

Executive summary

The objective of this study was to determine the prevalence of cocaine-induced psychosis (CIP), psychotic symptoms and mood and anxiety disorders in local cocaine users. Two hundred and sixty cocaine users were recruited from April 2018 to May 2022 from the Counselling Centres for Psychotropic Substance Abusers (CCPSA) and residential treatment centres. All participants were invited to attend a 40–90-minute face-to-face structured diagnostic interview to examine their psychiatric condition. Demographic, clinical and drug use data were also collected.

Most of the subjects were male and unemployed, with a mean age of 28 years and an average of 10 years of education. 80% of the subjects were single, and 58% were current smokers. More than half of the subjects were living in public housing, and 13% reported a family history of psychiatric illnesses.

In the entire sample, the mean age at first cocaine use was 20 years; the mean duration of cocaine use was 5 years; the average number of days of cocaine use in lifetime was 1,010; the mean total lifetime cocaine consumption was 1,728 grams; the mean lifetime cocaine consumption in 1 day was 2 grams; and 97% of the subjects had lifetime cocaine dependence.

Ninety-one percent of the subjects were poly-drug users. The three most commonly used other drugs were ketamine (71%), cannabis (68%) and methamphetamine (ICE; 52%). The age at first use of other drugs ranged from 16 to 20 years, and the duration of drug use ranged from 2 to 4 years. The average number of days other drugs were used per month in the subjects' regular use period ranged from 14 to 24. Current dependence on these drugs was rare (0%–6%).

More than two thirds (71%) of the subjects had lifetime substance-induced psychotic disorder (CIP). A small proportion of the subjects had other psychoses, namely delusional disorder or schizophrenia. CIP was associated with a longer duration of cocaine use ($p = 0.004$), total days of cocaine use in lifetime ($p = 0.007$), total lifetime cocaine consumption ($p = 0.022$) and education level ($p = 0.020$). Logistic regression analysis showed that age at first cocaine use (odds ratio [OR] = 0.954) and days of cocaine use in the past year (OR = 1.003) were predictors of CIP.

Further, 86% and 19% of cocaine users had lifetime and current psychotic symptoms. In terms of the pattern of psychotic symptoms, among the 260 subjects, 149 (57%) had transient psychotic symptoms (TPS), defined as psychotic symptoms disappearing 1 to 28 days after the last cocaine use; 38 (15%) subjects had persistent

psychotic symptoms (PPS), wherein the mean time elapsed between their last use of cocaine and the day of assessment was 122 days (range: 30–304 days); 28 (11%) subjects had psychotic symptoms and were not yet in the detoxification stage; and one subject had flashbacks.

In terms of subtypes of psychotic symptoms, more than two thirds of the subjects reported lifetime delusions (79%) or hallucinations (71%). Delusion of reference (74%) was the most common delusion, followed by persecutory delusion (39%). Auditory hallucination was the most common type of hallucination (60%), followed by visual (39%) and tactile (19%) hallucinations. Twelve percent of the subjects reported thought broadcasting. Negative symptoms were rare.

Compared with subjects without psychotic symptoms, those with psychotic symptoms were most likely to be current smokers ($p = 0.049$) and have a longer duration of cocaine use ($p = 0.021$), more days of cocaine use in lifetime ($p = 0.022$), higher lifetime cocaine consumption ($p = 0.013$) and lifetime cocaine dependence ($p = 0.039$). With regard to the use of other substances, subjects with psychotic symptoms were more likely to have lifetime use of ICE ($p = 0.032$) and cannabis ($p = 0.023$). In the logistic regression analysis, lifetime cocaine dependence (OR = 1.5), lifetime ICE use (OR = 2.9)

and smoking history (OR = 2.1) were found to be independent predictors of psychotic symptoms.

Compared with subjects with TPS, those with PPS had a lower education level ($p = 0.010$) and a family history of psychiatric disorders ($p = 0.019$). Subjects with PPS and TPS did not differ in terms of cocaine use patterns. However, the PPS group was more likely to report lifetime use of ICE ($p < 0.001$) and cough medicine ($p = 0.043$) than the TPS group. In the logistic regression analysis, education level (OR = 0.8), family history of psychiatric disorders (OR = 3.0) and lifetime ICE use (OR = 6.9) were found to be predictors of PPS.

Lifetime substance-induced mood disorder was found in 49% of the subjects, with the predominant presentation being depressive episodes. The prevalence of lifetime diagnosis of major depressive disorder and bipolar disorder was 17% and 8%, respectively. Socio-demographic characteristics and cocaine use patterns were not associated with substance-induced mood disorders. However, subjects with substance-induced mood disorders were more likely to report lifetime use of hypnotics ($p = 0.017$), ecstasy ($p = 0.018$) and ICE ($p = 0.007$). In the logistic regression analysis, lifetime ICE

use (OR = 2.0) was found to be a significant predictor of substance-induced mood disorders.

Lifetime substance-induced anxiety disorder was found in 30% of the 260 subjects, with obsessive–compulsive features being the most common presentation, followed by phobic symptoms. In contrast, non-substance-related anxiety disorders were uncommon. Subjects with substance-induced anxiety were more likely to be female than male ($p = 0.021$). No association was observed between substance-induced anxiety disorders and cocaine use patterns; however, subjects with substance-induced anxiety disorders were more likely to report lifetime ICE use than those without such disorders ($p < 0.001$), and it was the only predictor of substance-induced anxiety disorders (OR = 3.1) in the logistic regression analysis.

In terms of psychopathology, the mean Beck Depression Inventory (BDI), anxiety subscale of the Hospital Anxiety Depression Scale (HADS-A), Severity of Dependence Scale (SDS) and Brief Psychiatric Rating Scale (BPRS) scores in our sample were 13.4, 4.8, 9.3 and 18.5, respectively. The mean score of the total Positive and Negative Syndrome Scale (PANSS) was 33.6, while the PANSS scores for the positive, negative

and general psychopathology items were 7.1, 7.1 and 16.4, respectively. None of the subjects had BPRS or PANSS scores above the corresponding cut-off points.

Days of cocaine use in the previous month (beta = 0.4), source of referral (beta = -3.5) and education level (beta = -0.8) were predictors of the BDI score. Days of cocaine use in the previous month (beta = 0.2) was a predictor of the HADSA score. Education level (beta = -0.1), smoking history (beta = 0.4) and lifetime ICE use (beta = 0.3) were predictors of the BPRS score. Education level (beta = -0.2) and source of referral (beta = 0.9) were predictors of the PANSS total score. Days of cocaine use in the past 2 years (beta = 0.002), lifetime cocaine consumption in a day (beta = 1.2) and cocaine lifetime dependence (beta = 3.4) were predictors of the SDS score.

In conclusion, CIP was found to be common in local cocaine users, and a longer duration of cocaine use was found to increase the risk of CIP. Psychotic symptoms, such as delusions and hallucinations, also occurred frequently in this population, with 15% of the study population exhibiting PPS. Lifetime ICE use was identified as a risk factor for PPS. Lifetime mood and anxiety disorders were also common in ICE users, with the predominant presentations being depressive episodes and obsessive-compulsive

features. Thus, lifetime ICE use was identified as a major risk factor for mood and anxiety disorders.