



# Effect of Mental Illness and Substance Abuse on Initiation of Antiretroviral Treatment

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## Background

- Estimates of psychiatric morbidity among people living with HIV/AIDS range from 37- 70%. Substance abuse, including alcohol, is present in 8-50% of HIV/AIDS patients. One study estimated the prevalence of psychiatric illness combined with substance abuse in HIV/AIDS patients to be 13%
- Previous studies have been limited by a focus on patients with mental illness or substance abuse, and inability to study the effect of both disorders on HIV treatment and outcomes

## Methods

### STUDY SETTING

- University of Washington, Harborview Medical Center's HIV specialty clinic, the single largest provider of HIV care in the northwestern United States
- On-site psychiatric care by psychiatrists specializing in HIV disease

### PREVALENCE COHORT

All HIV-infected adults in routine primary care in 2004

### DATA SOURCE

- The University of Washington HIV Information System (UWHIS) captures comprehensive clinical data for the HIV-infected population receiving care at UW from 1995 to the present that includes:
- Laboratory test results, pharmacy dispensing data (96% of patients receive all their medications from UW pharmacy), clinical encounter and billing data capturing all inpatient and outpatient diagnoses, historical clinical information regarding prior antiretroviral treatment and diagnoses collected by standardized intake process

### MENTAL HEALTH AND SUBSTANCE ABUSE DIAGNOSES (dx)

- Psychiatric dx, including schizophrenia and bipolar affective disorder are made by psychiatrists in the inpatient and outpatient setting.
- Depression/anxiety dx and substance abuse dx are made by psychiatrists and primary care providers

### COHORT ELIGIBLE FOR HAART INCLUSION/EXCLUSION CRITERIA

- No PIs or NNRTIs prior to first HIV clinic visit (HAART naïve)
- Based on DHHS Antiretroviral Treatment Guidelines, patients were considered eligible to initiate HAART when CD4 count dropped below 350/mm<sup>3</sup>
- First clinic visit on or after 1/1/2000 and at least 9 mos. follow-up after CD4<350/mm<sup>3</sup>

### STATISTICAL ANALYSES

- Prevalence of mental illness and substance abuse disorders was determined for the cohort of patients attending the clinic in 2004
- For the cohort of patients eligible for HAART, we used logistic regression to examine the odds of initiating HAART within 9 months of first CD4<350/mm<sup>3</sup> according to mental illness, substance abuse, and both mental illness and substance abuse, controlling for other factors
- To examine the effect of individual mental health and substance abuse diagnoses, and address multicollinearity between mental illnesses and between substances abused, we categorized patients according to the following hierarchies:
- We hypothesized that a diagnosis of depression would be less complicated to manage in a primary care setting than schizophrenia or bipolar disorder and categorized patients into one of 3 hierarchical groups: 1) Psychiatric illness other than depression/anxiety (schizophrenia, bipolar affective disorder) 2) Depression and/or anxiety only 3) No mental health disorder
- We hypothesized that amphetamine and cocaine abuse would result in more difficulty engaging in primary care than use of opioids, sedatives, hallucinogens, or alcohol and categorized patients into one of 5 hierarchical groups: 1) Amphetamine 2) Cocaine 3) Drugs other than amphetamine and cocaine (opioids, sedatives, hallucinogens, phencyclidine, alcohol) 4) Alcohol only 5) No substance abuse

## Results

- Table 1 shows the prevalence of substance abuse and mental health among the cohort in care in 2004 (N=1,744): 63% had a mental illness, 45% had a substance abuse disorder, and 38% had both. 31% of the cohort abused alcohol, 37% abused amphetamines and/or cocaine, and 59% had a diagnosis of depression and/or anxiety
- Table 2 shows characteristics of the Cohort Eligible for HAART (N=258). The distribution is similar to all patients in care in the clinic
- After adjusting for other factors except for mental illness, patients with cocaine abuse had significantly lower odds of initiating HAART within 9 months of CD4 count <350 cells/mm<sup>3</sup> (OR=0.35, p<0.001) compared with patients without substance abuse, as did patients with abuse of drugs other than amphetamine or cocaine (opioids, sedatives, hallucinogens) (OR=0.06, p<0.001), but there was no difference among patients with alcohol abuse only (OR=0.82, p=0.71)
- Patients with a diagnosis of depression and/or anxiety only were significantly less likely to initiate HAART within 9 months of CD4 count <350 cells/mm<sup>3</sup> (OR=0.45, p=0.01) compared with those without mental illness, and there was an independent effect of psychiatric illness other than depression or anxiety (psychotic, bipolar affective disorders) on lower odds of initiating HAART (OR=0.45, p=0.058) after controlling for other factors except for substance abuse
- The combined analysis shown in Table 3, demonstrates independent effects for cocaine, drugs other than amphetamine and cocaine, and depression and/or anxiety on initiating HAART within 9 months of CD4 count <350 cells/mm<sup>3</sup>
- HIV-1 RNA level ≥100,000 copies/ml was associated with over 3 times the odds of initiating HAART in all adjusted analyses

Table 1: Prevalence of Substance Abuse and Mental Illness Among Cohort in Care in 2004 (N=1,744)

Substance Abuse	N (%)	N (%) Substance Abuse Pts with Mental Illness
Amphetamine	292 (18%)	244 (84%)
Cocaine	311 (19%)	267 (86%)
Alcohol	502 (31%)	432 (86%)
Opioid	213 (13%)	182 (85%)
Other (sedatives, hallucinogens, phencyclidine)	33 (2%)	32 (97%)
Mental Illness	N (%)	N (%) Mentally Ill Pts with Substance Abuse
Cognitive	182 (12%)	122 (67%)
Mood	995 (67%)	609 (61%)
Anxiety	598 (40%)	410 (69%)
Psychotic	160 (11%)	128 (80%)
Personality	177 (12%)	152 (86%)

Table 2: Demographic and Clinical Characteristics of Cohort Eligible for HAART (N=258)

Characteristic	N (%)
Gender Male	211 (82%)
Female	47 (18%)
Age <30	43 (17%)
30-39	115 (45%)
≥40	100 (38%)
Race/Ethnicity	
White	134 (52%)
Black	69 (26%)
Latino/Latina	30 (12%)
Other	25 (10%)
Risk Factor	
MSM	122 (48%)
IDU	36 (14%)
MSM and IDU	21 (8%)
Heterosexual	62 (24%)
Other/unknown	17 (6%)
HIV-1 RNA copies/ml	
HIV-1 RNA <55,000	159 (62%)
HIV-1 RNA 55,000-99,999	39 (15%)
HIV-1 RNA ≥100,000	60 (23%)

Table 3: Effect of Substance Abuse and Mental Illness on Initiation of HAART adjusted for age, race/ethnicity, sex, HIV-1 RNA level (N=258)

Variable	N (%)	Odds Ratio (95% CI) P value
Amphetamine	51 (20%)	0.56 (0.26-1.24) P=0.16
Cocaine	50 (19%)	0.28 (0.12-0.62) P<0.002
Drugs other than amphetamine and cocaine	15 (6%)	0.07 (0.02-0.28) P<0.001
Alcohol only	23 (9%)	0.85 (0.29-2.50) P= 0.76
Psychiatric disorders other than depression or anxiety	38 (15%)	0.68 (0.28-1.67) P=0.4
Depression and/or anxiety only	83 (32%)	0.53 (0.28-1.0) P=0.05
HIV-1 RNA ≥100,000	60 (23%)	3.14 (1.42-6.94) P=0.005

## Limitations

- Diagnosis of mental illness and substance abuse within the 4 year study period and prior to the date it became clinically indicated for a patient to initiate HAART, but we did not discern current abuse vs. past, or levels of severity of illness
- The decision to initiate HAART can be based on individual patient and clinician factors, such as patient's resistance to treatment, and the clinician's perception of the patient's ability to adhere to treatment, which we were unable to measure
- The effect for psychiatric disorders other than depression or anxiety is not statistically significant in the combined model because there is collinearity between mental illness and substance abuse. Larger sample size is needed to properly specify this effect.

## Conclusions/Future Directions

- This study demonstrates a high prevalence of mental illness and substance abuse and of psychiatric illness combined with substance abuse among an urban HIV clinic population among an urban HIV clinic population
- We expected to find an association between psychotic/bipolar disorders and lower odds of initiating HAART, but were surprised to find that depression and/or anxiety was an independent predictor of decreased likelihood of initiating HAART
- Depression and anxiety are the most common psychiatric illnesses seen in the primary care setting and further study is needed to understand why these patients are less likely to initiate HAART.
- We plan to examine whether patients who receive psychiatric treatment are more likely to initiate HAART, and determine the effect of mental illness and substance abuse on time to initiating HAART and level of adherence to medications