

Research Article

Patterns and Predictors of Alcohol and Substance Use Disorders among Prison's Inmates in Nigeria

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Abstract

Background: Alcohol and substance use are important factors in criminal behavior and in reoffending. In this study, we looked at pattern and predictors of substance use among a population of prisoners in Nigeria.

Methods: This is a cross-sectional survey involving prisoners at the Abeokuta maximum-security prison. Participants were recruited using a simple random sampling; and based on their prison status i.e. either awaiting trial or convicted inmates. Alcohol and Substance Use Disorders were evaluated using structured clinical interview- the M.I.N.I. Plus. Diagnoses were based on the Diagnostic and Statistical Manual of Mental disorders- fourth edition (DSM-IV). Data were analyzed with SPSS-16 software and frequency, Chi-square, t-test were calculated as appropriate and logistic regression model was used to explore the relationship of other variables with alcohol and cannabis use disorders.

Results: The mean age of prisoners was 34.77 ± 10.28 . Alcohol and cannabis use disorders were the commonest form of substance use disorders with a lifetime prevalence of 29.5% and 18.1% respectively and current use disorder of 5.4% and 8.7% respectively. Significantly, alcohol use disorder was predicted by Fathers cannabis use, and the use cannabis while in the prison. Cannabis use disorder on the other hand was significantly predicted by parental marital status and the age at which the inmate left home, fathers' cannabis use, lifetime AUD and current AUD.

Conclusions: Despite the fact that prison is a confined environment, quite an appreciable number of prisoners still have access to alcohol, cannabis and other illicit substances with an appreciable number presenting with varying severity of substance use disorders. Alcohol and cannabis use disorders were found to be predicted by patients' socio-demographics and drug use variables.

INTRODUCTION

The misuse of alcohol and other substances of abuse remain a major public health challenge not just in the general population but also in the prison. In the USA for example, approximately two million of 2.3 million adults behind bars were substance-related with almost two-thirds meeting criteria for an alcohol or other drug use disorder [1]. Studies on alcohol and drug abuse in prisons had given different rates depending on the location of the prison. In a systematic review by Fazel, Bains & Doll [2], the estimates of alcohol abuse and dependence in male prisoners range from 18 to 30% and for other substances from 10 to 48% for male prisoners. In another study in New Zealand [3], nearly one hundred percent of the prisoners had a lifetime alcohol use disorder with about half meeting the criteria for current alcohol dependence disorder and a quarter with drug dependence disorder. Similarly, in a related study in France [4], more than a third of prisoners presented either with Alcohol Use Disorders (AUD) or Substance Use Disorders (SUD) in the last 12 months with cannabis being the most frequently used drug, and about a fifth of prisoners with AUD.

Research studies in Africa have also demonstrated high prevalence of substance abuse among prison population compared with the general population [5, 6]. In a South African prison, substance and alcohol use disorders were the commonest mental disorder among prison populations studied with a prevalence of about 42% [5]. Similarly in Kenya, Kinyanjui & Atwoli [6] reported a lifetime prevalence of 66.1% and 65.1% for substance and alcohol use respectively, while in Uganda [7], the lifetime drug use among prisoners was found to be 65%, with about 90% of these abusing Tobacco/cigarette followed by marijuana (49%).

In Nigeria however, studies looking at substance abuse in the prison have looked at substance use rather than substance use disorders. In a study by Amdzaranda, et al.[8] among prison population in Ilesa, Nigeria, the current (one month) use rates of the substances showed that tobacco was the commonest substance being abused by prisoners accounting for 13.7%, followed by hypno-sedatives and alcohol, with heroin having the least users (1.3%). In a similar study in northern Nigeria [9], the lifetime use for any substance was 88.0% and current drug use

for any substance was 64.3% with nicotine being the highest. Among this population, prior arrest, being sexually active and family drug use were predictors of lifetime use of any substance while being raised in a monogamous family was protective. Among imprisoned armed robbers on the other hand, Adamson & Malomo [10] reported that 40% of the armed robbers used alcohol on a daily basis compared to 7.7% of non-armed robbers. Likewise, 45% of armed robbers were using cannabis compared to 0.9% of those who were not armed robbers. The reverse was noted with nicotine where 46% of non-armed robbers were users compare to 25% of armed robbers.

Several factors have been shown to be associated with substance use among prisoners. Relative to prisoners who were not abusing substances, inmates who abuse substances are not only likely to be unemployed or have history of previous arrest for drug offence,[8] but also with history of re-incarceration, begin their criminal careers at an early age, and have more contacts with the criminal justice system [9,11-13]. In addition, they are also likely to have history of childhood abuse, school difficulties, childhood conduct disorders [13-16], previous psychiatric treatment, co-morbid psychiatric diagnosis such as psychosis, mood disorder, antisocial personality, deliberate self-harm, serious physical illness or injury [13,17], fewer qualifications, unemployment, housing difficulties and increase length of time spent in prison [13]. Besides, they are more likely to have had at least one parent who abuses alcohol or other drugs [9,12]. After controlling for demographic and criminal justice variables, a prisoner with serious psychiatric and substance dependence disorders is more likely to be rearrested faster than prisoners without such diagnosis [18].

The primary purpose of the Nigerian prison is the rehabilitation of inmates for eventual reintegration into the society. Understanding the extent and pattern of alcohol and other substance use disorders, and related factors is a prerequisite for developing appropriate drug prevention, treatment and rehabilitation policies and modalities for tackling the problem of drug misuse and related crime and offences. This study therefore, aimed at determining the prevalence, pattern of drug abuse/dependence and alcohol abuse/dependence and associated factors among inmates of a maximum security prison in Nigeria.

MATERIALS AND METHODS

Study Design

This is a descriptive cross-sectional quantitative study involving a population of inmates (convicted and awaiting trial) at the Federal prison, Abeokuta, southwest Nigeria.

Study population

The sample size was calculated using the statistical formula; Cochran's minimum sample size formula (Cochran, 1999). At the time of this study, there were 771 inmates, a figure well above its total capacity of 510. This comprises of 489 awaiting trial (male 461, female 28) and 282 convicted inmates (277 males and 5 females) who are serving various prison terms; including life imprisonment and condemned inmates. The estimated sample size was 286. Participants were recruited by simple random sampling method using table of random numbers. Probability

proportional to size method was used to determine the number of participants based on their prison status i.e. either awaiting trial or convicted inmates. Serial number was assigned to each group of participants and samples were drawn using the simple random sampling. Due to the fluid nature of the prison, additional 10% was added to the calculated sample sized to accommodate for those who left the prison before they were evaluated or those who may decline.

Inclusion Criteria

All male inmates in Abeokuta Prison were included.

Exclusion Criteria

All female inmates were excluded because of their limited number. Likewise, those who were severely physically ill, those with a learning disability and those who do not understand either Yoruba or English language were excluded.

Data Collection

Each subject was first interviewed with a questionnaire designed by the authors containing information on socio-demographic, forensic, family, childhood and psychosexual history of the inmate and then by the alcohol abuse/dependence and non-alcohol psychoactive substance use disorders modules of the Mini International Neuropsychiatric Interview English Version 5.0 (M.I.N.I. PLUS 5). To ensure reliability of information given, each participant was interview in a room where there was no interference by others or has access to the interview.

Instrument

The Mini-International Neuropsychiatric Interview (M.I.N.I.) is a short structured diagnostic interview, developed jointly by psychiatrists and clinicians in the United States and Europe, for DSM-IV and ICD-10 psychiatric disorders. It was designed to meet the need for a short but accurate structured psychiatric interview for multicenter clinical trials and epidemiological studies and to be used as a first step in outcome tracking in non-research clinical settings. The administration time of the interview is approximately 15 minutes [19]. The M.I.N.I. Plus, a more detailed edition of the M.I.N.I, was used in this study. Validation and reliability studies in comparison to the Structured Clinical Interview for the DSM-IV and the Composite International Diagnostic Interview (CIDI) revealed that it has acceptably, high validity and reliability scores (kappa scores for all diagnoses were above 0.70 with about 70% being above 0.90, indicating excellent inter-rater reliability) and when compared with SCID-IV, it has a sensitivity of greater than 0.70 and a specificity of above 0.85 for most diagnoses [19]. In a validation study done in Nigeria, the instrument has been found to have an inter-rater reliability of 0.86 [20].

In this study, a participant is said to have alcohol or other substance use disorders if he met the DSM-IV criteria for either abuse or dependence syndromes. In addition, those who met such criteria for alcohol or cannabis use disorder in the past 12 months were classified as classified as having a current alcohol or cannabis use disorder and those meeting such criteria anytime in their life lifetime aside the past 12 months were classified as having lifetime alcohol or cannabis use disorder. Inmates with dichotomized into two; those with diagnoses of substance use

disorders (SUDs) and those without; those without were coded 0 while those with diagnosis were coded 1.

Statistical Analysis

Data analysis was done using Statistical Package for Social Sciences (SPSS) programme version 16. Data were presented using simple frequency distribution tables, univariate analysis for two tailed test, and Pearson Chi-square test for qualitative variables with fisher's exact or Yate's correction where applicable. Multiple logistic regressions using a stepwise selection process was employed to analyze those factors associated with AUDs and Cannabis use disorders.

Ethical Consideration

The research protocol was approved by the Ethical Committee of the Neuropsychiatric Hospital, Aro, Abeokuta, with IRB research approval number PR010/14. Permission was obtained from the Ogun State Prisons Command. Confidentiality and privacy of information was ensured. A written informed consent was also obtained from each participant. They were further assured that if any inmate chose not to participate, neither his trial nor his treatment by prison staff will change in any way.

RESULTS

Socio-demographic characteristics

Of the 288 participants sampled, 11 declined leaving 277 participants for the interview. These comprised of 169 (61.0%) awaiting trial and 108 (39%) convicted persons. Their ages ranged from 17 - 80 years with a mean of 34.77 years and a Standard Deviation (SD) of 10.28. Majority 244 (88.1%) were employed prior to imprisonment. Two hundred and nine (75.5%) had some levels of primary or high school education while 27 (9.7%) had no formal education.

Patterns of alcohol and other substances

Table (1) shows the pattern of alcohol and other substance use disorders among the inmates. The lifetime prevalence of alcohol use disorder was 29.6% with 8.7% meeting criteria for lifetime abuse and 20.6% lifetime dependence. Six (2.2%) of the inmates met criteria for current alcohol abuse while 10 (3.6%) met criteria for current alcohol dependence. Fifty two (18.8%) were either lifetime abuser or dependent on cannabis while 11 (4.0%) and 13 (4.7%) were current abuser and dependent respectively.

Lifetime alcohol use disorders and inmates characteristics

Table (2) presents the relationship between lifetime alcohol abuse and inmates' socio-demographic characteristics. A higher proportion of those with none or primary education 42 (31.3%) compared with those with post-primary education 40 (28.0%) met criteria for lifetime alcohol use disorder; however, this was not statistically significant. With the exception of cannabis use while in the prison ($p=0.031$), there was no statistically significant relation with lifetime alcohol use disorders and inmates socio-demographic variables ($p>0.05$).

Current Alcohol use disorders and inmates,

Characteristics

Table (3) describes the relationship between socio-demographic variables and the diagnosis of current alcohol dependence. With the exception of the age at which the inmates left their parents/guardians' home ($p=0.001$), fathers cannabis use ($p=0.041$) and cannabis use while the prison, there was no significant association between other socio-demographic variables and alcohol dependence ($p>0.05$).

Lifetime Cannabis use disorders in relation to inmates characteristics

Table (4) highlights the relationship between lifetime Cannabis Use Disorders (CUD) in relation to inmates' characteristics. Thirty four (23.6%) of those who were not married as against 18 (13.5%) of those who were married had lifetime CUD and this was significant ($p=0.032$). Similarly, a higher proportion of inmates whose parents were either separated or divorced had a lifetime CUD ($p=0.015$). Significantly, a higher proportion of those whose fathers use cannabis met criteria for lifetime cannabis use disorders compared with those whose father do not. Similarly, those who had current alcohol use disorders were more likely to have a lifetime diagnosis of CUD ($p=0.001$).

Current cannabis use disorders and inmates Characteristics

As shown in Table (5), there was a significant association between inmates marital status, parental marital status, father's cannabis use and Current cannabis use disorders $p<0.05$. In the same vain, those who had a diagnosis lifetime and current alcohol use disorders were more likely to have current CUD ($p<0.001$). There were no significant association between other inmates' characteristics and current marijuana dependence ($p>0.05$).

Logistic regression model of factors associated with AUDs and CUDs

Variables found to be significantly associated with AUDs and CUDs from cross tabulation were entered into logistic regression (Table 6). Current AUD and cannabis use while in the prison were found to be predictors of lifetime AUD, though only 10-15% of the variability in life time AUD can be explained by the model. Similarly, age at leaving home and cannabis use while in the prison were found to be predictors of Current AUD and this account for about 7-19% of the variability in predictors of current AUD.

Father's cannabis use, Lifetime AUD and current AUD were found to predict of both Lifetime CUD and current CUD while Parental marital status on the other hand only predicts lifetime CUD. These factors only account for 25 to 41% and 14 to 31% the variability in the dependent variables in explaining predisposition to Lifetime CUD and current CUD respectively.

DISCUSSION

The use of alcohol and other substances among prisoners continues to be a growing concern worldwide, Nigeria not an exemption. It is a major challenge not just in general population but also in the prison [21-24]. In this study, quite an appreciable number of inmates had alcohol and other substance use disorders.

Table 1: Pattern of Substance Use disorders among the inmates.

| Substance | Lifetime abuse n (%) | Lifetime dependence | Current Abuse | Current dependence |
|---------------|----------------------|---------------------|---------------|--------------------|
| Alcohol | | | | |
| Yes | 24 (8.7%) | 58 (20.9%) | 6 (2.2%) | 10 (3.6%) |
| No | 195 (70.4%) | 219 (79.4%) | 261 (94.2%) | 266 (96.4%) |
| N/A | 58 (20.9%) | | 10 (3.6%) | |
| Stimulants | | | | |
| Yes | | 1 (0.4%) | 0 (0%) | 1 (0.4%) |
| No | | 275 (99.2) | 276 (99.6%) | 276 (99.6%) |
| N/A | | 1 (0.4%) | 1 (0.4%) | 0 (0%) |
| Cocaine | | | | |
| Yes | | 0 (0%) | 1 (0.4%) | 0 (0.0%) |
| No | | 277 (100%) | 276 (99.6%) | 277 (100%) |
| N/A | | 0 (0%) | 0 (0%) | 0 (0.0%) |
| Narcotics | | | | |
| Yes | | 4 (1.4%) | 0 (0%) | 2 (0.7%) |
| No | | 273 (98.6%) | 275 (99.3) | 275 (99.3%) |
| N/A | | | 2 (0.7%) | |
| Cannabis | | | | |
| Yes | | 52 (18.8%) | 11 (4.0%) | 13 (4.7%) |
| No | | 225 (81.2%) | 253 (91.3%) | 264 (95.3) |
| N/A | | | 13 (4.7%) | |
| Tranquilizers | | | | |
| Yes | | 2 (0.7%) | 0 (0.0%) | 1 (0.4%) |
| No | | 275 (99.3%) | 276 (99.6%) | 276 (99.6%) |
| N/A | | | 1 (0.4%) | |

N/A: Not Applicable

Table 2: Lifetime Alcohol Use Disorders and Inmates Characteristics.

| Variables | Lifetime Alcohol use Disorders | | Statistics |
|---------------------------------------|--------------------------------|--------------|----------------|
| | Present N (%) | Absent N (%) | |
| Level of education | | | p-value |
| None/Primary | 42(31.3) | 92 (68.7) | 0.539 |
| Post Primary | 40 (28.0) | 103 (72.0) | |
| Marital Status | | | |
| Married | 36 (27.1) | 97 (72.9) | 0.374 |
| Not Married | 46 (31.9) | 98 (68.1) | |
| Occupation before Imprisonment | | | |
| Employed | 71 (29.1) | 173 (70.9) | 0.250 |
| Unemployed | 11 (33.3) | 22 (66.7) | |
| Type of family background | | | |
| Monogamy | 27 (24.1) | 85(75.9) | 0.990 |
| Polygamy | 55 (33.3) | 110 (66.7) | |
| Parental Marital Status | | | |
| Married | 24 (29.6) | 57 (70.4) | 0.995 |
| Not Married | 58 (29.6) | 136 (70.4) | |
| Both Parents Alive | | | |
| Yes | 37 (35.2) | 68 (64.8) | 0.108 |
| No | 45 (26.2) | 127 (73.8) | |
| Age at leaving home | | | |
| 21 years and below | 49 (31.6) | 106 (68.4) | 0.244 |
| Above 21 years | 33 (27.0) | 89 (73.0) | |
| Fathers' alcohols use | | | |
| Never used | 56 (28.3) | 142 (71.7) | 0.449 |
| Used | 26 (32.9) | 53 (67.1) | |
| Fathers' cannabis use | | | |
| Never used | 76 (29.2) | 192 (70.8) | 0.247 |

| | | | |
|--------------------------------------|-----------|------------|-------|
| Used | 3 (50.0) | 3 (50.0) | |
| Use of cannabis in the prison | | | |
| Yes | 12 (66.7) | 6 (33.3) | 0.001 |
| No | 70 (27.0) | 189 (73.0) | |
| Status in the prison | | | |
| Awaiting Trials | 53 (31.4) | 152 (89.9) | 0.423 |
| Convicted Inmates | 29 (26.9) | 79 (73.1) | |

Table 3: Current Alcohol Use Disorders and Inmates Characteristics.

| Variables | Current Alcohol use Disorders | | Statistics |
|---------------------------------------|-------------------------------|-------------|------------|
| | Present n (%) | Absent n(%) | |
| Level of education | | | |
| None/Primary | 5 (3.7) | 129 (96.3) | 0.158 |
| Post Primary | 11 (7.7) | 132 (92.3) | |
| Marital Status | | | |
| Married | 7 (5.3) | 126 (94.7) | 0.758 |
| Not Married | 9 (6.2) | 1135 (93.8) | |
| Occupation before Imprisonment | | | |
| Employed | 3 (9.1) | 30 (90.9) | 0.418 |
| Unemployed | 13 (5.3) | 231 (94.7) | |
| Type of family background | | | |
| Monogamy | 5 (4.5) | 107 (95.5) | 0.441 |
| Polygamy | 11 (6.7) | 154 (93.3) | |
| Parental Marital Status | | | |
| Married | 4 (4.9) | 77 (95.1) | 0.473 |
| Not Married | 12 (6.1) | 184 (93.9) | |
| Age at leaving home | | | |
| 21 years and below | 15 (9.7) | 140 (90.3) | 0.001 |
| Above 21 years | 1 (0.8) | 121 (99.2) | |
| Fathers' alcohols use | | | |
| Never used | 10 (5.1) | 188 (94.9) | 0.412 |
| Used | 11 (7.6) | 73 (94.4) | |
| Fathers' cannabis use | | | |
| Never used | 14 (5.2) | 257 (94.8) | 0.041 |
| Used | 2 (33.3) | 4 (66.7) | |
| Use of cannabis in the prison | | | |
| Yes | 5 (27.8) | 13 (72. 2) | 0.002 |
| No | 11 (4. 2) | 248 (95.8) | |

Table 4: Relationship between Lifetime Cannabis Use Disorders and Inmates' Characteristics

| Variables | Lifetime Cannabis Use Disorders | | Statistics |
|---------------------------------------|---------------------------------|--------------|------------|
| | Present n (%) | Absent n (%) | |
| Level of education | | | |
| None/Primary | 25 (18.7) | 109 (81.3) | 0.962 |
| Post Primary | 27 (18.9) | 116 (81.1) | |
| Marital Status | | | |
| Married | 18 (13.5) | 115 (87.7) | 0.032 |
| Not Married | 34 (23.6) | 110 (76.4) | |
| Occupation before Imprisonment | | | |
| Employed | 43 (17.6) | 201 (82.4) | 0.183 |
| Unemployed | 9(27.3) | 24 (72.7) | |
| Type of family background | | | |
| Monogamy | 20 (17.9) | 92(82.1) | 0.748 |
| Polygamy | 32 (19.4) | 133 (80.6) | |
| Parental Marital Status | | | |
| Married | 8 (9.9) | 73 (90.1) | 0.015 |

| | | | |
|---|-----------|------------|---------|
| Not Married | 44 (22.4) | 152 (77.6) | |
| Age at leaving home | | | |
| 21 years and below | 30 (19.4) | 125 (80.6) | 0.780 |
| Above 21 years | 22 (18.0) | 100 (82.0) | |
| Fathers' alcohols use | | | |
| Never used | 33 (16.7) | 165 (83.3) | 0.115 |
| Used | 19 (24.1) | 60 (75.9) | |
| Fathers' cannabis use | | | |
| Never used | 46 (17.7) | 223 (82.3) | 0.012 |
| Used | 4 (66.7) | 2 (33.3) | |
| Fathers' heroine/cocaine/solvent/ hypnosedatives / amphetamine use | | | |
| Never used | 48 (17.5) | 226 (82.5) | 0.084 |
| Used | 2 (66.6) | 1 (33.6) | |
| Current alcohol use disorder | | | |
| Yes | 5 (50.0) | 8 (50.0) | 0.001 |
| No | 44 (16.9) | 217 (83.1) | |
| Lifetime alcohol use disorder | | | |
| Yes | 40 (48.8) | 42 (51.2) | < 0.001 |
| No | 12 (6.2) | 183 (93.8) | |
| Status in the prison | | | |
| Awaiting Trials | 34 (20.1) | 135 (79.9) | 0.473 |
| Convicted Inmates | 18 (16.7) | 90 (83.3) | |

Table 5: Inmates' characteristics and Current Cannabis Use Disorders

| Variables | Current Cannabis use disorders | | Statistics P-value |
|---------------------------------------|--------------------------------|--------------|-----------------------|
| | Present n (%) | Absent n (%) | |
| Level of education | | | |
| None/Primary | 12 (9.0) | 112 (91.0) | 0.868 |
| Post Primary | 12 (8.4) | 131 (91.6) | |
| Marital Status | | | |
| Married | 6 (4.5) | 127 (95.5) | 0.015 |
| Not Married | 18 (12.5) | 126 (87.5) | |
| Occupation before Imprisonment | | | |
| Employed | 21 (8.6) | 223 (91.4) | 0.556 |
| Unemployed | 3(9.1) | 30 (90.9) | |
| Type of family background | | | |
| Monogamy | 11 (9.8) | 101 (90.2) | 0.727 |
| Polygamy | 13 (7.9) | 152 (92.1) | |
| Parental Marital Status | | | |
| Married | 2 (2.5) | 79 (97.5%) | 0.052 |
| Not Married | 22(11.5) | 174 (88.8) | |
| Age at leaving home | | | |
| 21 years and below | 15 (9.7) | 140 (90.3) | 0.449 |
| Above 21 years | 9 (7.4) | 113 (92.6) | |
| Fathers' alcohols use | | | |
| Never used | 15 (7.6) | 183 (92.4) | 0.308 |
| Used | 9 (11.4) | 70 (88.6) | |
| Fathers' cannabis use | | | |
| Never used | 21(4.1) | 260 (95.9) | 0.027 |
| Used | 3 (50.0) | 3 (50.0) | |
| Current alcohol use disorder | | | |
| Yes | 7 (43.8) | 9 (56.2) | <0.001 |
| No | 17 (6.5) | 244 (93.5) | |
| Lifetime alcohol use disorder | | | |
| Yes | 15 (18.3) | 67 (81.7) | <0.001 |
| No | 9 (4.6) | 186 (94.4) | |

Table 6: Logistic regression model of factors associated with AUDs and CUDs.

| | B | S.E | Wald | Significance | 95% confidence Interval |
|-----------------------------------|--------|-------|--------|--------------|-------------------------|
| Predictors lifetime AUD | | | | | |
| Current AUD | -2.780 | 0.780 | 12.716 | 0.000 | 0.013 - 0.286 |
| Cannabis use in the prison | -1.353 | 0.560 | 5.843 | 0.016 | 0.086 - 0.774 |
| Predictors current AUD | | | | | |
| Cannabis use in the prison | -1.920 | 0.709 | 7.339 | 0.007 | 0.037 - 0.588 |
| Fathers cannabis use | 0.931 | 1.142 | 0.664 | 0.415 | 0.270 - 23.815 |
| Age leaving home | 0.163 | 0.059 | 7.580 | 0.006 | 1.048 - 1.321 |
| Predictors of lifetime CUD | | | | | |
| Inmate's marital status | -0.699 | 0.381 | 3.364 | 0.067 | 0.235 - 1.04 |
| Parental marital status | 1.168 | 0.466 | 6.284 | 0.012 | 1.290 - 8.009 |
| Father's cannabis use | 2.158 | 1.070 | 4.063 | 0.044 | 1.061 - 70.496 |
| Lifetime AUD | -2.800 | 0.409 | 46.837 | 0.000 | 0.027 - 0.136 |
| Alcohol AUD | 0.033 | 0.634 | 0.003 | 0.959 | 0.279 - 3.354 |
| Predictors current CUD | | | | | |
| Inmate's marital status | -0.910 | 0.548 | 2.754 | 0.097 | 0.138 - 1.179 |
| Parental Marital status | 1.532 | 0.791 | 3.757 | 0.053 | 0.983 - 21.801 |
| Fathers' cannabis use | 2.091 | 1.039 | 4.053 | 0.044 | 1.057 - 61.956 |
| Lifetime AUD | -1.171 | 0.536 | 4.776 | 0.029 | 0.109 - 0.886 |
| Current AUD | -2.038 | 0.743 | 7.520 | 0.006 | 0.030 - 0.559 |

Approximately 30% of the inmates in this study had lifetime alcohol use disorder with over 4% presenting with current alcohol use disorder. Similarly, cannabis represents another drug commonly abused by prison inmates with over 18% meeting the criteria for lifetime abuse/dependence, and about 9% meeting the criteria for current cannabis use disorders. Other substances used by prisoners in this study include narcotics (majorly codeine), cocaine and other stimulants and tranquilizers.

In this environment, most studies have reported lifetime alcohol use and current alcohol use rather than alcohol or substance use disorders described in this study thus making comparison with other studies difficult. However, in Kenya, Kinyanjui and Atwoli [6], reported a lifetime use of alcohol of 65.1% and current alcohol use of 10.4% among the prisoners. Likewise, Amdzaranda et al. [8], reported among prisoners at Ilesa (in a similar region where this study was conducted) a lifetime prevalence rate of 39% for alcohol use, 30.3% for 12-month use and a current use of 24.5%. In our study, cannabis was the most commonly used illicit drug with a lifetime CUD of about 18% and current CUD of 9%, similar to what was reported Amdzaranda et al [8] in Ilesa. In Kenya on the other hand, Kinyanjui and Atwoli [6] reported a lifetime prevalence of cannabis use of 21%, with current cannabis use of about 5%, a relatively lower rate when compared with our findings.

Despite restriction of alcohol and other drugs in the prison, one wonders how prisoners still get access to these substances. There are two possibilities; it is either some inmates had stayed in the prison for short enough durations of time to have had a drink within a month incarceration or illicit acquisition of alcohol and other substances while in the prison [25- 27]. However, use of alcohol and other substances prior to imprisonment couldn't

have explained this, considering the average period of stay in the prison. This occurrence (access to alcohol and other drugs in the prison) is likely to impact negatively on the rehabilitation and reformation of prisoners.

Surprisingly, despite the fact that none of the inmates had a lifetime history of cocaine abuse or dependence, one of the inmates still met the criteria for cocaine abuse. This either shows the porosity of the prison or possibly a new inmate with less than a month's duration in the prison. However, a study had reported that most prisoners often initiate drug use while in the prison [13].

In this study, a significant relationship was observed between inmates' marital status, meeting criteria for AUDs, fathers' cannabis use and CUDs among the inmates. Inmates with CUDs are more likely to be unmarried, come from broken home or have their fathers abusing cannabis. This shows the protective influence of marriage and parental harmony, particularly against illicit substance use. Similarly, studies [28-30] have demonstrated the protective effect of marriage. There is a high possibility that fathers' cannabis use may have provided opportunity for a child to model after his father while growing up, thus substantiating the role of parental substance use as a risk factor to children substance use. Parental marital status is another important factor associated CUDs, more importantly lifetime CUD. However, these factors only account for about 50% of the predisposition to CUDs, implying other inherent factors in predicting CUDs among prisoners. Among socio-demographic variables that have been shown to predict substance use disorder are; male gender, urban residence, being unmarried, younger age, lack of income in the past year, and drug consumption prior to imprisonment [31].

As reflected by the mean age of the participants in this study, this population of prisoners is essentially young adult that constitute the working population. This called for the need for a concerted effort at reducing substance misuse not just in the prison but also in the general population; more importantly because of the association between crime and substance misuse. It was also observed that majority of the participants in this study had secondary education or less, were married and were employed similar to previous findings [6,32,33]. Interestingly, majority of the inmates have lost one of their parents; majorly the fathers. Studies have shown the negative consequences of the absence of a father figure particularly in the development of antisocial and drug use behavior [34-36].

CONCLUSIONS

Despite the fact that prison is a confined environment, quite an appreciable number of prisoners still have access to alcohol, cannabis and other illicit substances with moderate numbers with either abuse or dependence disorders. A history father's cannabis use, using cannabis while in the prison and the age at leaving home were important factors in predicting alcohol use disorders among inmates. Similarly, parental marital status, having a diagnosis of AUD and father's cannabis use were major predictors of cannabis use disorders. These findings illustrate the importance of developing a prison based as well as family based approaches in addressing substance use problems. The prison authority should adopt a drug screening strategies and establish alcohol and cannabis disorders treatment system in collaboration with relevant stakeholders. Drug screening facility and protocols should be designed for the new entrants to the prison. This will minimize the negative consequences of drug use and make administration of the prison easier.

LIMITATION OF THE STUDY

There are some limitations to this study. First, some of the information requested in this study requires respondents recalling past drug usage, this may affect the accuracy of information given. Besides, the use of alcohol and other illicit drugs in prison are considered misconduct and punishable by officials, this may affect the extent to which inmates reported their substance usage to avoid possible penalties. Similarly, participants who were on the verge of being released may be less willing to report their drug usage to avoid the risk of jeopardizing their freedom. However, this was minimized by ensuring interviews were done in a room where privacy is maintained and confidentiality was ensured.

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