicker lines representing stronger partial correlations (Epskamp et al., 2018). The interval

estimates (posterior probability intervals²) were set at 95% and therefore relationships below this threshold were not retained in the plots (Epskamp & Fried, 2018).

Confirmatory analyses were performed using a Multinomial Logistic Regression (MNLr) with the hold-out sample ($n = 10,201$). Variables inputted were those that formed part of a relationship in which: i) the partial correlation coefficient between for the dual harm group was greater than .299 or less than -.299, or ii) the partial correlation coefficient distinguished by more than .250 between the dual harm group and any other group. These cut-off figures ensured that the variables taken forward were either strongly related to dual harm or could potentially distinguish the dual harm group. Although drug misuse was not captured by the figures above, it was included due to being close to the criteria (i.e., distinguished by -.237) and its strong empirical support within the adolescent dual harm literature (Chen et al., 2020; Harford et al., 2012; Harford et al., 2016; Spaan et al., 2022; Swahn et al., 2013). Out of the 20 variables in the GGM, 17 were identified as predictor variables for the confirmatory analyses.

Variables were checked for multicollinearity using the *car* package (Fox & Weisberg, 2019) in R. Number of court convictions under age 18 and age of first conviction had problematic multicollinearity (James et al., 2013), evidenced by a Variance Inflation Factor of 6.9 and 11.1, respectively, and were removed from further analyses, leaving 15 variables. Missing data were observed for between 0.1% and 8.9% of the variables of interest (though not classification of harm variables). A history of learning difficulties and current educational or vocational qualifications at or above GCSE level had the most missing data (8.9% and 8.3% respectively). Data were assumed to be missing at random and thus related to the observed data. Using the *Mice* package in R (van Buuren & Groothuis-Oudshoorn, 2011),

² This is the range of estimates that contain the most probable estimates of the true partial correlation for this model.

multiple imputation procedures ($n = 40$) were used to estimate the missing cases with a predictive mean matching approach. Auxiliary variables (variables of interest listed above which were not carried through to the MNLR) were included in the multiple imputations to improve the accuracy of the imputed missing values (Baguley & Andrews, 2016). MNLR was performed on each imputed dataset, using the *nnet* package in R (Ripley & Venables, 2022). Results from all analyses were pooled to lessen the bias in estimates and improve the overall accuracy of the predicted values (Baguley & Andrews, 2016).

Results

Of the 20,403 young men in the full sample, 12.3% ($n = 2,515$) dual harmed in prison between the dates specified (see Table 1). However, when using total years in prison as an offset, this reduced to 7.8% for each year in prison, which suggests that dual harm prevalence in the prison system is, in some part, elevated by such individuals spending longer in custody as young adults.³ Seventy six percent of young adults who self-harmed in prison had at least one act of violence on record, and 23% of those who were violent in prison also engaged in at least one recorded act of self-harm. The simple correlation between having a history of self-harm and violence in prison was $r(20,401) = .156$, 95% CI [.144, .170]. As this included people who had not harmed in prison, a logistic regression was performed to predict the risk of self-harm given that an individual had engaged in violence and vice versa. People who self-harmed in prison were over three times more likely to be violent $OR = 3.20$, 95% CI [2.94, 3.49], $p < .001$. As odds ratio statistics strip out the incident base rates, this is the same as predicting violence from self-harm (Baguley, 2012).

³ Note that the unadjusted statistic represents the overall prevalence of dual harm in young men within the prison system and in a sense the total impact of dual harm for this age group. The adjusted figure separates out the prevalence from the increased opportunity to present, given that dual harm is also associated with greater time in custody.

[Insert Table 1 here]

Unique bivariate associations

A GGM estimates partial correlations representing the unique association between each pair of variables in the network after partialing out contribution from the remaining variables. Ethnicity and offence category were left out to simplify interpretation (given the additional complexity of the network from including unordered categories with multiple dummy codes) and given the *a priori* decision that they would be included in confirmatory analyses. The full partial correlations table for all relationships can be found in Appendix B. GGM plots can be used as an exploratory tool to identify emerging patterns in inter-correlated data, though results should be interpreted with caution. Relationships in which the 95% posterior probability interval includes zero are not depicted. Negative partial correlations are orange, positive are green, and thicker lines represent stronger partial correlations. Figures 1, 2, 3 and 4 depict the GGM network plots for the dual harm, sole self-harm, sole violence, and no harm groups, respectively.

[Insert Figure 1 here]

[Insert Figure 2 here]

[Insert Figure 3 here]

[Insert Figure 4 here]

The presentation here will focus on the general pattern and the strongest unique associations (with all associations set out in Appendix B). This will be followed by a summary of the key absolute differences (i.e., in which the partial correlations differed the most, rather than statistical differences) between the dual harm and the other groups.

Similarities between all four group networks

For all groups, court convictions under 18 was strongly associated with a younger age of first conviction (r_p across groups ranged from .668 to .877), which was subsequently associated with age first in contact with the police (r_p across groups ranged from .648 to .752). Not surprisingly, the younger an individual was first in contact with the police, the younger they were when first convicted, which was associated with more court appearances under 18. Moreover, for all groups, age first admitted to custody had a negative association with time in custody aged 18-21 (r_p across groups ranged from -.242 to -.369). That is, the younger an individual was admitted to custody, the longer they spent in prison aged 18-21.

For clinical variables, current psychological problems had a moderate positive relationship with difficulties coping (r_p across groups ranged from .439 to .517) and current psychiatric problems (r_p across groups ranged from .421 to .502) across all four groups. Therefore, as the severity of self-reported psychological problems increased, so did the severity of psychiatric problems and difficulties with coping. Lastly, problems with learning difficulties was positively associated with impaired reading, writing and numeracy skills for all groups (r_p across groups ranged from .527 to .636).

Differences between the dual harm and sole self-harm groups

The sole harm group had a sparser network characterised by some strong unique associations (though the sparsity is likely also linked to the smaller sample size). The sole self-harm group ($r_p = .401$) had a much stronger unique association between court convictions under 18 and court convictions over 18 than the dual harm group ($r_p = .069$). The sole self-harm group also had strong negative associations between both age first in contact with the police and court convictions under 18 ($r_p = -.440$), as well as age of first conviction and court convictions over 18 ($r_p = -.398$) compared to the dual harm group ($r_p = -.031$ and $r_p = -.066$ respectively). Perhaps the most interesting difference is that court convictions under 18 had a

unique positive association with having a history of self-harm or suicidal thoughts or behaviours for the dual harm group ($r_p = .135$) but a negative association for the sole self-harm group ($r_p = -.301$). In addition, previous drug misuse had a stronger positive relationship with having a history of self-harm or suicidal thoughts or behaviours for the dual harm group ($r_p = .245$) than the sole self-harm group ($r_p = .035$).

Differences between the dual harm and sole violent groups

The sole violence group showed broadly a more visually similar pattern to the dual harm than the sole harm group, but with sparser links (despite larger n). Age first in contact with the police and number of court convictions under 18 showed a negative association that was stronger for the sole violence group ($r_p = -.212$) than the dual harm group ($r_p = -.031$). Previous drug misuse had a stronger positive relationship with having a history of self-harm or suicidal thoughts or behaviours for the dual harm group ($r_p = .245$) than the sole violence group ($r_p = .060$) who like the sole self-harm group showed minimal evidence of a unique link. Problems with reading, writing and numeracy also had a stronger unique positive relationship with age first in contact with the police for the dual harm group ($r_p = .188$) than the sole violence group ($r_p = .018$).

Differences between the dual harm and the no harm group

The no harm group looked similar in pattern to dual harm and sole violence and dissimilar from sole harm. However, age first in contact with the police had a stronger negative relationship with court convictions under 18 for the no harm group ($r_p = -.233$) than the dual harm group ($r_p = -.031$). This was similar to the sole violence group but less strong than the sole self-harm group. Age first in contact with the police was positively related to time spent in custody aged 18-21 for the dual harm group ($r_p = .214$) but was not uniquely related for the no harm group ($r_p = -.039$). Problems with childhood relationships had a

positive unique relationship with court convictions under 18 for the dual harm group ($r_p = .201$) but almost no association for the no harm group ($r_p = -.002$).

Predicting harm classification using multinomial logistic regression

MNLR analyses compared all groups on a total of 15 demographic, developmental, criminological and clinical variables. As demonstrated in Table 2, the MLR identified that the dual harm group could be distinguished from those who engaged in sole self-harm, sole violence and those who did not engage in either harmful behaviour.

Distinguishing dual harm from all other groups

Age first in contact with the police, age first admitted to custody, time in prison aged 18-21 and current qualification status successfully distinguished the dual harm group from all other three groups. The younger an individual was first in contact with the police and admitted to custody, the more likely they were to be classified within the dual harm group compared to all other groups (vs sole violence: $OR = 1.19$, 95% CI [1.06, 1.33], $p = .002$ and $OR = 1.19$, 95% CI [1.11, 1.27], $p < .001$, vs sole self-harm: $OR = 1.32$, 95% CI [1.11, 1.56], $p = .002$ and $OR = 1.36$, 95% CI [1.21, 1.54], $p < .001$, vs no harm: $OR = 1.41$, 95% CI [1.25, 1.59], $p < .001$ and $OR = 1.58$, 95% CI [1.46, 1.71], $p < .001$, respectively). Similarly, the longer an individual spent in custody aged 18-21, the more likely they were to be classified in the dual harm group (vs sole violence: $OR = 1.27$, 95% CI [1.18, 1.37], $p = .002$, vs sole self-harm: $OR = 1.69$, 95% CI [1.52, 1.92], $p = .002$, vs no harm: $OR = 2.78$, 95% CI [2.56, 3.03], $p < .001$). Lastly, the fewer qualifications an individual had, the more likely they were to be classified within the dual harm group (vs sole violence: $OR = 1.39$, 95% CI [1.19, 1.61], $p < .001$, vs sole self-harm: $OR = 1.30$, 95% CI [1.00, 1.69], $p = .046$, vs no harm: $OR = 1.52$, 95% CI [1.28, 1.79], $p < .001$).

Distinguishing dual harm from both sole harm groups

The dual harm group were significantly more likely to have a history of previous self-harm or suicidal thoughts or behaviours than the sole violence ($OR = 2.78$, 95% CI [2.38, 3.33], $p < .001$) and no harm group ($OR = 2.33$, 95% CI [1.92, 2.78], $p < .001$). However, they were less likely to report this history than the sole self-harm group ($OR = 0.71$, 95% CI [.56, .94], $p = .017$).

Distinguishing dual harm from one sole harm group

The dual harm group were less likely to be from the Black, Asian or Mixed ethnic groups than those in the sole violence group (Black ethnic group: $OR = 0.34$, 95% CI [.17, .66], $p < .001$, Asian ethnic group: $OR = 0.46$, 95% CI [.22, .93], $p = .032$), Mixed ethnic group: $OR = 0.46$, 95% CI [.23, .93], $p = .032$). Moreover, the dual harm group were more likely to have a sexual-related offence than those who were solely violent ($OR = 2.04$, 95% CI [1.45, 2.86], $p < .001$).

Regarding clinical variables, compared to those who were solely violent or did not engage in either harmful behaviour, those who dual harmed in prison had more severe difficulties with coping (vs sole violence: $OR = 1.32$, 95% CI [1.14, 1.49], $p < .001$, vs no harm: $OR = 1.27$, 95% CI [1.10, 1.47], $p = .002$) and psychological problems (vs sole violence: $OR = 1.23$, 95% CI [1.06, 1.45], $p = .005$, vs no harm: $OR = 1.39$, 95% CI [1.19, 1.64], $p < .001$). However, the dual harm group had less difficulties with psychiatric problems ($OR = 0.78$, 95% CI [.63, .97], $p = .029$) but were more likely to report previous drug misuse ($OR = 1.54$, 95% CI [1.11, 2.13], $p = .012$) than the sole self-harm group.

[Insert Table 2 here]

Discussion

This nationally representative study, which includes data from over 20,000 young men imprisoned in England and Wales, aimed to explore prevalence, unique relationships, and

distinguishing factors of, dual harm. This study is the first to identify how demographic, developmental, criminological and clinical risk factors relate to each other in the trajectory to dual harm, and how such factors distinguish between young adults who do, and do not, dual harm in prison. These findings can assist with the development of early identification and prevention strategies and ultimately keep prisons safer.

The prevalence of dual harm by young men in prison was 12.3%. This resembles that found in adult male prisons (Slade, 2018; Slade et al., 2020), though is substantially higher than rates of dual harm by adolescents and young adults in the community (Chen et al., 2020; Harford et al., 2012; Harford et al., 2016; Richmond-Rakerd et al., 2018; Steeg et al., 2023). Young men evidenced around half the prevalence of sole self-harm (3.9%), but double that of sole violence (41.2%) than adult men in an English prison (Slade et al., 2020). This higher base rate of violence may explain why over 75% of young men who self-harmed in prison had at least one act of violence recorded. This is up to 37% greater than that reported among adult men in English and US prisons (Slade, 2018; Slade et al., 2022; Slade et al., 2020), and up to 40% greater than that recorded among adolescents and young adults in the community (Chen et al., 2020; Harford et al., 2012; Richmond-Rakerd et al., 2018; Spaan et al., 2022). Therefore, the profile of harmful behaviours exhibited by young adults in prison differs to that of adults aged 21+, and as such, age-appropriate, tailored interventions should be developed. For example, reflecting the high base rates of violence among this population, it may be that existing interventions to reduce prison violence should target factors related to dual harm to identify those at risk of escalation. This coincides with evidence calling for cross-risk, single case management strategies and interventions to address self-harm and violence as interrelated concerns (Pickering et al., 2022; Slade, 2019).

The current study found that young adults who dual harm in prison have distinct criminological trajectories and markers. Such individuals were younger (age 14-17) when

first in contact with the police and first admitted to custody and spent longer in custody as a young adult than those who did not dual harm in prison. Moreover, early police contact was more strongly related to future court convictions and time spent in prison for those who dual harmed. These findings align with previous research (Steeg et al., 2019) and suggest that people who dual harm in prison have early contact with the criminal justice system and more chronic offending histories. As such, police contact or early interventions, such as diversion services which have been found to reduce reoffending among young people (Wilson et al., 2018), may not meet the complex needs of people who go on to dual harm in prison. Diversion services, and other interventions to disrupt the pathway to early criminality, should be reviewed to establish whether they meet these complex needs, and should aim to reduce the risk of dual harm.

Criminological markers were related to educational skills for those who dual harmed. Specifically, having fewer core educational skills was more strongly related to early police contact for those who dual harmed compared to their sole-harming counterparts. However, those who dual harmed were no more likely to report problems with reading, writing, numeracy, or learning difficulties, but were more likely to have fewer qualifications, than those who did not dual harm. Therefore, whilst research suggests that dual harm populations score lower on childhood IQ tests and achieve lower grades during high school (Chen et al., 2020; Richmond-Rakerd et al., 2019; Steinhoff et al., 2022), this is likely not due to them having inherent learning or educational difficulties. Instead, it could signify poor school engagement. Indeed, dual harm has been associated with emotional and behavioural problems during adolescence (Spaan et al., 2022), which may prevent a youth from going to or engaging with school, potentially leading to low school bonding (Steinhoff et al., 2022), which could in turn increase risk of early police contact. This is in keeping with the ‘school to prison pipeline’, which details the association between school exclusion and young

criminality (see Kent et al., 2023). Therefore, education providers should offer enhanced support for children and adolescents demonstrating problematic behaviours in school, particularly tailored around factors linked to dual harm, such as behavioural and emotional development (Richmond-Rakerd et al., 2019).

Clinically, there were mixed findings about whether those who dual harm differed, or were similar, to those who did not dual harm. Individually, those who dual harmed were only more likely to report previous drug misuse than those who were not violent (sole self-harm and no harm groups). This is in keeping with Spaan et al.'s (2022) research which utilised a similarly broad measurement of drug misuse. As such, it may be that more specific measurement criteria (i.e., see Harford et al., 2016) is needed to determine whether previous drug misuse can fully distinguish young adults who dual harm in prison. Moreover, previous drug misuse was more strongly related to previous harm to self for those who dual harmed, than those who sole harmed. Self-harm, violence and substance misuse are all considered experiential avoidance behaviours exhibited to avoid or escape unwanted thoughts, memories, or emotions, typically by people with poor emotion regulation abilities (Chapman et al., 2006; Gardner & Moore, 2008; Hayes et al., 1996). Therefore, people who dual harm may experience more severe deficits in emotion regulation (Richmond-Rakerd et al., 2019) and utilise several avoidant behaviours. However, those who dual harmed were less likely to report a history of self-harm or suicidal thoughts or behaviours than those who solely self-harmed. Whilst it may be that such individuals did not wish to disclose such behaviours, it may also suggest that young adults who dual harm are more likely to self-harm for the first time in prison. For instance, they may self-harm to self-regulate (Pickering et al., 2022) or to communicate anger in a form that is not met with prison punishments (Harvey, 2007; Power et al., 2016). This supports the need to integrate coping skills and emotional regulation into

prison interventions to address dual harm, and to work with people who sole harm to prevent them engaging in the second behaviour.

Lastly, problematic childhood relationships were associated with having more court convictions by age 18 for those who dual harmed, compared to those who did not harm in prison. People who dual harmed were also more likely to report problematic childhood relationships than those who did not harm, but not those who sole-harmed. This contradicts research which has shown that ACEs increase risk of dual harm compared to sole harm among community populations (Carr et al., 2020; Chen et al., 2020; Richmond-Rakerd et al., 2019; Spann et al., 2022). Although the relevant item in the OASys includes physical, sexual, or emotional abuse and neglect, it also captures a lack of family ties and continuity of parental care. Therefore, the item may gauge a broader measure of ACEs than previous research, or alternatively, ACEs may not distinguish this group due to being overrepresented among prison populations (Ford et al., 2020). Nonetheless, as problematic childhood relationships were linked to early and repeated criminality for those who dual harm, justice sectors should ensure that their services approach working with people who engage in early criminality from a trauma-informed perspective.

This study was the first to utilise nationally representative prison data to explore dual harm solely by young adults in prison, bridging the gap between research conducted with community adolescents who dual harm, and adults who do so in prison. By doing so, it has offered a means to understand a more thorough trajectory of dual harm which includes a combination of demographic, developmental, criminological and clinical factors, and should be incorporated into theoretical frameworks. Such factors should also inform the development of a needs-based assessment used to highlight dual-harm related needs or risks. As transition points are considered a point of risk for justice-involved young people (Davies et al., 2023), this assessment should be completed on entry to prison or populated using the

first OASys assessment. This would allow for an upstream, preventative strategy to prioritise and allocate targeted interventions (e.g., existing offender behaviour programmes targeting behavioural and emotional regulation) to disrupt the pathway to dual harm in prison, which could work in conjunction to other reactive strategies (e.g., see Smith et al., 2024).

Limitations and future research

Whilst this study utilised representative national data to explore dual harm, its limitations should be noted. OASys assessments are predominantly conducted for people serving long or indeterminate sentences, and those convicted for sexual or violent crimes (HMPPS, 2015; MoJ, 2018). Therefore, findings can only be generalised to men considered medium to high risk and likely excludes those serving shorter prison sentences (MoJ, 2018). Consequently, the factors unique to men who dual harmed in this study may differ to those which distinguish lower risk men who dual harm in prison (who do not have a layer three OASys assessment). Nonetheless, the current study represents over 20,000 young men with a diverse range of offences and risks. Future research should investigate whether the differentiating variables in this study distinguish other young male samples, such as those considered at low risk of reoffending. This could be utilised to inform broader early identification and intervention strategies across the young adult estate.

An OASys assessment is a semi-structured assessment based on self-report data from people in prison, their file information, and an assessor's (a trained member of prison or probation staff) professional judgement. Though judgments may differ between assessors, research has shown moderate inter-rater reliability (Debidin, 2009) and a high level of quality assurance (Moore, 2015). Despite this rigour, people who dual harm are adaptive to their environments (Pickering et al., 2022) and may conceal vulnerabilities or difficulties (e.g., educational difficulties). Moreover, the incidents of self-harm and violence ascertained only

include witnessed acts or those made apparent to prison staff. As such, the findings do not capture individuals whose self-harm or violence goes undetected in the prison. Last, the study used cross-sectional data and therefore causal inferences cannot be made. As such, future research should employ longitudinal methods to investigate whether the associations identified in this study are causal in nature.

Conclusion

This is the first national study to investigate dual harm among 20,403 young men in English and Welsh prisons. It has confirmed that dual harm by young adults in prison is prevalent, that there are unique relationships between factors specific to dual harm, and that this group can be distinguished using routinely collected HMPPS data. Specifically, early and prolonged contact with the criminal justice system, fewer qualifications, problematic childhood relationships, and a link between drug misuse and self-harm were all relevant to those who dual harmed. These should inform an assessment for young men on entry to prison to identify their needs and prioritise interventions to help prevent dual harm in prison.

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Appendices

Appendix A: Descriptive statistics and sample characteristics for each variable, across groupings*

OASys Layer 3 variable		Overall N=20,403 % (n)	Dual harm N=2,515 % (n)	Sole self-harm N=801 % (n)	Sole violence N=8,463 % (n)	No harm N=8,624 % (n)
Ethnicity	White	67.73 (13,818)	83.58 (2,102)	91.76 (735)	52.31 (4,427)	76.00 (6,554)
	Black	16.24 (3,313)	7.20 (181)	1.37 (11)	26.88 (2,275)	9.81 (846)
	Asian	8.15 (1,662)	3.66 (92)	4.00 (32)	9.46 (801)	8.54 (737)
	Mixed	6.43 (1,312)	4.73 (119)	2.25 (18)	9.52 (806)	4.28 (369)
	Other	1.33 (272)	0.84 (21)	0.62 (5)	1.67 (141)	1.22 (105)
Primary offence category	Violence	46.09 (9,403)	48.23 (1,213)	42.07 (337)	50.43 (4,268)	41.57 (3,585)
	Drug	13.69 (2,794)	5.53 (139)	4.74 (38)	16.20 (1,371)	14.45 (1,246)
	Property	19.80 (4,040)	25.33 (637)	23.85 (191)	17.97 (1,521)	19.61 (1,691)
	Sexual	6.20 (1,266)	10.34 (260)	16.35 (131)	3.67 (311)	6.54 (564)
	Other	14.16 (2,890)	10.54 (265)	12.98 (104)	11.67 (988)	17.78 (1,533)
Time spent in custody between ages 18-21	Less than 1 month	4.17 (850)	0.52 (13)	2.75 (22)	0.82 (69)	8.65 (746)
	1-6 months	27.25 (5,560)	9.42 (237)	29.84 (239)	14.66 (1,241)	44.56 (3,843)
	6-12 months	23.59 (4,813)	17.53 (441)	26.34 (211)	24.01 (2,032)	24.69 (2,129)
	1-2 years	29.15 (5,947)	39.96 (1,005)	31.59 (253)	38.07 (3,222)	17.01 (1,467)
	2-3 years	15.85 (3,233)	32.56 (819)	9.49 (76)	22.44 (1,899)	5.09 (439)
Number of court appearances at which convicted aged under 18 years	0	35.18 (7,159)	20.12 (506)	39.58 (317)	27.08 (2,292)	46.89 (4,044)
	1-2	23.26 (4,733)	16.30 (410)	21.22 (170)	24.53 (2,076)	24.08 (2,077)
	3+	41.57 (8,459)	60.00 (1,509)	38.95 (312)	48.12 (4,072)	28.81 (2,485)
Number of court appearances at which convicted aged 18 and over	0	58.65 (11,935)	56.86 (1,430)	58.80 (471)	58.99 (4,992)	58.46 (5,042)
	1-2	29.42 (5,986)	28.43 (715)	27.09 (217)	29.08 (2,461)	30.07 (2,593)
	3+	11.94 (2,429)	14.31 (360)	13.86 (111)	11.66 (987)	11.26 (971)
Age at first conviction	18+	33.43 (6,804)	18.21 (458)	37.70 (302)	25.35 (2,145)	45.21 (3,899)
	14-17	51.11 (10,401)	54.12 (1,361)	47.07 (377)	56.98 (4,822)	44.54 (3,841)
	Under 14	15.46 (3,146)	27.28 (686)	14.98 (120)	17.39 (1,472)	10.06 (868)
Age first in contact with police: first recorded caution, reprimand or final warning	18+	23.36 (4,754)	12.09 (304)	25.22 (202)	17.51 (1,482)	32.07 (2,766)
	14-17	46.37 (9,437)	42.31 (1,064)	45.19 (362)	51.09 (4,324)	42.75 (3,687)
	Under 14	30.28 (6,162)	45.29 (1,139)	29.34 (235)	31.12 (2,634)	24.98 (2,154)
Difficulties coping	No problems	55.73 (11,370)	29.42 (740)	27.22 (218)	60.77 (5,143)	61.10 (5,269)
	Some problems	34.79 (7,098)	46.56 (1,171)	46.32 (371)	32.60 (2,759)	32.43 (2,797)
	Significant problems	9.48 (1,934)	23.98 (603)	26.47 (212)	6.63 (561)	6.47 (558)
Current psychological problems/depression	No problems	68.51 (13,978)	43.18 (1,086)	36.08 (289)	74.54 (6,308)	72.99 (6,295)
	Some problems	25.79 (5,263)	41.51 (1,044)	46.19 (370)	21.78 (1,843)	23.26 (2,006)
	Significant problems	5.69 (1,161)	15.27 (384)	17.73 (142)	3.69 (312)	3.75 (323)
Self-harm, attempted suicide, suicidal thoughts or feelings	No	77.13 (15,737)	49.18 (1,237)	38.70 (310)	84.83 (7,179)	81.30 (7,011)
	Yes	22.87 (4,665)	50.78 (1,277)	61.30 (491)	15.17 (1,284)	18.70 (1,613)

OASys Layer 3 variable		Overall N=20,403 % (n)	Dual harm N=2,515 % (n)	Sole self-harm N=801 % (n)	Sole violence N=8,463 % (n)	No harm N=8,624 % (n)
Current psychiatric problems	No problems	86.44 (17,636)	70.10 (1,763)	66.54 (533)	89.80 (7,600)	89.75 (7,740)
	Some problems	11.24 (2,293)	24.65 (620)	23.60 (189)	8.61 (729)	8.75 (755)
	Significant problems	2.32 (473)	5.21 (131)	9.86 (79)	1.58 (134)	1.50 (129)
Aggressive/controlling behaviour	No problems	36.02 (7,168)	19.32 (486)	32.08 (257)	30.01 (2,540)	45.05 (3,885)
	Some problems	39.06 (7,773)	40.64 (1,022)	36.83 (295)	39.81 (3,369)	35.80 (3,087)
	Significant problems	24.93 (4,961)	37.85 (952)	28.09 (225)	27.76 (2,349)	16.64 (1,435)
Problem solving skills	No problems	9.61 (1,960)	4.45 (112)	7.24 (58)	7.63 (646)	13.27 (1,144)
	Some problems	51.76 (10,560)	40.36 (1,015)	45.94 (368)	49.89 (4,222)	57.46 (4,955)
	Significant problems	38.63 (7,882)	55.15 (1,387)	46.82 (375)	42.48 (3,595)	29.28 (2,525)
Currently of no fixed abode or in transient accommodation	No	77.35 (15,780)	61.15 (1,538)	73.91 (592)	76.16 (6,445)	83.55 (7,205)
	Yes	21.60 (4,407)	37.97 (955)	24.97 (200)	22.72 (1,923)	15.41 (1,329)
School attendance	No problems	35.80 (6,946)	15.39 (387)	28.21 (226)	30.36 (2,569)	43.65 (3,764)
	Some problems	32.25 (6,257)	32.68 (822)	31.71 (254)	32.00 (2,708)	28.68 (2,473)
	Significant problems	29.16 (5,657)	44.85 (1,128)	30.71 (246)	30.53 (2,584)	19.70 (1,699)
Has problems with reading, writing or numeracy	No problems	70.13 (14,308)	53.68 (1,350)	60.42 (484)	71.92 (6,087)	74.06 (6,387)
	Some problems	21.75 (4,438)	33.20 (835)	26.84 (215)	20.64 (1,747)	19.03 (1,641)
	Significant problems	4.98 (1,017)	9.22 (232)	8.61 (69)	4.43 (375)	3.95 (341)
Any educational or formal professional/vocational qualifications	Any qualifications	64.02 (12,315)	47.08 (1,184)	54.81 (439)	60.40 (5,112)	64.70 (5,580)
	No qualifications	33.25 (6,396)	44.93 (1,130)	34.96 (280)	31.76 (2,688)	26.65 (2,298)
Learning difficulties	No problems	80.66 (15,363)	62.39 (1,569)	66.17 (530)	77.01 (6,517)	78.24 (6,747)
	Some problems	13.49 (2,570)	20.48 (515)	18.48 (148)	11.51 (974)	10.82 (933)
	Significant problems	3.46 (659)	6.92 (174)	4.62 (37)	3.12 (264)	2.13 (184)
Childhood relationships	No problems	38.84 (7,925)	17.50 (440)	25.34 (203)	36.81 (3,115)	48.32 (4,167)
	Some problems	32.87 (6,706)	33.52 (843)	30.46 (244)	34.56 (2,925)	31.24 (2,694)
	Significant problems	25.44 (5,191)	46.64 (1,173)	41.32 (331)	25.84 (2,187)	17.39 (1,500)
Current relationship status	In a relationship	5.37 (1,081)	5.21 (131)	7.99 (64)	3.73 (316)	6.61 (570)
	Living together					
	In a relationship not living together	25.74 (5,186)	24.61 (619)	22.47 (180)	24.58 (2,080)	26.75 (2,307)
	Not in a relationship	68.90 (13,882)	69.22 (1,741)	68.66 (550)	70.51 (5,967)	65.21 (5,624)
Drugs ever misused (in custody or community)	No	21.13 (4,311)	11.17 (281)	19.73 (158)	18.06 (1,528)	27.18 (2,344)
	Yes	78.87 (16,091)	88.79 (2,233)	80.27 (643)	81.94 (6,935)	72.82 (6,280)
Age first admitted to custody		18.41 (1.11)	17.85 (1.10)	18.55 (0.92)	18.14 (1.11)	18.83 (0.98)

*Some percentages may not calculate to 100% due to missing data.

Appendix B: Partial correlation coefficients for all relationships in the Gaussian Graphical Model

Relationship	Dual harm Partial r	Dual harm 95% CrI	Violence Partial r	Violence 95% CrI	Self-harm Partial r	Self-harm 95% CrI	No harm Partial r	No harm 95% CrI
First custody age - court convictions under 18	-.277	[-.399, .153]	-.125	[-.204, -.050]	-.209	[-.521, .128]	-.147	[-.245, -.065]
First custody age - court convictions over 18	.125	[.039, .191]	.251	[.207, .292]	.178	[-.081, .406]	.245	[.193, .295]
Court convictions under 18 - court convictions over 18	.069	[-.062, .204]	.091	[.026, .155]	.401	[.069, .713]	.133	[.064, .205]
First custody age - age first conviction	-.006	[-.148, .135]	-.082	[-.159, -.008]	.096	[-.242, .449]	-.008	[-.094, .080]
Court convictions under 18 - age first conviction	.668	[.588, .746]	.719	[.679, .757]	.877	[.786, .952]	.811	[.783, .840]
Court convictions over 18 - age first conviction	-.066	[-.221, .066]	-.035	[-.115, .040]	-.398	[-.728, -.048]	-.054	[-.140, .025]
First custody age - age first contact w/police	.126	[.008, .234]	.157	[.074, .222]	-.016	[-.352, .253]	.083	[.014, .145]
Court convictions under 18 - age first contact w/police	-.031	[-.223, .124]	-.212	[-.292, -.114]	-.440	[-.761, -.122]	-.233	[-.318, -.122]
Court convictions over 18 - age first contact w/police	.072	[-.048, .201]	.028	[-.037, .096]	.275	[.028, .594]	.032	[-.031, .097]
Age first conviction - age first contact w/police	.648	[.553, .748]	.732	[.682, .770]	.752	[.538, .902]	.659	[.586, .716]
First custody age - time in custody	-.369	[-.460, -.265]	-.306	[-.382, -.221]	-.242	[-.396, -.060]	-.255	[-.334, -.151]
Court convictions under 18 - time in custody	-.098	[-.241, .044]	.033	[-.040, .107]	.011	[-.316, .373]	-.076	[-.155, .006]
Court convictions over 18 - time in custody	-.080	[-.157, .001]	-.036	[-.082, .006]	-.152	[-.384, .095]	-.072	[-.113, -.029]
Age first conviction - time in custody	-.070	[-.231, .083]	-.050	[-.126, .016]	-.014	[-.395, .322]	.079	[-.017, .160]
Age first contact w/police - time in custody	.214	[.089, .337]	.083	[.014, .145]	.077	[-.206, .411]	-.039	[-.105, .028]
First custody age - difficulties coping	-.104	[-.206, -.005]	-.011	[-.068, .044]	-.011	[-.234, .208]	-.055	[-.116, -.002]
Court convictions under 18 - difficulties coping	-.144	[-.287, .011]	-.047	[-.142, .038]	.129	[-.220, .495]	-.035	[-.145, .074]
Court convictions over 18 - difficulties coping	-.045	[-.145, .046]	-.077	[-.139, -.019]	.147	[-.407, .101]	.000	[-.062, .062]
Age first conviction - difficulties coping	.082	[-.080, .244]	.039	[-.058, .151]	-.136	[-.495, .242]	.044	[-.069, .161]
Age first contact w/police - difficulties coping	.015	[-.144, .149]	-.026	[-.121, .057]	.106	[-.206, .399]	-.028	[-.113, .052]
Time in custody - difficulties coping	-.119	[-.208, -.024]	-.011	[-.061, .044]	-.175	[-.374, .016]	-.050	[-.110, .004]
First custody age - current psychological problems	.067	[-.042, .169]	-.030	[-.097, .029]	.152	[-.060, .353]	.085	[.018, .151]
Court convictions under 18 - current psychological problems	-.069	[-.240, .086]	-.105	[-.209, .010]	.117	[-.300, .491]	-.008	[-.122, .123]
Court convictions over 18 - current psychological problems	.025	[-.075, .136]	.028	[-.036, .102]	.030	[-.237, .312]	-.025	[-.092, .049]
Age first conviction - current psychological problems	.057	[-.102, .232]	.098	[-.036, .213]	-.036	[-.435, .377]	-.030	[-.168, .092]
Age first contact w/police - current psychological problems	-.028	[-.171, .119]	-.067	[-.174, .046]	-.040	[-.362, .310]	.001	[-.094, .109]
Time in custody - current psychological problems	.005	[-.112, .096]	-.050	[-.110, .015]	-.058	[-.291, .172]	.036	[-.030, .095]
Difficulties coping - current psychological problems	.479	[.392, .557]	.461	[.396, .524]	.439	[.172, .617]	.517	[.460, .565]
First custody age - sh/suicidal thoughts or attempts	.107	[.005, .208]	.032	[-.035, .103]	-.077	[-.326, .116]	-.021	[-.083, .046]
Court convictions under 18 - sh/suicidal thoughts or attempts	.135	[-.021, .298]	.028	[-.083, .127]	-.301	[-.619, .053]	.008	[-.093, .103]
Court convictions over 18 - sh/suicidal thoughts or attempts	-.011	[-.112, .099]	.028	[-.049, .100]	.088	[-.195, .424]	-.066	[-.129, -.002]
Age first conviction - sh/suicidal thoughts or attempts	-.075	[-.234, .112]	-.101	[-.200, .018]	.221	[-.176, .559]	-.032	[-.149, .086]
Age first contact w/police - sh/suicidal thoughts or attempts	-.055	[-.205, .092]	.133	[.027, .226]	-.089	[-.446, .257]	.007	[-.086, .109]
Time in custody - sh/suicidal thoughts or attempts	.061	[-.038, .171]	-.003	[-.065, .056]	.246	[.021, .458]	-.007	[.061, .053]
Difficulties coping - sh/suicidal thoughts or attempts	.298	[.198, .398]	.261	[.190, .334]	.237	[-.016, .496]	.240	[.171, .306]
Current psychological problems - sh/suicidal thoughts or attempts	.147	[.026, .268]	.156	[.078, .234]	.190	[-.102, .501]	.197	[.118, .280]

Relationship	Dual harm Partial r	Dual harm 95% CrI	Violence Partial r	Violence 95% CrI	Self-harm Partial r	Self-harm 95% CrI	No harm Partial r	No harm 95% CrI
First custody age - current psychiatric problems	-.073	[-.178, .035]	.077	[.002, .158]	-.036	[-.278, .192]	-.036	[-.116, .030]
Court convictions under 18 - current psychiatric problems	-.079	[-.221, .090]	.121	[-.014, .258]	.082	[-.367, .533]	-.056	[-.183, .071]
Court convictions over 18 - current psychiatric problems	-.040	[-.147, .070]	-.014	[-.093, .064]	-.069	[-.382, .211]	.037	[-.037, .120]
Age first conviction - current psychiatric problems	.029	[-.162, .201]	-.108	[-.256, .029]	-.144	[-.559, .301]	.084	[-.048, .218]
Age first contact w/police - current psychiatric problems	.016	[-.151, .187]	.024	[-.103, .155]	.103	[-.241, .469]	-.057	[-.168, .046]
Time in custody - current psychiatric problems	-.055	[-.148, .047]	-.028	[-.106, .042]	-.046	[-.174, .278]	-.087	[-.153, -.016]
Difficulties coping - current psychiatric problems	-.016	[-.130, .094]	.026	[-.064, .113]	.199	[-.086, .446]	.016	[-.069, .110]
Current psychological problems - current psychiatric problems	.492	[.408, .577]	.502	[.431, .567]	.421	[.216, .626]	.483	[.417, .542]
Sh/suicidal thoughts or attempts - current psychiatric problems	.152	[.032, .266]	.141	[.054, .232]	.191	[-.097, .463]	.053	[-.043, .143]
First custody age - aggressive/controlling behaviour	-.021	[-.116, .062]	.014	[-.042, .066]	.047	[-.099, .222]	.006	[-.041, .047]
Court convictions under 18 - aggressive/controlling behaviour	.141	[.006, .265]	.061	[-.011, .129]	.020	[-.376, .408]	.000	[-.074, .080]
Court convictions over 18 - aggressive/controlling behaviour	-.071	[-.164, .014]	-.071	[-.111, -.023]	-.006	[-.249, .267]	-.022	[-.068, .023]
Age first conviction - aggressive/controlling behaviour	-.147	[-.279, -.007]	-.052	[-.134, .033]	.071	[-.363, .468]	.037	[-.056, .120]
Age first contact w/police - aggressive/controlling behaviour	.068	[-.053, .192]	.066	[-.008, .131]	-.137	[-.469, .209]	.002	[.068, .072]
Time in custody - aggressive/controlling behaviour	.109	[.016, .192]	.104	[.057, .145]	-.014	[-.191, .185]	.049	[.005, .089]
Difficulties coping - aggressive/controlling behaviour	.175	[.070, .262]	.124	[.061, .188]	.066	[-.149, .254]	.039	[.019, .103]
Current psychological problems - aggressive/controlling behaviour	.006	[-.101, .122]	-.041	[-.115, .032]	-.080	[-.320, .140]	.041	[-.029, .116]
Sh/suicidal thoughts or attempts - aggressive/controlling behaviour	-.036	[-.147, .069]	-.075	[-.136, -.003]	.086	[-.181, .346]	.038	[-.031, .111]
Current psychiatric problems - aggressive/controlling behaviour	.064	[-.063, .181]	.139	[.059, .228]	.097	[-.135, .323]	-.040	[-.125, .037]
First custody age - problem solving skills	.071	[-.030, .160]	.035	[-.053, .134]	-.055	[-.224, .141]	.064	[-.024, .200]
Court convictions under 18 - problem solving skills	.025	[-.111, .150]	.035	[-.041, .116]	-.178	[-.519, .168]	-.013	[-.095, .073]
Court convictions over 18 - problem solving skills	.036	[-.059, .123]	.050	[-.001, .098]	.032	[-.226, .316]	.068	[.016, .115]
Age first conviction - problem solving skills	.110	[-.039, .254]	-.030	[-.116, .058]	.169	[-.182, .538]	.013	[-.084, .101]
Age first contact w/police - problem solving skills	-.152	[-.275, -.023]	.000	[-.072, .065]	-.113	[-.429, .157]	-.014	[-.083, .048]
Time in custody - problem solving skills	.088	[.004, .168]	.091	[.022, .152]	.015	[-.175, .222]	.130	[.056, .232]
Difficulties coping - problem solving skills	.065	[-.039, .174]	.062	[.000, .122]	.062	[-.168, .339]	.123	[.054, .182]
Current psychological problems - problem solving skills	-.066	[-.176, .043]	.017	[-.056, .095]	.016	[-.203, .264]	-.046	[.112, .025]
Sh/suicidal thoughts or attempts - problem solving skills	-.033	[-.152, .077]	.033	[-.035, .100]	.039	[-.241, .268]	-.016	[-.081, .061]
Current psychiatric problems - problem solving skills	.073	[-.041, .192]	-.088	[-.177, -.003]	-.118	[-.375, .156]	-.024	[-.107, .049]
Aggressive/controlling behaviour - problem solving skills	.280	[.186, .359]	.345	[.299, .386]	.232	[.052, .396]	.207	[.161, .248]
First custody age - drug misuse	-.044	[-.186, .136]	.035	[-.072, .227]	.073	[-.207, .326]	.049	[.036, .157]
Court convictions under 18 - drug misuse	.016	[-.184, .199]	.122	[.038, .211]	-.009	[-.519, .449]	.113	[.031, .206]
Court convictions over 18 - drug misuse	.110	[-.025, .248]	.130	[.077, .188]	.356	[.065, .626]	.058	[-.006, .116]
Age first conviction - drug misuse	.004	[-.251, .202]	-.073	[-.180, .020]	.073	[-.412, .521]	-.060	[-.164, .026]
Age first contact w/police - drug misuse	.156	[-.008, .342]	.095	[.005, .186]	.000	[-.366, .416]	.091	[.004, .177]
Time in custody - drug misuse	-.107	[-.246, .014]	.007	[-.069, .109]	-.039	[-.304, .210]	.046	[-.023, .126]
Difficulties coping - drug misuse	-.058	[-.210, .108]	-.001	[-.073, .076]	.083	[-.242, .378]	-.016	[-.106, .057]
Current psychological problems - drug misuse	-.039	[-.202, .142]	.002	[-.102, .103]	-.189	[-.478, .117]	.054	[-.036, .143]
Sh/suicidal thoughts or attempts - drug misuse	.245	[.100, .369]	.060	[-.032, .153]	.035	[-.300, .375]	.144	[.050, .228]
Current psychiatric problems - drug misuse	-.001	[-.199, .179]	.055	[-.067, .176]	.236	[-.061, .522]	.014	[-.089, .112]

Relationship	Dual harm Partial r	Dual harm 95% CrI	Violence Partial r	Violence 95% CrI	Self-harm Partial r	Self-harm 95% CrI	No harm Partial r	No harm 95% CrI
Aggressive/controlling behaviour - drug misuse	.112	[-.021, .240]	.003	[-.062, .065]	-.003	[-.280, .274]	-.022	[-.084, .041]
Problem solving skills - drug misuse	.104	[-.033, .241]	.156	[-.073, .249]	.207	[-.090, .455]	.117	[-.048, .185]
First custody age - school attendance	-.018	[-.111, .069]	-.066	[-.112, -.015]	-.155	[-.364, .054]	-.091	[-.141, -.041]
Court convictions under 18 - school attendance	-.001	[-.162, .148]	.127	[-.056, .207]	.107	[-.268, .543]	.166	[-.078, .248]
Court convictions over 18 - school attendance	-.068	[-.172, .031]	-.018	[-.067, .036]	-.074	[-.400, .196]	-.001	[-.061, .061]
Age first conviction - school attendance	.016	[-.148, .203]	-.027	[-.128, .059]	-.125	[-.534, .270]	.119	[-.201, -.020]
Age first contact w/police - school attendance	.054	[-.093, .182]	.053	[-.026, .143]	.122	[-.214, .449]	.132	[-.060, .202]
Time in custody - school attendance	.086	[-.014, .171]	.046	[-.002, .095]	.175	[-.043, .400]	.033	[-.013, .081]
Difficulties coping - school attendance	.026	[-.087, .131]	-.037	[-.101, .025]	.083	[-.195, .337]	-.016	[-.083, .052]
Current psychological problems - school attendance	.021	[-.099, .135]	.019	[-.064, .100]	.091	[-.144, .325]	-.021	[-.112, .055]
Sh/suicidal thoughts or attempts - school attendance	-.154	[-.268, -.048]	-.003	[-.078, .073]	-.148	[-.416, .149]	.003	[-.067, .082]
Current psychiatric problems - school attendance	.034	[-.092, .153]	.010	[-.084, .106]	-.067	[-.361, .193]	.037	[-.049, .132]
Aggressive/controlling behaviour - school attendance	.055	[-.046, .149]	.102	[-.054, .157]	.122	[-.070, .327]	.151	[-.099, .201]
Problem solving skills - school attendance	.078	[-.025, .184]	.106	[-.050, .152]	.140	[-.087, .372]	.017	[-.037, .073]
Drug misuse - school attendance	.222	[-.078, .356]	.103	[-.038, .167]	.220	[-.092, .505]	.194	[-.121, .255]
First custody age - problems w/reading, writing, numeracy	.024	[-.085, .129]	.081	[-.016, .146]	.029	[-.193, .242]	.009	[-.058, .075]
Court convictions under 18 - problems w/reading, writing, numeracy	.043	[-.112, .221]	.024	[-.087, .129]	-.057	[-.556, .349]	-.091	[-.201, .016]
Court convictions over 18 - problems w/reading, writing, numeracy	.028	[-.085, .120]	-.021	[-.084, .043]	.091	[-.209, .409]	-.028	[-.099, .044]
Age first conviction - problems w/reading, writing, numeracy	-.162	[-.332, .012]	-.024	[-.135, .103]	.025	[-.386, .496]	.028	[-.090, .164]
Age first contact w/police - problems w/reading, writing, numeracy	.188	[-.040, .326]	.018	[-.082, .122]	.053	[-.297, .423]	.076	[-.029, .175]
Time in custody - problems w/reading, writing, numeracy	-.022	[-.121, .079]	-.014	[-.072, .042]	.026	[-.189, .236]	-.004	[-.067, .065]
Difficulties coping - problems w/reading, writing, numeracy	.022	[-.104, .142]	.028	[-.053, .101]	-.125	[-.370, .130]	.025	[-.060, .109]
Current psychological problems - problems w/reading, writing, numeracy	-.010	[-.122, .108]	-.042	[-.136, .052]	-.010	[-.278, .253]	.039	[-.056, .137]
Sh/suicidal thoughts or attempts - problems w/reading, writing, numeracy	.085	[-.041, .205]	.091	[-.005, .183]	-.053	[-.332, .254]	-.086	[-.176, .006]
Current psychiatric problems - problems w/reading, writing, numeracy	-.046	[-.184, .080]	-.016	[-.119, .092]	.037	[-.253, .340]	-.082	[-.186, .024]
Aggressive/controlling behaviour - problems w/reading, writing, numeracy	-.057	[-.172, .048]	-.063	[-.133, .008]	.041	[-.179, .257]	-.090	[-.163, -.019]
Problem solving skills - problems w/reading, writing, numeracy	.091	[-.021, .198]	.076	[-.002, .141]	.100	[-.201, .349]	.068	[-.006, .136]
Drug misuse - problems w/reading, writing, numeracy	-.046	[-.211, .107]	-.086	[-.174, .003]	-.125	[-.512, .215]	-.026	[-.111, .060]
School attendance - problems w/reading, writing, numeracy	.241	[-.132, .343]	.187	[-.119, .250]	.181	[-.090, .437]	.191	[-.126, .268]
First custody age - learning difficulties	.025	[-.072, .137]	-.070	[-.142, .011]	-.107	[-.330, .159]	.045	[-.031, .116]
Court convictions under 18 - learning difficulties	.106	[-.063, .271]	-.029	[-.149, .083]	.120	[-.347, .622]	.123	[-.001, .255]
Court convictions over 18 - learning difficulties	.006	[-.101, .115]	-.017	[-.081, .052]	-.125	[-.447, .174]	-.018	[-.098, .060]
Age first conviction - learning difficulties	.029	[-.146, .205]	.003	[-.138, .139]	-.147	[-.627, .328]	-.085	[-.228, .043]
Age first contact w/police - learning difficulties	-.103	[-.244, .061]	.042	[-.060, .164]	.083	[-.286, .442]	.004	[-.101, .115]
Time in custody - learning difficulties	.045	[-.058, .146]	-.015	[-.077, .051]	-.048	[-.285, .216]	-.002	[-.076, .065]
Difficulties coping - learning difficulties	.008	[-.109, .126]	.092	[-.012, .170]	.041	[-.255, .332]	.082	[-.005, .163]
Current psychological problems - learning difficulties	.065	[-.051, .187]	.000	[-.094, .085]	.114	[-.178, .354]	-.090	[-.203, .008]
Sh/suicidal thoughts or attempts - learning difficulties	-.046	[-.175, .094]	-.053	[-.141, .036]	.016	[-.297, .337]	.140	[-.050, .236]
Current psychiatric problems - learning difficulties	.158	[-.038, .277]	.161	[-.062, .268]	-.065	[-.379, .252]	.235	[-.127, .335]
Aggressive/controlling behaviour - learning difficulties	-.006	[-.124, .118]	-.040	[-.116, .034]	.031	[-.202, .289]	.073	[-.000, .151]

Relationship	Dual harm Partial r	Dual harm 95% CrI	Violence Partial r	Violence 95% CrI	Self-harm Partial r	Self-harm 95% CrI	No harm Partial r	No harm 95% CrI
Problem solving skills - learning difficulties	.023	[-.097, .134]	.003	[-.064, .078]	.119	[-.132, .420]	.010	[-.064, .089]
Drug misuse - learning difficulties	-.081	[-.230, .095]	-.015	[-.117, .095]	.062	[-.298, .495]	-.143	[-.238, -.039]
School attendance - learning difficulties	.013	[-.094, .134]	.057	[-.015, .132]	-.110	[-.386, .154]	.008	[-.087, .092]
Problems w/reading, writing, numeracy - learning difficulties	.527	[.446, .598]	.570	[.518, .624]	.595	[.400, .777]	.636	[.588, .683]
First custody age - childhood relationships	-.025	[-.117, .071]	-.071	[-.124, -.016]	.045	[-.135, .281]	-.096	[-.144, -.041]
Court convictions under 18 - childhood relationships	.201	[.078, .329]	.054	[-.025, .128]	.219	[-.110, .590]	-.002	[-.095, .086]
Court convictions over 18 - childhood relationships	-.014	[-.107, .073]	.031	[-.018, .081]	-.140	[-.439, .104]	.019	[-.033, .074]
Age first conviction - childhood relationships	-.143	[-.294, -.005]	.015	[-.075, .106]	-.142	[-.547, .216]	.034	[-.059, .132]
Age first contact w/police - childhood relationships	.060	[-.075, .193]	.010	[-.072, .087]	.092	[-.206, .445]	.004	[-.069, .074]
Time in custody - childhood relationships	-.010	[-.095, .082]	-.012	[-.064, .037]	-.206	[-.408, .022]	.001	[-.046, .048]
Difficulties coping - childhood relationships	.159	[.062, .258]	.197	[.138, .258]	.086	[-.176, .293]	.144	[.081, .206]
Current psychological problems - childhood relationships	.111	[.003, .227]	-.031	[-.104, .036]	-.044	[-.291, .198]	.015	[-.052, .090]
Sh/suicidal thoughts or attempts - childhood relationships	-.008	[-.105, .101]	.093	[.023, .156]	.244	[-.007, .520]	.139	[.067, .212]
Current psychiatric problems - childhood relationships	.007	[-.102, .121]	.036	[-.041, .120]	-.049	[-.321, .226]	.056	[-.042, .134]
Aggressive/controlling behaviour - childhood relationships	.017	[-.079, .110]	.093	[.042, .142]	.035	[-.212, .260]	.054	[.004, .107]
Problem solving skills - childhood relationships	.102	[.011, .194]	-.005	[-.053, .044]	.124	[-.075, .330]	.117	[.060, .166]
Drug misuse - childhood relationships	.037	[-.101, .178]	.074	[.007, .138]	-.071	[-.374, .222]	-.005	[-.080, .059]
School attendance - childhood relationships	.237	[.142, .325]	.222	[.170, .271]	.240	[-.019, .465]	.239	[.186, .297]
Problems w/reading, writing, numeracy - childhood relationships	-.048	[-.151, .048]	-.014	[-.082, .059]	-.021	[-.264, .224]	-.034	[-.115, .030]
Learning difficulties - childhood relationships	-.007	[-.106, .108]	.057	[-.014, .136]	.064	[-.227, .327]	.029	[-.044, .112]
First custody age - NFA/transient accommodation	.080	[-.013, .174]	-.077	[-.062, .060]	-.157	[-.405, .067]	.076	[.020, .138]
Court convictions under 18 - NFA/transient accommodation	-.094	[-.253, .066]	.045	[-.045, .129]	-.232	[-.626, .220]	.079	[-.014, .180]
Court convictions over 18 - NFA/transient accommodation	.073	[-.024, .168]	.070	[.016, .129]	.221	[-.043, .531]	.067	[.006, .124]
Age first conviction - NFA/transient accommodation	.137	[-.038, .304]	-.010	[-.101, .095]	.163	[-.293, .608]	-.091	[-.197, .011]
Age first contact w/police - NFA/transient accommodation	-.155	[-.314, -.011]	-.050	[-.148, .038]	-.118	[-.543, .249]	.050	[-.034, .141]
Time in custody - NFA/transient accommodation	.172	[.075, .263]	.070	[.017, .123]	.314	[.122, .524]	.045	[-.011, .100]
Difficulties coping - NFA/transient accommodation	.030	[-.073, .140]	.068	[.000, .127]	.073	[-.181, .372]	.021	[-.050, .098]
Current psychological problems - NFA/transient accommodation	.024	[-.098, .134]	-.054	[-.131, .021]	.152	[-.166, .435]	.007	[-.082, .089]
Sh/suicidal thoughts or attempts - NFA/transient accommodation	-.011	[-.137, .108]	.068	[-.014, .152]	-.194	[-.543, .084]	.032	[-.054, .115]
Current psychiatric problems - NFA/transient accommodation	-.029	[-.149, .079]	.035	[-.055, .127]	.006	[-.257, .310]	.010	[-.080, .111]
Aggressive/controlling behaviour - NFA/transient accommodation	.104	[.013, .200]	-.028	[-.088, .028]	-.026	[-.279, .246]	.092	[.025, .160]
Problem solving skills - NFA/transient accommodation	.082	[-.018, .180]	.088	[.029, .147]	.039	[-.227, .276]	.048	[-.015, .105]
Drug misuse - NFA/transient accommodation	.117	[-.021, .278]	.032	[-.041, .110]	.068	[-.283, .398]	.067	[-.017, .150]
School attendance - NFA/transient accommodation	-.066	[-.181, .038]	-.039	[-.101, .016]	-.044	[-.329, .286]	-.035	[-.107, .031]
Problems w/reading, writing, numeracy - NFA/transient accommodation	-.055	[-.163, .052]	.079	[.007, .154]	-.008	[-.271, .291]	.108	[.022, .190]
Learning difficulties - NFA/transient accommodation	.015	[-.106, .135]	-.056	[-.133, .031]	-.003	[-.305, .307]	-.126	[-.225, -.036]
Childhood relationships - NFA/transient accommodation	.187	[.087, .288]	.249	[.202, .303]	.370	[.149, .609]	.278	[.217, .334]
First custody age - qualifications	-.004	[-.093, .091]	-.020	[-.069, .031]	.149	[-.076, .380]	-.003	[-.060, .047]
Court convictions under 18 - qualifications	-.018	[-.176, .132]	.014	[-.067, .088]	.104	[-.345, .537]	.008	[-.084, .107]
Court convictions over 18 - qualifications	.136	[.043, .235]	.055	[.003, .104]	-.018	[-.352, .310]	.056	[-.002, .112]

Relationship	Dual harm Partial r	Dual harm 95% CrI	Violence Partial r	Violence 95% CrI	Self-harm Partial r	Self-harm 95% CrI	No harm Partial r	No harm 95% CrI
Age first conviction - qualifications	.117	[-.056, .298]	.031	[-.064, .128]	.011	[-.445, .473]	.051	[-.060, .151]
Age first contact w/police - qualifications	-.164	[-.315, -.020]	-.030	[-.119, .049]	-.082	[-.441, .290]	-.089	[-.175, -.002]
Time in custody - qualifications	-.001	[-.096, .102]	-.052	[-.103, -.002]	-.238	[-.452, -.019]	-.084	[-.134, -.026]
Difficulties coping - qualifications	.038	[-.086, .157]	-.014	[-.091, .054]	-.051	[-.313, .209]	-.042	[-.118, .036]
Current psychological problems - qualifications	-.008	[-.135, .106]	.029	[-.055, .111]	-.165	[-.429, .129]	.015	[-.068, .103]
Sh/suicidal thoughts or attempts - qualifications	-.070	[-.188, .064]	-.027	[-.113, .060]	.227	[-.061, .516]	-.044	[-.138, .034]
Current psychiatric problems - qualifications	.009	[-.111, .126]	-.056	[-.157, .036]	.079	[-.236, .376]	.057	[-.046, .153]
Aggressive/controlling behaviour - qualifications	-.014	[-.117, .099]	-.001	[-.061, .051]	-.081	[-.319, .136]	-.057	[-.110, .008]
Problem solving skills - qualifications	-.021	[-.129, .084]	-.001	[-.063, .059]	-.140	[-.408, .133]	.081	[-.016, .143]
Drug misuse - qualifications	.099	[-.066, .255]	-.003	[-.075, .072]	.007	[-.343, .429]	.005	[-.067, .083]
School attendance - qualifications	.216	[-.113, .305]	.255	[-.201, .312]	.403	[-.147, .604]	.329	[-.276, .383]
Problems w/reading, writing, numeracy - qualifications	.293	[-.192, .403]	.281	[-.220, .348]	.340	[-.072, .580]	.261	[-.189, .331]
Learning difficulties - qualifications	-.083	[-.205, .040]	-.048	[-.120, .031]	-.030	[-.358, .247]	-.062	[-.147, .027]
Childhood relationships - qualifications	-.035	[-.150, .071]	-.014	[-.071, .048]	-.125	[-.394, .150]	-.055	[-.117, .013]
NFA/transient accommodation - qualifications	.134	[-.022, .244]	-.014	[-.086, .054]	.217	[-.101, .495]	.086	[-.016, .161]
First custody age - current relationship status	-.042	[-.156, .146]	.062	[-.081, .257]	-.171	[-.357, .030]	-.039	[-.161, .145]
Court convictions under 18 - current relationship status	.037	[-.099, .180]	-.031	[-.117, .050]	-.015	[-.373, .378]	-.053	[-.157, .058]
Court convictions over 18 - current relationship status	-.072	[-.164, .009]	.000	[-.051, .053]	.023	[-.248, .283]	.014	[-.033, .063]
Age first conviction - current relationship status	-.036	[-.184, .110]	.039	[-.061, .144]	-.030	[-.426, .346]	.038	[-.077, .148]
Age first contact w/police - current relationship status	.018	[-.113, .154]	-.025	[-.105, .056]	-.011	[-.332, .317]	-.014	[-.087, .052]
Time in custody - current relationship status	.070	[-.040, .219]	.138	[-.032, .277]	.065	[-.140, .283]	.089	[-.019, .251]
Difficulties coping - current relationship status	.015	[-.090, .111]	.081	[-.011, .135]	-.053	[-.309, .173]	.029	[-.045, .090]
Current psychological problems - current relationship status	.022	[-.087, .142]	.005	[-.069, .080]	.093	[-.166, .304]	-.021	[-.096, .056]
Sh/suicidal thoughts or attempts - current relationship status	-.052	[-.164, .063]	-.073	[-.146, .014]	-.133	[-.401, .162]	.002	[-.064, .073]
Current psychiatric problems - current relationship status	.060	[-.061, .176]	-.043	[-.124, .055]	.087	[-.181, .364]	.022	[-.063, .103]
Aggressive/controlling behaviour - current relationship status	-.032	[-.126, .058]	.048	[-.013, .099]	.054	[-.153, .249]	.034	[-.019, .085]
Problem solving skills - current relationship status	.027	[-.078, .115]	.060	[-.023, .158]	.139	[-.070, .349]	.104	[-.009, .233]
Drug misuse - current relationship status	-.016	[-.180, .146]	-.012	[-.127, .167]	-.140	[-.429, .175]	.017	[-.069, .126]
School attendance - current relationship status	-.093	[-.186, .011]	.003	[-.050, .061]	-.123	[-.332, .114]	-.027	[-.091, .028]
Problems w/reading, writing, numeracy - current relationship status	.010	[-.101, .111]	-.064	[-.135, .000]	.002	[-.285, .262]	-.032	[-.104, .038]
Learning difficulties - current relationship status	-.039	[-.147, .067]	.055	[-.015, .134]	-.020	[-.288, .265]	.006	[-.067, .090]
Childhood relationships - current relationship status	.036	[-.058, .131]	-.060	[-.116, -.005]	.059	[-.177, .271]	-.030	[-.083, .028]
NFA/transient accommodation - current relationship status	.117	[-.011, .219]	.137	[-.077, .208]	.012	[-.247, .266]	.110	[-.053, .183]
Qualifications - current relationship status	.039	[-.064, .135]	-.005	[-.071, .051]	.142	[-.103, .397]	-.037	[-.095, .025]

Tables

Table 1. Unadjusted and adjusted group prevalence rates accounting for time in custody

Group	<i>n</i>	Prevalence (Unadjusted) % (95% CI)	Prevalence (Adjusted)* % (95% CI)
Dual harm	2,515	12.3 (11.9 – 12.8)	7.8 (7.5 – 8.1)
Sole self-harm	801	3.9 (3.7 – 4.2)	3.9 (3.7 – 4.2)
Sole violence	8,463	41.5 (40.8 – 42.2)	30.6 (30.0 – 31.3)
No harm	8,624	42.3 (41.6 – 43.0)	60.3 (59.0 – 61.6)

* Adjusted prevalence estimates the percentage in each group if all individuals had equivalent total time (12 months) in custody.

Table 2. Multinomial logistic regression analyses examining associations between type of harm and OASys correlates

Correlates	Dual harm (N = 1,243)	Sole violence (N = 4,211)	Sole self-harm (N = 416)	No harm (N = 4,331)	Dual harm versus sole violence	Dual harm versus sole self-harm	Dual harm versus no harm
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)
Age first admitted to custody	17.82 (1.10)	18.13 (1.12)	18.53 (0.94)	18.86 (0.96)	1.19 (1.11 – 1.27)**	1.36 (1.21 – 1.54)**	1.58 (1.46 – 1.71)**
Court convictions over 18	1.57 (0.72)	1.52 (0.69)	1.59 (0.76)	1.53 (0.69)	1.10 (0.99 – 1.22)	1.09 (0.93 – 1.28)	1.30 (1.16 – 1.45)**
Age first contact with police	2.37 (0.67)	2.14 (0.69)	2.10 (0.73)	1.93 (0.75)	1.19 (1.06 – 1.33)**	1.32 (1.11 – 1.56)**	1.41 (1.25 – 1.59)**
Time in custody aged 18-21	3.92 (0.96)	3.66 (1.01)	3.17 (1.06)	2.65 (1.01)	1.27 (1.18 – 1.37)**	1.69 (1.52 – 1.92)**	2.78 (2.56 – 3.03)**
Difficulties coping	1.94 (0.74)	1.46 (0.62)	1.99 (0.73)	1.45 (0.61)	1.32 (1.14 – 1.49)**	0.99 (0.79 – 1.25)	1.27 (1.10 – 1.47)**
Psychological problems	1.70 (0.72)	1.30 (0.54)	1.79 (0.70)	1.30 (0.54)	1.23 (1.06 – 1.45)**	1.12 (0.88 – 1.43)	1.39 (1.19 – 1.64)**
Previous self-harm/suicidal thoughts/actions	1.50 (0.50)	1.15 (0.36)	1.60 (0.49)	1.19 (0.39)	2.78 (2.38 – 3.33)**	0.71 (0.56 – 0.94)*	2.33 (1.92 – 2.78)**
Psychiatric problems	1.34 (0.56)	1.12 (0.37)	1.45 (0.68)	1.12 (0.37)	1.14 (0.97 – 1.35)	0.78 (0.63 – 0.97)*	1.22 (1.11 – 1.45)*
Previous drug misuse	1.89 (0.31)	1.81 (0.39)	1.82 (0.39)	1.72 (0.45)	1.22 (0.98 – 1.52)	1.54 (1.11 – 2.13)*	1.61 (1.30 – 2.04)**
Problems with reading, writing or numeracy	1.54 (0.66)	1.31 (0.55)	1.42 (0.65)	1.28 (0.53)	1.12 (0.98 – 1.28)	1.15 (0.92 – 1.43)	1.19 (1.11 – 1.37)*
Learning difficulties	1.37 (0.63)	1.19 (0.47)	1.29 (0.56)	1.16 (0.43)	1.05 (0.91 – 1.22)	1.22 (0.96 – 1.56)	1.14 (0.97 – 1.33)
Childhood relationships	2.29 (0.76)	1.89 (0.79)	2.19 (0.81)	1.69 (0.76)	1.10 (0.99 – 1.22)	1.02 (0.86 – 1.20)	1.35 (1.22 – 1.52)**
Qualification status	1.51 (0.50)	1.35 (0.48)	1.39 (0.49)	1.30 (0.46)	1.39 (1.19 – 1.61)**	1.30 (1.00 – 1.69)*	1.52 (1.28 – 1.79)**
	N (%)	N (%)	N (%)	N (%)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)
Ethnicity – Other	12 (0.97)	71 (1.69)	2 (0.48)	59 (1.36)	-	-	-
Ethnicity - White	1,052 (84.63)	2,214 (52.58)	381 (91.59)	3,307 (76.36)	1.28 (0.68 – 2.44)	0.28 (0.06 – 1.30)	0.55 (0.28 – 1.08)
Ethnicity – Black	83 (6.68)	1,105 (26.24)	9 (2.16)	424 (9.79)	0.34 (0.17 – 0.66)**	0.79 (0.15 – 4.17)	0.49 (0.24 – 1.01)
Ethnicity – Asian	41 (3.30)	410 (9.74)	14 (3.37)	364 (8.40)	0.46 (0.22 – 0.93)*	0.31 (0.06 – 1.59)	0.37 (0.18 – 0.79)*
Ethnicity – Mixed	55 (4.42)	411 (9.76)	10 (2.40)	177 (4.09)	0.46 (0.23 – 0.93)*	0.43 (0.08 – 2.27)	0.54 (0.26 – 1.15)
Offence – Other	129 (10.38)	492 (11.68)	53 (12.74)	751 (17.34)	-	-	-
Offence - Violent	598 (48.11)	2,131 (50.61)	176 (42.31)	1,801 (41.58)	0.93 (0.74 – 1.16)	1.10 (0.76 – 1.59)	1.10 (0.86 – 1.39)
Offence – Drug	70 (5.63)	668 (15.86)	22 (5.29)	625 (14.43)	0.74 (0.53 – 1.04)	0.99 (0.54 – 1.79)	0.73 (0.51 – 1.03)
Offence – Property	320 (25.74)	764 (18.14)	108 (25.96)	857 (19.79)	1.11 (0.86 – 1.43)	0.94 (0.63 – 1.41)	1.23 (0.94 – 1.61)
Offence – Sexual	126 (10.14)	156 (3.70)	57 (13.70)	297 (6.86)	2.04 (1.45 – 2.86)**	0.88 (0.54 – 1.43)	1.14 (0.81 – 1.61)

Note. Statistically significant results are presented in bold. *p < .05. ** p < .01. - indicates the level used as a reference category in the analysis

Figures

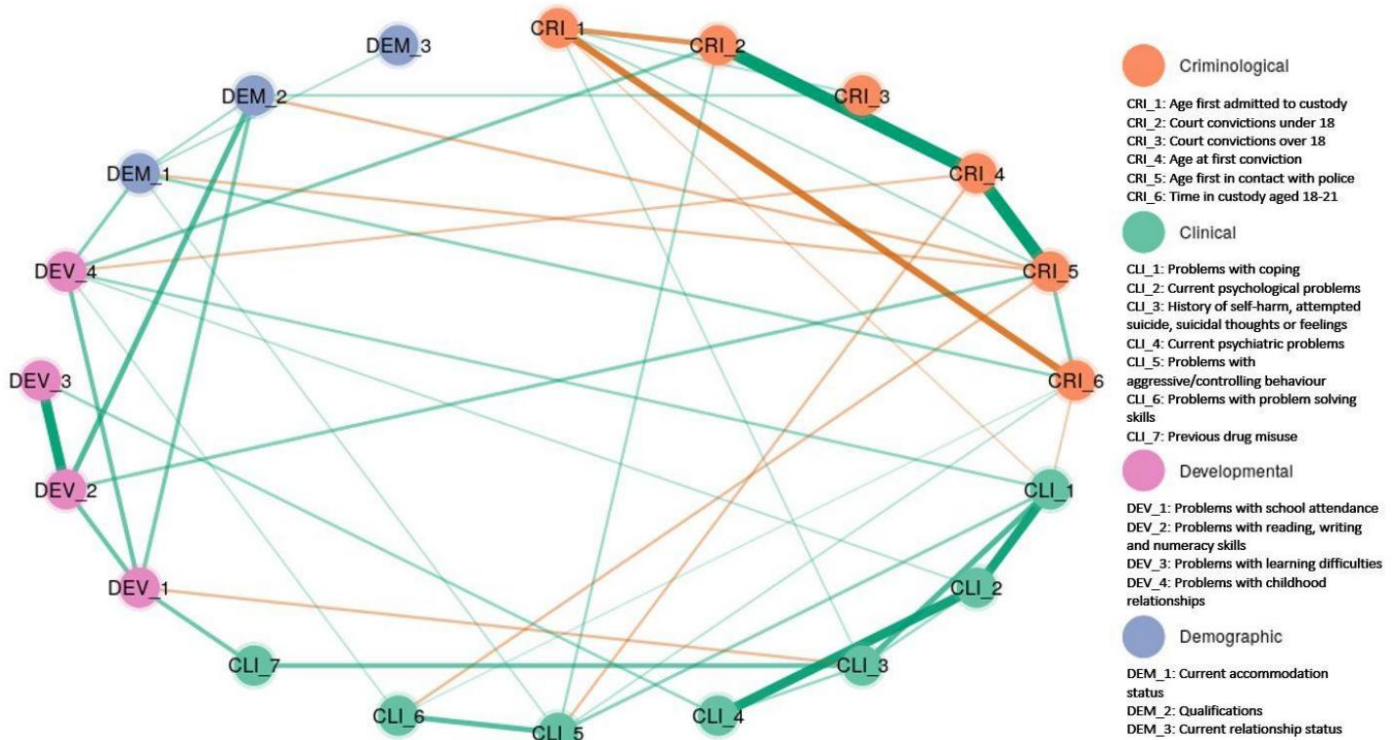


Figure 1

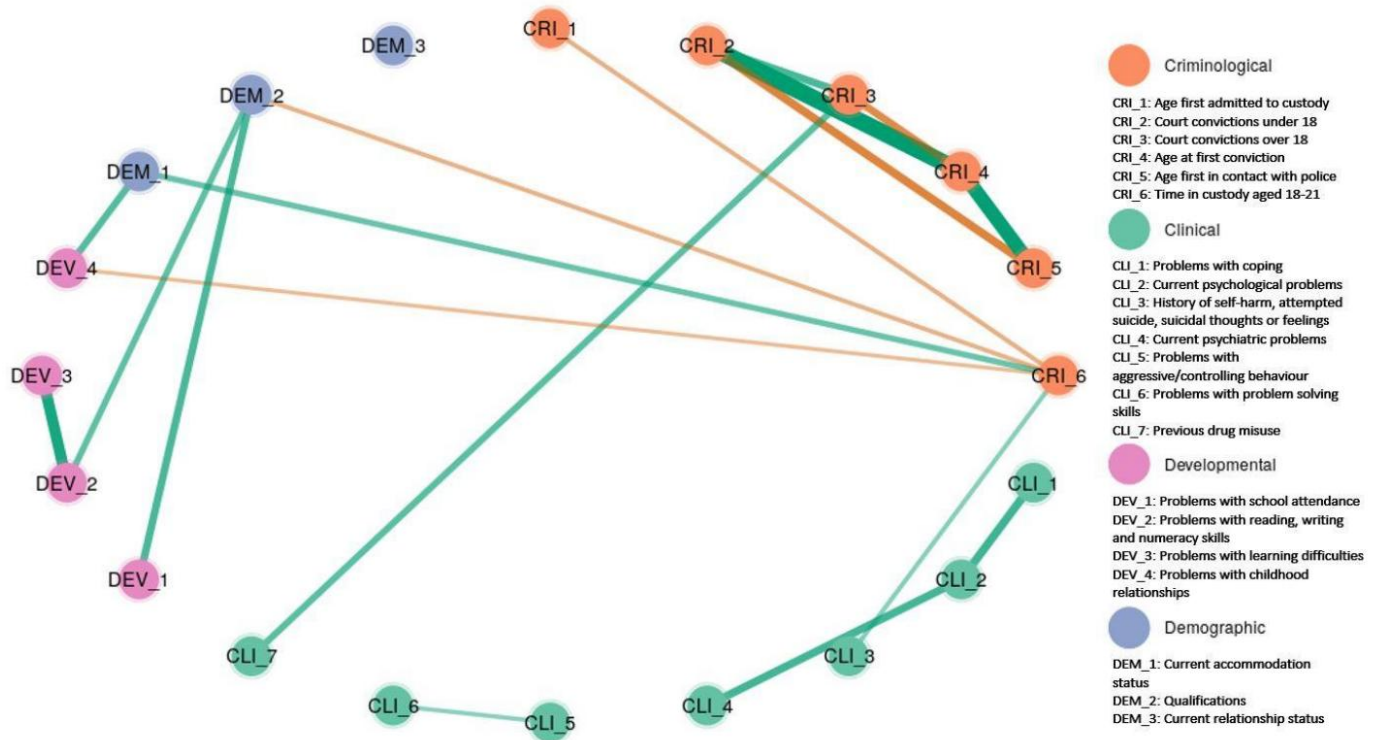


Figure 2

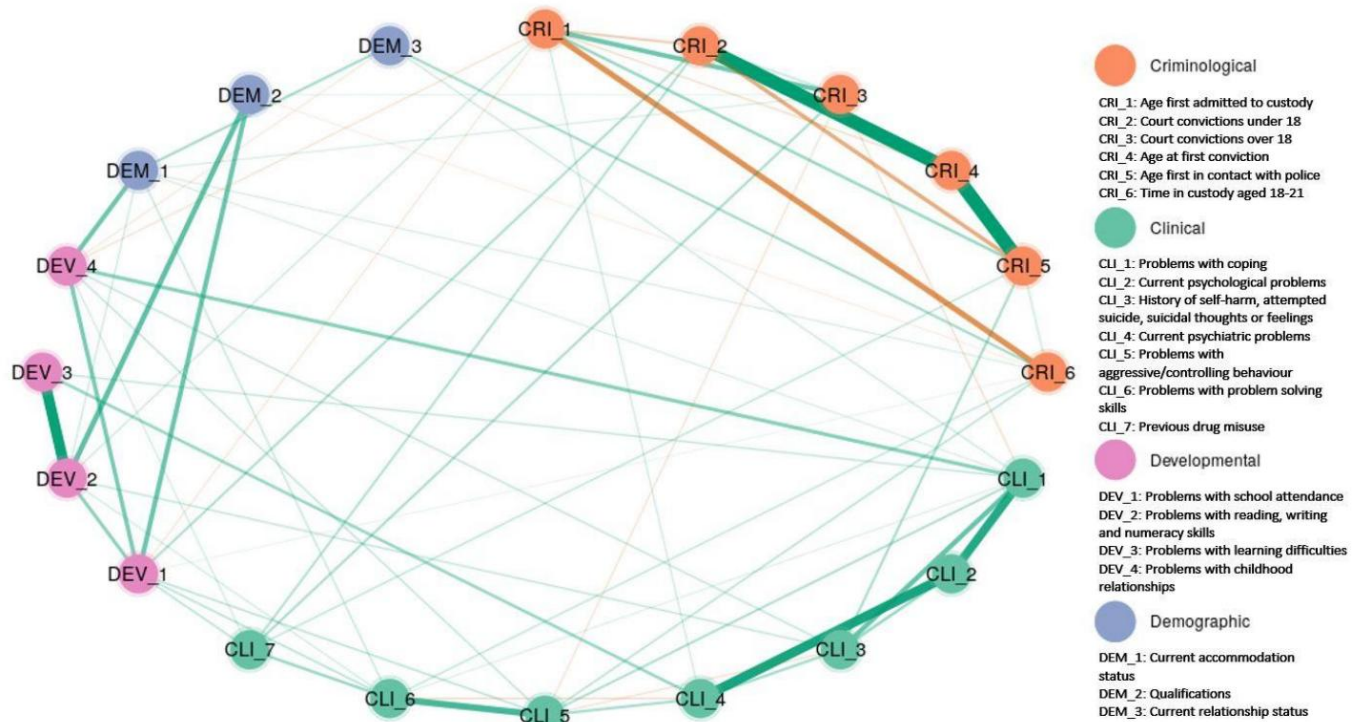


Figure 3

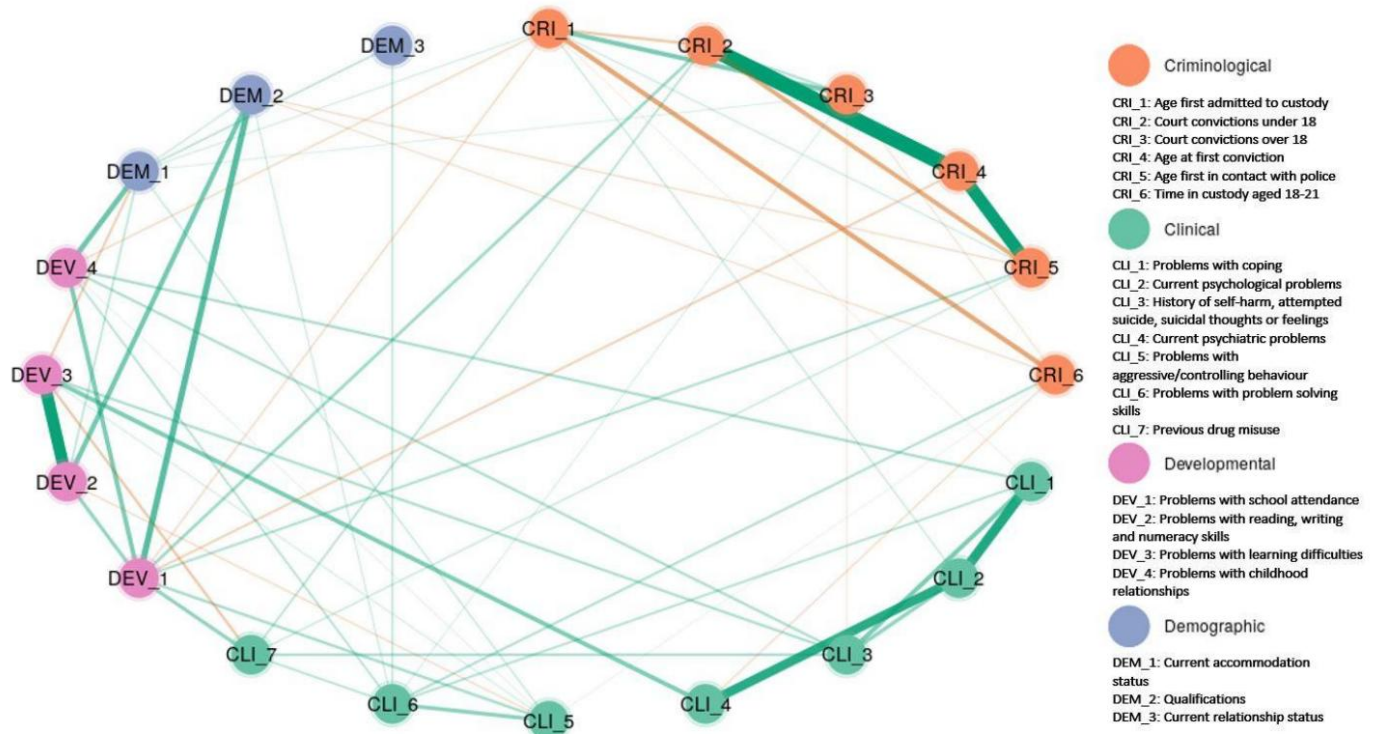


Figure 4

Figure 1. Visual summary of the partial correlation network for the dual harm group

Figure 2. Visual summary of the partial correlation network for the sole self-harm group

Figure 3. Visual summary of the partial correlation network for the sole violence group

Figure 4. Visual summary of the partial correlation network for the no harm group