Substance use and at risk mental state for psychosis in 2,102 prisoners, the case for Early Detection and Early Intervention in prison.

Jemima Cooper[1], Manuela Jarrett[1,2], Andrew Forrester[1,2], Marta di Forti[1,2], Robin M. Murray[1,2], Vyv Huddy[2,3], Anna Roberts[1,2], Patricia Phillip[1,2], Catherine Campbell[1,2], Majella Byrne[1,2], Philip McGuire[1,2], Thomas Craig[1,2], Lucia Valmaggia[1,2]

1. King's College London, Institute of Psychiatry, Psychology & Neuroscience, London, UK.

2. South London & Maudsley NHS Foundation Trust, London, UK.

3. University College London, UK

Address for correspondence:

Dr Lucia Valmaggia

King's College London, Institute of Psychiatry, Psychology and Neuroscience,

Department of Psychology (PO77)

De Crespigny Park

SE5 8AF London, UK

Email: lucia.valmaggia@kcl.ac.uk

Word Count: Abstract: 208

Word Count: Manuscript (excl. abstract, references, tables, figures): 3,346

Abstract

Aim

Prisoners exhibit high rates of substance use and mental health problems. In the present study we sought to gain detailed understanding of substance use among young prisoners to inform early detection and early intervention strategies in a prison setting.

Methods

This is a cross-sectional study of 2,102 prisoners who were screened by the London Early detection And Prevention in prison team (LEAP). Data on the use of substances were collected including age of first use, recent use, duration of use and poly-drug use. The Prodromal Questionnaire Brief version was used to screen for the at risk mental state.

Results

We found high rates of lifetime and recent use and low age of first use of a number of substances. We also found strong associations between substance use and screening positive for an at risk mental state. Logistic regression analysis confirmed that use of any drug in the last year, poly-drug and early use, as well as heavy alcohol use, were related to an increased risk of screening positive.

Conclusions

Substance use in the prison population is not only widespread and heavy but is also strongly linked with a higher risk of developing mental health problems. The need for early detection and early intervention in prison is discussed.

Declaration of interest

None to declare

Introduction

In many countries the prison population has doubled in sized in the last two decades and over 10.2 million people are imprisoned worldwide[1]. A large systematic review and meta-analysis reported a pooled prevalence of 4% for psychosis, 10-12% for depression and 40-70% for personality disorders among prisoners[2]. Substance misuse and dependence are also highly prevalent among prisoners: abuse of drugs was between 10% and 60%, and of alcohol between 10% and 30%[3]. Furthermore, illegal substances are available in prison: 30% of British prisoners say that it is easy or very easy to get illegal drugs[4].

Strong recommendations have been made for more effective screening tools for drug use and for mental health problems to identify prisoners at risk and to provide more services for those seeking treatment while imprisoned[5]. A possible solution for this unmet need is the introduction of early detection and early intervention services in prison[6]. In the community, evidence suggests that early detection is effective in identifying people at risk of developing psychosis[7] and that early intervention could prevent the transition to psychosis in some cases[8], or at least reduce the duration of untreated psychosis[9]. Early detection services worldwide rely on an individual to be help-seeking to access screening and treatment, but prisoners do not routinely access health or mental health services in the community[10]. However they do accept health services during their time in custody[11]. Our previous work demonstrated that prisoners can be screened for the at risk mental state of psychosis and are keen to accept early intervention while in prison[12-15]. In light of the high reported levels of substance use amongst young in the period prior to their imprisonment[14, 15], in the present study we sought to gain detailed understanding of substance use among young prisoners to inform early detection and early intervention strategies in this setting.

We were particularly interested not just in assessing the use of substances, but also the characteristics of substance use associated with poorer health outcomes in community samples, such as age of first use, recent use, and poly-drug use[16-19]. Our secondary aim was to investigate the association between these characteristics and screening positive on the Prodromal Questionnaire Brief version.

Methods

Setting

Data were collected in two male prisons in London: a local male prison with a capacity of approximately 800 men aged 21 and over who were awaiting trial or on short sentences, and a Young Offender Institution (YOI) with approximately 620 sentenced prisoners aged 18 to 25.

Procedure

Data used in this study were collected by the London Early detection And Prevention in prison (LEAP) Team (this was previously Outreach and Support in South London in Prison but changed its name to extend early detection and intervention to all emerging mental health problems, not just high risk for psychosis). In line with other early detection teams in the community, LEAP screens all new prisoners under 35 years upon reception into prison for early detection of at risk mental states for emerging metal health problems[12-14].

Sample

Prisoners were screened within the first few weeks of arriving to prison. At the YOI we aimed to screen all prisoners (aged 18-25); in the adult prison they were aged 21-

40 for the first six months of the study (in total 95 prisoners screened were 36 years old or older) followed by ages 21-35 for the remaining duration (to match it to the age of OASIS, the local community service for people with an at risk mental state for psychosis[20]. We excluded only prisoners who had a history of established mental health problems before coming to prison and those who had insufficient English to answer the screening questions.

Ethical approval

An Audit and Service Evaluation approval was obtained from the South London and Maudsley NHS Foundation Trust to analyse the data collected as part of the routine clinical screening offered by LEAP.

Measures

Socio demographic

Participants were initially asked about their socio-demographic background to collect information on age, self-ascribed ethnicity, country of birth, employment status before prison (e.g. student, part time unpaid, full time paid), accommodation (e.g. live with family, house/flat that you rent, homeless), age left full-time education and highest qualification achieved.

Substance use

The modified version of the Cannabis Experience Questionnaire (CEQ[21, 22]) was used to elicit detailed information on drug use. The psychometric properties of this instrument have been established [21] and the CEQ has been used extensively to assess substance use in people with schizotypy [21]; at risk mental state for psychosis [19], and

psychosis [18, 22, 23]. The advantage of the CEQ above other similar measures is that it enables the assessment of lifetime use of substances as well as measuring for each substance previously used: age of first use, last use, frequency of use in last month, and level of current use if applicable.

Participants were defined as being current users of a substance if they reported any use in the preceding month, and recent users if they reported use in the preceding year. Any use before the age of 15 years was defined as 'early-onset'[16]. The use of the following substances was assessed commercial weed or hash, skunk, inhalants, crack cocaine, powder cocaine, stimulants, sedatives, opioids and hallucinogens. There was an additional category for 'other' that covers new psychoactive substances (e.g. synthetic cannabis, mephedrone) as these were not as prevalent when the questionnaire was designed although their use has since become substantial. The glossary in figure 1 contains a definition of the substances assessed.

-- Figure 1 --

Alcohol use

Five questions were used to assess alcohol use, 1) drinks alcohol; 2) age of first drink; 3) number of units prior to prison; 4) frequency from never to daily/almost daily; 5) frequency of five or more drinks from never to daily/almost daily. The weekly maximum allowance for alcohol for men as recommended by the NHS is 3-4 units per day (www.nhs.uk/conditions/alcohol-misuse) so we used five or more drinks daily or almost daily as the cut-off point for excessive drinking.

Prodromal Questionnaire-Brief Version

The Prodromal Questionnaire – Brief Version (PQ-B)[24], was adapted to maximise sensitivity and specificity and to minimise the risk of participants misunderstanding the screening questions, and it is established to be an effective tool for a prison sample[13]. Screening positive on the PQ-B indicates the possibility of an at risk mental state for psychosis and the need for further assessment. Our previous findings, demonstrate that the PQ-B is also effective in detecting people with other emerging and established mental health[12-14].

Analyses

IBM SPSS 22 was used to analyse the data. Variables were computed for recent use (use in the last year) and duration of use (for those who had used in the last year). Chi-square tests were used to measure associations between use of each substance (lifetime and past year) and screen result and poly-drug use and screen result. Independent samples t-tests for mean age of first use and mean duration of use were calculated. Due to the high rates of substance use, and the highly significant associations with screening positive, we performed a binary logistic regression analysis to assess the relative impact of substance use factors deemed, on the basis of univariate analysis, to affect mental health outcomes.

Results

Total sample

Socio-demographic characteristics

Our sample of 2,115 comprised 614 from the YOI and 1,501 from the adult prison. We excluded 13 participants found to be psychotic at the time of the screening in order to look only at emerging mental health issues, bringing the total sample size to

2,102.

Socio-demographic variables are presented in Table 1.

-- Table 1 --

Substance use

Lifetime use

Data on use of substances (without alcohol) are presented in Table 2. Lifetime use of cigarettes was reported by 83.1% of the sample, most of whom had smoked cigarettes in the past year. Of the illegal substances, weed/hash and skunk were the most prevalent, with 78% and 72.9% respectively having used at some time in their life and over 50% having used in the past year. Use of class A drugs was high; a third of prisoners had used cocaine, over a quarter stimulants and a fifth crack in their lifetime.

Recent use

Across all substances except inhalants, stimulants and hallucinogens, participants who had ever used the substance were more likely than not to have used in the past year (Table 2).

-- Table 2 --

Age of first use

For cigarettes, weed/hash the mean age of first use was below 15, and for skunk still below 16. For all class A drugs the mean age of first use was above 18 with the

exception of hallucinogens for which the mean age of first use was 17 (Supplementary Table A).

Duration of use

In those who used in the past year, the mean duration of use for weed/hash and skunk was around 10 years, although the standard deviation was high for both. Crack and stimulants had similarly high duration of use. It should be noted that the duration is purely the difference in years between first use and last use, for those who had used in the last year, so high mean durations do not reveal the rate of use (Supplementary Table A).

Poly-drug use

Data for cumulative use of substances excluding tobacco and alcohol revealed that 15.9% of prisoners had not used any of the 10 substances in their lifetime; 15.2% had used six or more and 39.6% had used three or more (Supplementary Table B).

A high proportion (69.3%, n=1,457) of participants had used both weed/hash and skunk. One quarter of the total sample had used weed/hash or skunk in combination with stimulants (Supplementary Table C)

More than 89% of those who had ever used crack, cocaine, stimulants and sedatives had also used weed/hash and skunk and those who had used any of the class A drugs were highly likely to have tried the five other substances.

Alcohol use

General rates of alcohol use were high (Table 3): 79.2% of the sample said they did drink and the mean age of first drink was 15.85 (sd 3.30). Nearly a fifth (n=398) said

they drank daily or almost daily the majority of whom said they had five or more drinks daily or almost daily (n=278).

- Table 3 -

Comparison between screen positive and screen negative

Socio-demographic characteristics

Those who screened positive on the PQ-B were more likely to: be White British; have been unemployed before coming to prison; be homeless; have left school before the age of 16 and have no school qualifications (Table 1).

Substance use and screening positive on the PQ-B

Lifetime use

Use of each substance was first examined without controlling for the other substances. Cross-tabulations between screen outcome and lifetime use of the substances revealed that for all substances the group screening positive on the PQ-B were much more likely to have used the substance than those testing negative (Table 2).

Recent use

Not surprisingly, given that the majority of lifetime users had also used substances in the past year, positive screens were strongly associated with recent use (Table 2).

Age of first use

For all substances (except: inhalants, cocaine, hallucinogens and 'other'), the mean age of first use was significantly lower among the group screening positive than

screening negative (Supplementary Table A).

Duration of use

Duration of use for those who had used in the last year was significantly higher in the positive group than the negative for all substances except: inhalants, crack, opioids, hallucinogens, and 'other' (Supplementary Table A). To some extent this reflects the earlier age of first use.

Poly-drug use

Participants screening positive were much more likely to have tried a greater number of drugs (Supplementary Table B). Those who used three substances were nearly four times more likely to screen positive (95% CI: 2.31-5.49) and those who used eight substances were 15 times more likely to screen positive (95% CI: 8.26-25.82). Those who screened positive on the PQ-B were also significantly more likely to have co-used substances (Supplementary Table C).

Alcohol use

Prisoners who drank daily or almost daily, and people who had five or more drinks daily or almost daily, were much more likely to screen positive. The mean age for the screen positives was almost a year younger than the screen negatives (Table 3).

Association between substance use and screening positive on the PQ-B

A binary logistic regression analysis was performed to test the association of the different substance use characteristics with screening positive (Table 4). Screen outcome (positive or negative) was the dependent variable. The model used forced

entry method and included five independent variables regarding substance use. Cigarette use was omitted from these computed variables due to its very high prevalence. Five variables were included based on their association with screening positive in chi-square tests of association. When these variables were included the model did not violate the multicollinearity assumption (tolerance values ranged from 0.41 to 0.94, VIF from 1.06 to 2.47).

The final model containing all 10 predictors was statistically significant, X^2 (8, n=1765) = 283.35, $p < 0.005$. It explained between 14.8% (Cox & Snell R square) and 20.8% (Nagelkerke R square) of the variance in screen outcome and classified 74.3% of cases correctly.

This model was able to correctly identify 36.6% of cases as positive at screen, and 91.9% of negative at screen. The low sensitivity suggests this model needs to be refined but the considerable significance of most of our substance use variables supports the hypothesis that drug and alcohol use is strongly associated with screening positive on the PQ-B.

- Table 4 -

Discussion

Substance use and mental health problems are comment in young prisoners

The use of a range of substances including alcohol was very high in this sample and there was a clear association with screening positive on the PQ-B. These findings are consistent with previous research, which has shown that substance use and dependence are high in prison populations[3, 25-27]. Use was particularly high, both lifetime and past year, for alcohol, cigarettes, weed/hash and skunk, but also for some

class A drugs, and alcohol use was extremely widespread and in many cases heavy. Most prisoners had used more than one illegal substance in their lifetime the majority of whom continued to use substances in the previous year and reported continued use over several years.

Cigarette smoking was very prevalent and people were still in smoking while in prison. This not only has obvious negative consequences for physical health, but is also interesting in light of recent findings suggesting that smoking cigarettes may be associated with an increase of psychosis[28].

The case for early detection and early intervention in prison settings

Our results support the need for early detection and inform the implementation of early intervention programs in prison, for both substance use and mental health problems[6]. Use of illicit substances can have a number of adverse effects mental health[29] and substance dependence and mental disorder often appear together[30]. Within the prison population, psychosis particularly is found to co-occur with drug use[26] and more severe offending has been found to be associated with drug abuse and alcohol abuse[31]. Studies into the effects of cannabis use on mental health outcomes in non-prison samples suggest that it is greater amounts and duration of use and lower age of first use that make the individual more vulnerable to its harmful effects[23, 32, 33]. Consistent with this we found that participants were significantly more likely to screen positive on the PQ-B if they reported lifetime use of any substance, but also if they had: used in the last year, if they had used the substance more recently or for a longer duration, if they started using at a younger age and if they had used more than one substance.

The logistic regression model was significant overall and confirmed that several

substance use characteristics were linked with a positive screen result: use of any substance in the last year, lowest age of first use of any substance, heavy alcohol use and poly-drug use. However the low sensitivity suggests that the model needs to be refined.

These results are particularly significant because of the paucity of studies of this size of drug use in UK prisoners. The rates of substance use alone are cause for concern; compounded with this is the mental ill-health, the impact of both substance use and mental ill-health on offending behaviour, and the implications for the health and criminal justice systems and for wider society. The overall reoffending rate for adults released from custody is almost 50% but in general reoffending is higher for people under 35 and particularly high among young offenders (https://www.gov.uk/government/collections/reoffending-statistics). Effective drug policy needs to encompass not only better controls but also more effective treatment interventions for drug use as well as for the co-occurring mental health problems[34]. Research shows that drug treatment services can significantly reduce a range of problem behaviours[35]. However less than half of prisons have a specialist service for substance misuse, despite the high levels of dependence in prisons, and the standard and availability of services is inadequate to meet the need [36]. Furthermore, to our knowledge, our service is the only one worldwide dedicated to the early detection and early intervention of young prisoners. These findings support recommendations to improve access to substance dependency programmes in prisons and to forge better links between substance use and mental health support services and established care pathways, but furthermore to implement more effective and well-evidenced screening and intervention tools which take full account of the role of substance use to identify prisoners with emerging mental health problems.

Integrating early intervention in prison

Introducing early detection screening in prison is not without challenges. The current UK prison system the assessment of mental health problems at reception is limited (First Reception Health Screen, based on the Grubin model [37]) and focuses on asking about existing mental health problems. Early detection has to work integrated with the prison regime in order to be successful. The prison where LEAP works receives around 95 sentenced prisoners every month aged 18 to 30 years old. The prison regime allows us to approach prisoners daily only between 10am and 12pm and between 2pm and 430pm. Over the years we have developed and validated a two stage screening procedure, which fits within the prison regime and works closely with the existing mental health teams. The initial stage is limited to a maximum of 30 minutes and collects information about; demographics; prodromal symptoms; previous traumatic experiences (childhood separation; history of physical or sexual abuse; victim of violence or crime); risk of self-harm and history of self-harm; and recent and previous substance use including alcohol [13, 14]. Participants who screen positive are assessed using the Comprehensive Assessment of the At Risk Mental State [38]. Both the screening and the CAARMS can be administered by a trained mental health worker. In LEAP we have found promising engagement and motivation following referral to psychological therapy. Ninety percent of the young men in prison we have offered psychological interventions to engaged well. However, we have found that a flexible "here and now" approach appropriate for people with low educational attainment is needed[12, 39].

Limitations

A more detailed picture of patterns of drug use could be gained by collecting data on use of substances within the previous month rather than just the past year, but it was not possible in this case to clarify whether time spent in prison was included. In addition the study relies on prisoners accurately reporting their own use of substances, so levels of use could be inaccurate and the strengths and amounts of the substances not be comparable. However this is an issue with any self-report study and the high rates seem to indicate truthfulness. In terms of detecting mental health issues, screening positive does not guarantee that the individual has a mental disorder, only that they need further assessment showing signs of an emerging mental health problem. However the sample size lends power, the significance levels of all the tests of association argue for reliability, and the regression analysis support this.

Acknowledgements

Our special thanks go to the staff and prisoners of the two South London prisons in which we conducted the study.

Financial Support

The project was financially supported by a generous grant from the Guy's and St. Thomas' Charitable Foundation (PI: Valmaggia). The authors acknowledge financial support from the National Institute for Health Research (NIHR) Biomedical Research Centre for Mental Health at South London and Maudsley NHS Foundation Trust and King's College London. The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

Declaration of Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Authors and contributors:

I, Lucia R. Valmaggia confirm that I had full access to all the data in the study and that I had final responsibility for the decision to submit for publication.

We, Lucia R. Valmaggia, Jemima Cooper, Manuela Jarrett, Andrew Forrester, Marta di Forti, Robin M. Murray, Vyv Huddy, Anna Roberts, Patricia Phillip, Catherine Campbell, Majella Byrne, Philip McGuire, and Thomas Craig, declare that we participated in the design, recruitment of participants, data analysis and writing of the paper.

We have all seen and approved the final version. We have no conflicts of interest

References

1. ICPS. More than 10.2 million prisoners in the world, new ICPS report shows. : International Centre for Prison Studies; 2013 Contract No.: Document Number|.
2. Fazel S, Danesh J. Serious mental disorder in 23000 prisoners: a systematic review of 62 surveys. Lancet. 2002; 359: 545-50.
3. Fazel S, Bains P, Doll H. Substance abuse and dependence in prisoners: a systematic review. Addiction. 2006; 101: 181-91.
4. HM-Inspectorate-of-Prisons. Annual Report 2012-13. . London: The Stationery Office. ; 2013 Contract No.: Document Number|.
5. Fazel S, Baillargeon J. The health of prisoners. Lancet. 2011; 377: 956-65.
6. Marion-Veyron R, Lambert M, Cotton SM, et al. History of offending behavior in first episode psychosis patients: a marker of specific clinical needs and a call for early detection strategies among young offenders. Schizophr Res. 2015; 161: 163-8.
7. Fusar-Poli P, Cappucciati M, Rutigliano G, et al. At risk or not at risk? A meta-analysis of the prognostic accuracy of psychometric interviews for psychosis prediction World Psychiatry. 2015; 14: 322-32.
8. van der Gaag M, Smit F, Bechdolf A, et al. Preventing a first episode of psychosis: meta-analysis of randomized controlled prevention trials of 12 month and longer-term follow-ups. Schizophr Res. 2013; 149: 56-62.
9. Valmaggia LR, Byrne M, Day F, et al. Duration of untreated psychosis and need for admission in patients who engage with mental health services in the prodromal phase. Br J Psychiatry. 2015; 207: 130-4.
10. Harty M, Tighe J, Leese M, Parrott J, Thornicroft G. Inverse care for mentally ill prisoners: unmet needs in forensic mental health services. . The Journal of Forensic Psychiatry & Psychology. 2003; 14: 600-14.
11. Marshall T, Simpson S, Stevens A. Use of health services by prison inmates: comparisons with the community. J Epidemiol Community Health. 2001; 55: 364-5.
12. Campbell CA, Albert I, Jarrett M, et al. Treating Multiple Incident Post-Traumatic Stress Disorder (PTSD) in an Inner City London Prison: The Need for an Evidence Base. Behav Cogn Psychother. 2015: 1-6.
13. Jarrett M, Craig T, Parrott J, et al. Identifying men at ultra high risk of psychosis in a prison population. Schizophr Res. 2012; 136: 1-6.
14. Jarrett M, Valmaggia L, Parrott J, et al. Prisoners at ultra-high-risk for psychosis: a cross-sectional study. Epidemiol Psychiatr Sci. 2015: 1-10.
15. Flynn D, Smith D, Quirke L, Monks S, Kennedy HG. Ultra high risk of psychosis on committal to a young offender prison: an unrecognised opportunity for early intervention. BMC Psychiatry. 2012; 12: 100.
16. Arseneault L, Cannon M, Poulton R, Murray R, Caspi A, Moffitt TE. Cannabis use in adolescence and risk for adult psychosis: longitudinal prospective study. British Medical Journal. 2002; 325: 1212-3.
17. Konings M, Henquet C, Maharajh HD, Hutchinson G, van Os J. Early exposure to cannabis and risk for psychosis in young adolescents in Trinidad. Acta Psychiatrica Scandinavica. 2008; 118: 209-13.
18. Tosato S, Lasalvia A, Bonetto C, et al. The impact of cannabis use on age of onset and clinical characteristics in first-episode psychotic patients. Data from the Psychosis Incident Cohort Outcome Study (PICOS). Journal of psychiatric research. 2013; 47: 438-44.
19. Valmaggia LR, Day FL, Jones C, et al. Cannabis use and transition to psychosis in people at ultra-high risk. Psychol Med. 2014; 44: 2503-12.

20. Fusar-Poli P, Byrne M, Badger S, Valmaggia LR, McGuire PK. Outreach and support in south London (OASIS), 2001-2011: ten years of early diagnosis and treatment for young individuals at high clinical risk for psychosis. Eur Psychiatry. 2013; 28: 315-26.
21. Barkus EJ, Stirling J, Hopkins RS, Lewis S. Cannabis-induced psychosis-like experiences are associated with high schizotypy. Psychopathology. 2006; 39: 175-8.
22. Di Forti M, Morgan C, Dazzan P, et al. High-potency cannabis and the risk of psychosis. British Journal of Psychiatry. 2009; 195: 488-91.
23. Di Forti M, Sallis H, Allegri F, et al. Daily use, especially of high-potency cannabis, drives the earlier onset of psychosis in cannabis users. Schizophr Bull. 2014; 40: 1509-17.
24. Loewy RL, Pearson R, Vinogradov S, Bearden CE, Cannon TD. Psychosis risk screening with the Prodromal Questionnaire--brief version (PQ-B). Schizophr Res. 2011; 129: 42-6.
25. Home-Affairs-Commitee. Drugs: Breaking the Cycle London: The Stationary Office; 2012 Contract No.: Document Number|.
26. Farrell M, Boys A, Bebbington P, et al. Psychosis and drug dependence: results from a national survey of prisoners. Br J Psychiatry. 2002; 181: 393-8.
27. Stewart D. Drug use and perceived treatment need among newly sentenced prisoners in England and Wales. Addiction. 2009; 104: 243-7.
28. Gurillo P, Jauhar S, Murray RM, MacCabe JH. Does tobacco use cause psychosis? Systematic review and meta-analysis. Lancet Psychiatry. 2015; 2: 718-25.
29. Degenhardt L, Hall W. Extent of illicit drug use and dependence, and their contribution to the global burden of disease. Lancet. 2012; 379: 55-70.
30. Najt P, Fusar-Poli P, Brambilla P. Co-occurring mental and substance abuse disorders: a review on the potential predictors and clinical outcomes. Psychiatry Res. 2011; 186: 159-64.
31. Tiihonen J, Lehti M, Aaltonen M, et al. Psychotropic drugs and homicide: A prospective cohort study from Finland. World Psychiatry. 2015; 14: 245-7.
32. Casadio P, Fernandes C, Murray RM, Di Forti M. Cannabis use in young people: the risk for schizophrenia. Neuroscience and biobehavioral reviews. 2011; 35: 1779-87.
33. Moore THM, Zammit S, Lingford-Hughes A, et al. Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review. Lancet. 2007; 370: 319-28.
34. Strang J, Babor T, Caulkins J, Fischer B, Foxcroft D, Humphreys K. Drug policy and the public good: evidence for effective interventions. Lancet. 2012; 379: 71-83.
35. Gossop M, Marsden J, Stewart D, Kidd T. The National Treatment Outcome Research Study (NTORS): 4-5 year follow-up results. Addiction. 2003; 98: 291-303.
36. Forrester A, Exworthy T, Olumoroti O, et al. Variations in prison mental health services in England and Wales. Int J Law Psychiatry. 2013; 36: 326-32.
37. Birmingham L, Mason D., Grubin D. Health screening at first reception into prison. Journal of Forensic Psychiatry,. 1997; 8: 5.
38. Yung AR, Yuen HP, McGorry PD, et al. Mapping the onset of psychosis: the Comprehensive Assessment of At-Risk Mental States. Aust N Z J Psychiatry. 2005; 39: 964-71.
39. Huddy V, Roberts A, Jarrett M, Valmaggia L. Psychological Therapy for At Risk Mental State for Psychosis in a Prison Setting: A Case Study. Journal of Clinical Psychology. 2015: n/a-n/a.

Table 1. Demographics of the total sample and association with screen result.

	Total 2102 n (%)	Negative 1499 n (%)	Positive 603 n (%)	Test statistic	
Mean age, years (sd)	25.80 (5.33)	25.42 (5.221)	26.75 (5.493)	t=-5.094	p<.001
Ethnicity				X^2=36.19	p<.001
Black British	400 (19.0)	296 (19.7)	104 (17.2)		
Black African/Caribbean	600 (28.5)	438 (29.2)	162 (26.9)		
White British	513 (24.2)	323 (21.5)	190 (31.5)		
White other	149 (7.1)	115 (7.7)	34 (5.6)		
Mixed	201 (9.6)	133 (8.9)	68 (11.3)		
Other	239 (11.4)	194 (12.9)	45 (7.5)		
Occupation				X^2=35.84	p<.001
Paid employed	643 (30.6)	504 (33.6)	139 (23.1)		
Unemployed	1041 (49.5)	685 (45.7)	356 (59.0)		
Student	299 (14.2)	229 (15.3)	70 (11.6)		
Other	119 (5.7)	81 (5.4)	38 (6.3)		
Accommodation				X^2=68.68	p<.001
Fixed abode	1420 (67.6)	1047 (69.9)	373 (61.9)		
Temp. accommodation	458 (21.8)	310 (20.7)	148 (24.5)		
Homeless	120 (5.7)	51 (3.4)	69 (11.4)		
Other	103 (4.9)	90 (6.0)	13 (2.2)		
Missing	1	1			
Age education ended				X^2=46.84	p<.001
</=13	142 (6.8)	86 (5.7)	56 (9.3)		
14-15	525 (25.0)	330 (22.0)	195 (32.3)		
16-17	754 (35.9)	545 (36.4)	209 (34.7)		
18-20	449 (21.4)	351 (23.4)	98 (16.3)		
>\=21	232 (11.0)	187 (12.5)	45 (7.5)		
Missing	18	13	5		
Highest qualification				X^2=33.93	p<.001
None	558 (26.6)	360 (24.2)	198 (32.9)		
GCSE/O Level	414 (19.7)	309 (20.8)	105 (17.4)		
Vocational courses	167 (7.9)	126 (8.5)	41 (6.8)		
NVQ/City & Guilds	533 (25.4)	369 (24.8)	164 (27.2)		
A Level/Diploma	205 (9.8)	160 (10.7)	45 (7.5)		
Degree	89 (4.2)	69 (4.6)	20 (3.3)		
Other	124 (5.9)	95 (6.4)	29 (4.8)		
Missing	12	11	1		

Table 2. Use of substances and association with screen result.

Substance	Used in lifetime					Used in past year			
	Total	Negative n (%)	Positive n (%)	X^2 *p*	OR (95%CI)	Total	Negative n (%)	Positive n (%)	X^2 *p*
Cigarettes	1746 (83.1)	1196 (79.8)	550 (91.2)	39.59 <.001	2.68 (1.92-3.57)	1618 (77.0)	1091 (72.8)	527 (87.4)	51.82 <.001
Weed/Hash	1639 (78.0)	1109 (74.0)	530 (87.9)	48.16 <.001	2.55 (1.94-3.34)	1075 (51.1)	670 (44.7)	405 (67.2)	86.87 <.001
Skunk	1533 (72.9)	1020 (68.1)	513 (85.1)	62.87 <.001	2.67 (2.08-3.43)	1088 (51.8)	680 (45.4)	408 (67.7)	85.63 <.001
Inhalants	139 (6.6)	45 (3.0)	94 (15.6)	110.21 <.001	5.96 (4.12-8.63)	11 (0.5)	3 (0.2)	8 (1.3)	10.48 .001*
Crack	431 (20.5)	205 (13.7)	226 (37.5)	149.28 <.001	3.78 (3.03-4.72)	253 (12.0)	110 (7.3)	143 (23.7)	108.93 <.001
Cocaine	706 (33.6)	405 (27.0)	301 (49.9)	100.89 <.001	2.69 (2.21-3.28)	381 (18.1)	198 (13.2)	183 (30.3)	85.12 <.001
Stimulants	576 (27.4)	308 (20.6)	268 (44.4)	123.24 <.001	3.09 (2.52-3.79)	158 (7.5)	76 (5.1)	82 (13.6)	44.99 <.001
Sedatives	339 (16.1)	134 (8.9)	205 (34.0)	199.40 <.001	5.24 (4.11-6.70)	235 (11.2)	81 (5.4)	154 (25.5)	175.57 <.001
Opioids	275 (13.1)	117 (7.8)	158 (26.2)	127.84 <.001	4.19 (3.23-5.45)	203 (9.7)	86 (5.7)	117 (19.4)	92.05 <.001
Hallucin-ogens	256 (12.2)	112 (7.5)	144 (23.9)	108.12 <.001	3.88 (2.97-5.08)	23 (1.1)	8 (0.5)	15 (2.5)	15.17 <.001
Other	238 (11.3)	87 (5.8)	151 (25.0)	158.34 <.001	5.42 4.08-7.20	165 (7.9)	60 (4.0)	105 (17.4)	106.91 <.001

*cell has expected count less than five

Table 3 Alcohol use and association with screen result.

	Total	Negative	Positive	Test statistic	Sig
Do you drink alcohol?	1664 (79.2)	1157 (77.2)	507 (84.1)	$X^2 = 12.22$	<.001
Age of first drink	*n=1735*	*n=1207*	*n=528*		
Mean (sd)	15.85 (3.30)	16.12 (3.15)	15.22 (3.53)	t (909df)= 5.08	<.001
How often do you drink?	*n=2100*	*n=1497*	*n=603*	$X^2 = 176.50$	<.001
Never	524 (25.0)	398 (26.6)	126 (20.9)		
Less than monthly	211 (10.0)	164 (11.0)	47 (7.8)		
Once a month	199 (9.5)	162 (10.8)	37 (6.1)		
2 or 3 times a month	279 (13.3)	221 (14.8)	58 (9.6)		
Weekly	493 (23.5)	373 (24.9)	120 (19.9)		
Daily/almost daily	398 (18.8)	179 (12.0)	215 (35.7)		
How often do you have five or more drinks?	*n=2099*	*n=1496*	*n=603*	$X^2 = 61.78$	<.001
Never	869 (41.4)	661 (44.1)	208 (34.5)		
Less than monthly	357 (17.0)	278 (18.6)	79 (13.1)		
Monthly	244 (11.6)	191 (12.8)	53 (8.8)		
Weekly	351 (16.7)	251 (16.8)	100 (16.6)		
Daily/almost daily	278 (13.2)	115 (7.7)	163 (27.0)		

Table 4. Results of binary logistic regression analysis.

	B	S.E.	Wald	df	Sig.	Exp(B)
Substance use						
Use of any substance in last year	.744	.165	20.316	1	**.000**	**2.105**
Five or more units daily or almost daily	.887	.153	33.675	1	**.000**	**2.427**
Highest duration of any substance used	.002	.012	.023	1	.880	1.002
Lowest age any substance used	-.082	.022	14.053	1	**.000**	**.921**
Number of drugs used	.213	.032	45.729	1	**.000**	**1.238**
Socio-demographic						
Ethnicity White British	-.386	.140	7.576	1	**.006**	**.680**
Occupation unemployed	.123	.118	1.090	1	.296	1.131
Accommodation homeless/ temporary	.184	.125	2.166	1	.141	1.202
Education ended before age 16	.061	.127	.230	1	.632	1.063
Qualifications none	.062	.130	.230	1	.632	1.064

Note: Model X^2 (10, n=1765) = 283.35, p<0.001. R^2 = .148 (Cox & Snell), .208 (Nagelkerke).

Figure 1. Drugs Glossary

Weed or hash: traditional herbal marijuana and hashish
Skunk: high potency cannabis
Inhalants: e.g. glue, petrol, gas, poppers
Crack cocaine: crystalline form of cocaine
Powder cocaine: drug obtained from coca leaves
Stimulants e.g amphetamines, ecstasy
Sedatives e.g. benzodiazepines; barbiturates
Opioids e.g heroin, morphine, methadone
Hallucinogens: e.g. LSD (lysergic acid diethylamide), Magic Mushrooms
Other: covers new psychoactive substances e.g. spice or synthetic cannabis, mephedrone, ketamine

Under the Misuse of Drugs Act 1971, illegal drugs are placed into one of 3 classes - A, B or C. This is broadly based on the harms they cause either to the user or to society when they are misused.
• **Class A** drugs include: heroin, cocaine (including crack), methadone, ecstasy (MDMA), LSD, and magic mushrooms.
• **Class B** includes: amphetamines, barbiturates, codeine, cannabis, cathinones (including mephedrone) and synthetic cannabinoids.
• **Class C** includes: benzodiazepines (tranquilisers), GHB/GBL, ketamine, anabolic steroids and benzylpiperazines (BZP).

For more information please visit http://www.talktofrank.com