Substance use characteristics, health risk practices and associated factors among people imprisoned in Catalonia: a cross-sectional study

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Original

INTRODUCTION

Prison inmates, in Spain and other Western countries, show a higher prevalence of substance-related disorders (SRD) than those living in the community. In the month before entering prison, future inmates consume alcohol (64.8%), cannabis (39.8%), cocaine (51.1%), heroin (13.7%) and tranquilisers (13.3%) in larger amounts than the general public. When these persons enter prison, their consumption changes: it decreases dramatically in intensity, the profile of the most frequently used substances changes to the following: cannabis (21.3%), tranquilisers (4.1%), alcohol (3.8%), heroin (2.4%) and cocaine (2.4%), respectively; and the hazards associated with consumption increase, as it is now associated with health risk practices that lead to infection from blood-borne and sexually transmitted diseases (STBBI), such as injecting (7% of new inmates acknowledge that they are intravenous drug users (IDU)) and sharing injection equipment, in a population with a high prevalence of infection from the human immunodeficiency virus.
(HIV, 5.1%) and from hepatitis C (HCV, 6.5%). In fact the use of drugs, especially injected drug use, and sexual intercourse without protection, are the main risk factors for infection from HIV and HCV in prison6-9.

Harm reduction is a pragmatic approach geared towards tackling drug consumption and the associated risk behaviours10, which, without renouncing the final objective of abstinence11, subordinates it to the specific needs and possibilities of the client, respecting their decisions regarding the change, and bringing the treatment closer to the majority of the users that continue to use substances. It has a wide range of strategies, ranging from education in hygienic consumption to work directed towards abstinence, including management of use12.

The needle exchange program (NED) is a harm reduction strategy that has shown itself to be especially effective in prisons and in the community. It provides those who wish to inject with access to sterile injection material. It prevents infection from STBBI, reducing the use of contaminated material, and promotes improvements in quality of life amongst users, probably by interiorising self-care strategies13.

The available data about substance use and its associated problems in prison have limitations that restrict its application to interventions. Such difficulties are due to the fact that they refer to illegal activities, which leads the inmates to resist giving information about them for fear of negative consequences14.

There are effective investigation strategies for outreach to populations that are not easy to access, generally separated from formal care services and at risk, to gather information about their behaviours and hidden needs. All of them involve working with equals15-17.

The purpose of this study was to gain greater knowledge about the use of addictive substances and their main corollaries in Brians 1 Prison, including information obtained from specific sampling techniques to reveal hidden practices, thereby increasing their applicability to the design of programs to improve the health of drug users in prison.

The overall objective of the study can be broken down into two specific ones:

• Provide descriptive data about the use of psychoactive substances, related problems and treatment, the associated risk practices and their consequences for the health of inmates in a prison.

• Identify possible factors associated with three core elements, especially representative of the problems analysed: drug use, injected consumption and participation in NEP in prison.

MATERIALS AND METHODS

The research was inserted into a broader peer health education program based on the project Euro Boule de neige, developed in Belgium by the association Modus Vivendi, geared towards analysing the situation of drug using inmates and towards preventing health problems associated with substance use18.

The information gathering process was channelled via a survey, based on the Spanish adaptation of the initial project19, which was in turn modified to adapt to the specific needs of the population under study, in line with the methodology proposed in the original, in three stages:

• Preparation (in this case, modification) of the survey depending on the research objectives.

• Validation pilot test, carried out on ten users in the population, in which a prototype of the questionnaire was completed to check its suitability, and any necessary changes were then made to create the final version.

• Training of expert users in the effective implementation of the survey. Throughout the peer health educational program, a group of equals, the peer workers, all of them residents in the prison and potentially users, were trained in the administration of the questionnaire, working specially in unifying the interpretation criteria of the answers, management of role conflicts arising from their situation as mediators between users and professionals, and respecting the freedom and privacy of the interviewee18,19.

The result of the above process was an information gathering tool for the socio-demographic and prison situation, drug use and risk behaviours, the health situation and the use of services. This was applied in an interview by the co-workers, using a snowball sampling approach with privileged access interviewers. With the snowball method we formed a benchmark group of prisoners, potentially drug users, who recruited other partners with the same characteristics, to jointly participate in the peer health education program from which peer workers came out. We did privileged access interviews taking advantage of the role played by peer workers who, due to their proximity to other mates and their status among them, enjoyed ready access to target population and therefore were trained to carry out the interviews. The entire process concluded in January 2013.

The sample of participants included a total of 178 persons, all of whom were potential users of psychoactive substances serving sentence at Brians 1.
Prison. The study was evaluated, accepted and supervised by the Centre d’Estudis Jurídics i Formació Especialitzada del Departament de Justícia la Generalitat de Catalunya (CEJFE) (Centre for Legal Studies and Specialist Training of the Department of Justice of the Regional Government of Catalonia). The ethical recommendations of the Helsinki Declaration were complied with.20

Different types of analysis were carried out on the answers given by the interviewees:

- Descriptive analysis of the main variables studied and comparisons of the proportions found there of the three outcome variables established via the Student t test (for quantitative outcome variables), the Pearson chi-square test and the Fisher exact test (for categorical outcome variables).
- Univariate and multivariate logistic regression models to identify the variables associated with use of addictive substances and injected use in prison. In the case of the multivariate model, variables with a level of significance below 0.10 in the univariate model were included, and the odds ratios (OR) and their respective confidence intervals (CI) of 95% were calculated.

Values with a p value equal to or less than 0.05 were regarded as significant for all the analyses and the Statistical Package for the Social Sciences (SPSS) version 17 was used.

RESULTS

The main characteristics of the sample are described in Table 1. The average age of the participants was 36.8 years (standard deviation [SD]: 8.4). The average duration of their sentence was 8.6 years (SD of 6.5). Most of them were men (61.8%) and Spanish (86%). 74.7% of the participants acknowledged excessive use of addictive substances at some time in their lives, and 68% stated that they have followed a treatment for addiction, and alcohol (8.4%).

33.7% admitted to presenting one or more STBBI: 27% were infected with HCV; 20.2% by HIV and 13.5% by both viruses. 18.5% stated that they had injected drugs in prison in the last six months. Of these, 54.5% acknowledged that they had shared injection material, and 36.4% had participated in the NEP.

Table 2 shows the results of the univariate and multivariate analysis of the factors associated with drug use in prison in the last six months. The multivariate analysis shows that persons of Spanish nationality (AOR = 4.79; CI 95%: 1.52-15.16), recidivists (AOR = 2.67; CI 95%: 1.11-6.46), who had received penalties (AOR = 2.70; CI 95%: 1.18-6.22) and who had committed severe transgressions of coexistence while in prison (AOR=3,01; CI 95%: 1.24-7.31), showed a higher likelihood of being involved in consumption of addictive substances in jail.

Table 3 shows that injecting drugs in prison is significantly related to the duration of the user’s sentence (AOR = 1.13; CI 95%: 1.05-1.23), having undergone addiction treatment (AOR = 3.84; CI 95%: 0.95-15.62) and being a carrier of STBBI (AOR = 3.95; CI 95%: 1.42-10.98).

Table 4 on comparison of proportions shows that, amongst the intravenous drug users who exchanged needles (in the NEP), there was a significantly higher percentage of women (66.7% compared to 16.7%) and of importance attributed to the treatment of health problems (90.9% compared to 50.0%), in the absence of differences in other potentially confusing variables referring to criminal behaviour and to consumption and health problems, in contrast to injectors who did not participate in NEPs.

DISCUSSION

The results of the survey match the data from previous studies on the most widely used substances in prison, which highlight depressors of the central nervous system (CNS) as the most suitable ones due to the specific limitations and needs of life in this environment.3

The participants of the study were characterised as a group with more severe issues than the average incarcerated population in Catalonia with regard to criminal, penitentiary and health variables, such as sentence duration, levels of recidivism, excessive drug use in prison, the associated STBBI and health related risk practices of infection.6,5 In fact, the high prevalence of health problems detected are similar to those obtained in samples of intravenous drug users (IDUs) attending harm reduction resources in the community.21 One possible interpretation of this state of affairs is that the method applied has allowed us to effectively contact with groups of imprisoned persons who maintain a lifestyle that is marginalised with regard to institutional channels of rehabilitation and health promotion, highlighting the capacity of the...
Table 1. Socio-demographic characteristics, criminal and prison conduct, use of addictive substances, risk behaviors and consumption related diseases of the population studied (N=178)

| Variable                                      | No. (%)*          | Variable                                      | No. (%)*          |
|-----------------------------------------------|-------------------|-----------------------------------------------|-------------------|
| Sex                                           |                   | Consumption of tobacco in prison in last 6 months |                   |
| Woman                                         | 68 (38.2)         | Yes                                           | 158 (88.8)        |
| Man                                           | 110 (61.8)        | No                                            | 17 (9.5)          |
|                                               |                   | Not available                                  | 3 (1.7)           |
| Nationality                                   |                   | STBBI                                          |                   |
| Spanish                                       | 153 (86.0)        | Yes                                           | 60 (33.7)         |
| Foreign                                       | 18 (10.1)         | No                                            | 92 (51.7)         |
| Not available                                 | 7 (3.9)           | Not available                                  | 26 (14.6)         |
| Main source of income in prison               |                   | HIV Carrier                                    |                   |
| Work                                          | 50 (28.1)         | Yes                                           | 36 (20.2)         |
| External aid                                  | 110 (61.8)        | No                                            | 123 (69.1)        |
| Government support                            | 14 (7.9)          | Not available                                  | 19 (10.7)         |
| Not available                                 | 4 (2.2)           | Co-infection with HIV-HCV                      |                   |
| Sentences served                              |                   | Yes                                           | 24 (13.5)         |
| Primary                                       | 46 (25.8)         | No                                            | 139 (78.1)        |
| Recidivist                                    | 128 (71.9)        | Not available                                  | 15 (8.4)          |
| Not available                                 | 4 (2.2)           | Concern about health problems                  |                   |
|                                               |                   | Yes                                           | 110 (61.8)        |
| Penalties                                     |                   | No                                            | 66 (37.6)         |
| Penalised                                     | 109 (61.2)        | Not available                                  | 2 (1.1)           |
| Not penalised                                 | 58 (32.6)         | Importance of treatment for health problems    |                   |
| Not available                                 | 11 (6.2)          | Yes                                           | 108 (60.7)        |
| Severe transgressions                         |                   | No                                            | 67 (37.6)         |
| Yes                                           | 49 (27.5)         | Not available                                  | 3 (13.5)          |
| No                                            | 119 (66.9)        | Treatment of drug problems                     |                   |
| Not available                                 | 10 (5.6)          | Yes                                           | 121 (68.0)        |
| Acknowledged addiction                        |                   | No                                            | 57 (32.0)         |
| Yes                                           | 133 (74.7)        | Injection in prison in last 6 months           |                   |
| No                                            | 45 (25.3)         | Yes                                           | 33 (18.5)         |
| Not available                                 |                   | No                                            | 141 (79.2)        |
| Consumption of drugs in prison in last 6 months |                   | Not available                                  | 4 (2.2)           |
| Yes                                           | 135 (75.8)        | Heroin (N = 33)                                |                   |
| No                                            | 40 (22.5)         | Yes                                           | 30 (90.9)         |
| Not available                                 | 3 (1.7)           | No                                            | 1 (3.0)           |
| Heroin in prison in last 6 months             |                   | Not available                                  | 2 (6.1)           |
| Yes                                           | 89 (50.0)         | Cocaine (N = 33)                              |                   |
| No                                            | 85 (47.8)         | Yes                                           | 17 (51.5)         |
| Not available                                 | 4 (2.2)           | No                                            | 13 (39.4)         |
| Cocaine in prison in last 6 months            |                   | Not available                                  | 3 (9.1)           |
| Yes                                           | 47 (26.49)        | Participation in needle exchange program (NEP) (N = 33) |                   |
| No                                            | 126 (70.8)        | Yes                                           | 12 (36.4)         |
| Not available                                 | 5 (2.8)           | No                                            | 18 (54.5)         |
| Cannabis in prison in last 6 months           |                   | Not available                                  | 3 (9.1)           |
| Yes                                           | 115 (64.6)        | Sharing injecting equipment (N = 33)           |                   |
| No                                            | 59 (33.1)         | Yes                                           | 18 (54.5)         |
| Not available                                 | 4 (2.3)           | No                                            | 13 (39.4)         |
| Alcohol in prison in last 6 months            |                   | Not available                                  | 2 (6.1)           |
| Yes                                           | 15 (8.4)          | Tattooing in prison                            |                   |
| No                                            | 156 (87.6)        | Yes                                           | 82 (46.1)         |
| Not available                                 | 7 (3.9)           | No                                            | 92 (51.7)         |
| Psychiatric drugs in prison in last 6 months  |                   | Not available                                  | 4 (7.2)           |
| Yes                                           | 75 (42.1)         | (keep going)                                   |                   |
| No                                            | 97 (54.5)         |                                              |                   |
| Not available                                 | 6 (3.4)           |                                              |                   |
| Non-prescribed psychiatric drugs in prison in last 6 months (N = 75) | Yes | 24 (32) | |
| No                                            | 51 (68)           |                                              |                   |
The measurements related in some way to the severity of the criminal behaviour, such as recidivism, duration of the sentence and those of adaptation to prison regulations: penalties and severe transgressions of coexistence, are associated with the use of addictive substances and injecting drug use in prison, in the latter case, in combination with STBBI. Such data support data from the literature that suggest the existence of a sub-group of more serious consumers, what some authors call the “true addicts”\textsuperscript{22}, who have a relationship with the substance that is notably different from that of other consumers, with fewer personal, social and economic resources, a higher level of psychiatric co-morbidity and associated consequences for physical health, and a more negative prognosis\textsuperscript{23,24}. The proposed division would have implications in the subjects’ criminal behaviour, since it has been suggested that underlying the relationship between drug dependence and crime there is a stratum of persistent criminal activity by a small number of consumers\textsuperscript{25} in whom negative indicators of health and recidivism coincide\textsuperscript{26}.

The fact that having enrolled a treatment for drug problems does not protect against drug consumption.
Table 3. Univariate and multivariate analyses of the factors linked to injected consumption of substances in prison over the last six months

| Variable                  | Percentage of use (%) | OR (CI 95%) | AOR (CI 95%) |
|---------------------------|-----------------------|-------------|--------------|
| Sex                       |                       |             |              |
| Female                    | 17.6                  | 1           |              |
| Male                      | 19.8                  | 1.15 (0.53-2.53) |              |
| Duration of sentence      |                       | 1.07 (1.01-1.13) | 1.13 (1.05-1.23) |
| Main source of income     |                       |             |              |
| Government support        | 28.6                  | 1           |              |
| Prison allowance          | 22.9                  | 0.74 (0.22-2.58) |              |
| Work                      | 8.2                   | 0.22 (0.05-1.04) |              |
| Severe transgressions     |                       |             |              |
| No                        | 14.7                  | 1           |              |
| Yes                       | 22.4                  | 1.69 (0.72-3.93) |              |
| Drug treatment            |                       |             |              |
| No                        | 7.3                   | 1           | 1            |
| Yes                       | 24.4                  | 4.11 (1.37-12.35) | 3.84 (0.95-15.62) |
| STBBI                     |                       |             |              |
| No                        | 11.1                  | 1           | 1            |
| Yes                       | 33.9                  | 4.10 (1.75-9,60) | 3.95 (1,42-10,98) |

Note. STBBI: sexually transmitted or blood borne illness; OR: odds ratio; CI: confidence interval; AOR: odds ratio adjusted by all the significant variables.

Table 4. Variables that have shown a relation with the needle exchange program (NEP) in those users who have acknowledged that they inject drugs

| Variable                  | NEP (X) | Non NEP (X) | p value† |
|---------------------------|---------|-------------|----------|
| Average age (in years)    | 38.92   | 39.12       | 0.947    |
| Average duration of sentence (in years) | 7.91 | 12.54      | 0.158    |
| Recidivist (%)            | 66.7    | 88.9        | 0.189    |
| Penalties (%)             | 87.5    | 64.7        | 0.362    |
| Severe transgressions (%) | 42.9    | 44.4        | 1.000    |
| Sex (women) (%)           | 66.7    | 16.7        | 0.009‡   |
| Work (%)                  | 25.0    | 30.3        | 0.780    |
| Family links (%)          | 75.0    | 94.4        | 0.274    |
| Concern about family issues (%) | 83.3 | 77.8       | 1.000    |
| Acknowledged addiction (%)| 75.0    | 77.8        | 1.000    |
| Heroin consumption (%)    | 100     | 94.4        | 1.000    |
| Cocaine consumption (%)   | 44.4    | 61.1        | 0.448    |
| Sharing needles (%)       | 45.5    | 72.2        | 0.149    |
| STBBI (%)                 | 60.0    | 76.5        | 0.415    |
| Treatment of drug problems (%) | 100.0 | 83.3      | 0.225    |
| Concerned about health problems (%) | 81.8 | 55.6     | 0.234    |
| Importance of treatment for health problems (%) | 90.9 | 50.0 | 0.044‡ |

Note. *In prison, in the last six months; †t tests for continuous variables, chi-squared test and Fisher exact test for categorical variables; ‡statistically significant differences (p ≤0.05).

STBBI: sexually transmitted and blood borne illness.

The results of the study indicate that health risk practices persist in prisons, both in terms of the use of addictive substances and other unrelated activities. IDUs involved in NEPs are mostly women, they give more importance to treating health problems, in the absence of other differences regarding criminal behaviours, consumption or health, and they continue to share material. The differences between sexes confirms the greater interest and sensitivity, already mentioned in other publications, of women inmates to care measures directed towards them, especially in the relational field. The other data about the use of NEPs amongst injectors indicates that there is a margin of growth of harm reduction interventions and of deepening them to enhance their influence over users’
behavior. In this regard, it is worthwhile highlighting the efforts to increase the coverage of NEPs, to synchronise them with harm reduction programs, such as substitution programs for opiate dependents, anti-retroviral therapy (ART) and the distribution of condoms, as well as complementing them with other effective Psychosocial approaches. What should be outlined in the latter of these approaches is the value of educational peer interventions, which are especially beneficial for giving information about risk behaviours for infection from STBBIs, promoting changes in beliefs and attitudes (both of imprisoned users and of “expert” co-workers) and to reduce risk behaviours, as long as they are accompanied by access to hygienic consumption materials and condoms; and of confering the user a leading role in the change process.

The study’s limitations include the use of the self-report, of a non-random sample, and the fact that the participants did not answer in the same proportion to each question in the survey, which have to do ultimately with the influence of the interviewer’s characteristics in the answers obtained and to the difficulties of the peer workers in managing their dual role of users and experts. It would be recommendable in this case to increase the efforts made to prepare the interview and support the peer collaborators with the role conflicts associated with such a task. The proposal has been made to create support groups for peer workers, and to convert them into facilitators for access to members of the target population who would be interviewed by professionals.

In any case, the limitations should be taken into consideration when making any appraisals based on the study data. The multivariate methodology and special sampling techniques for hidden populations are compensatory strategies to back up the validity of the results obtained.

Above and beyond the restrictions, the study provides data that suggests that there is use of drugs, injecting consumption and risk practices that can transmit STBBI in Catalanian prisons, despite the profusion of measures, primarily abstinence-based, geared towards suppressing them. It relates risk practices in prison with a marginalised lifestyle within the institution itself. It also provides arguments in favour of expanding and coordinating the range of interventions using an approach based on harm reduction, opening them up to peer methods and to psychological treatments that generally include the user’s perspective.

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