

# Factors Associated with Missed Psychiatry Visits in an Urban HIV Clinic

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**Abstract** Psychiatric co-management is often required in HIV primary care. While rates and clinical impact of linkage and retention in HIV are well explored, fewer investigations focus specifically on linkage to psychiatry. In this investigation, we evaluate factors associated with linkage to psychiatric services using a retrospective cohort study of HIV-infected patients during a two-year observation period. Descriptive statistics depict patient characteristics, and logistic regression models were fit to evaluate factors associated with failure to establish care at the collocated psychiatry clinic following referral from HIV provider. Of 370 referred, 23 % did not attend a scheduled psychiatry appointment within 6 months of initial referral. In multivariable analysis, Non-white race, younger age, non-suppressed viral load, and increased wait time to appointment (in days) were associated with failure to attend. Further exploration of barriers that contribute to disparate linkage to psychiatric care may inform future interventions to improve HIV outcomes in this population. **Resumen** El co-manejo con psiquiatria se requiere frecuentemente en el cuidado de pacientes con VIH. Mientras se conoce bastante sobre las tasas de vinculacion y retencion en la atencion del VIH, pocos studios se han enfocado

en la vinculacion de pacientes en cuidados psiquiatricos. En esta investigacion, evaluamos los factores asociados con la vinculacion a servicios psiquiatricos de pacientes VIH positivos en un estudio retrospectivo de una cohorte de pacientes durante un periodo de observacion de dos años. Se utilizan métodos estadísticos descriptivos para representar las características de los pacientes, y se ajustaron modelos de regresión logística para evaluar los factores asociados con el fracaso en el establecimiento de atención en la clínica de psiquiatría (vinculación) co-ubicada en el recinto de nuestra clínica de VIH siguiendo referimiento por el medico primario. De 370 pacientes referidos, el 23 % no acudieron a la cita programada después de seis meses tras el referimiento inicial. En el análisis multivariable, la raza no blanca, la edad más joven, la carga viral no suprimida, y un mayor tiempo de espera para la cita (en días) se asociaron con la no asistencia. Exploración adicional de las barreras que contribuyen a no establecer el vinculo inicial con psiquiatría podrá informar futuras intervenciones para mejorar los resultados clínicos en pacientes con VIH.

**Keywords** Linkage to care · HIV · Psychiatry · Mental health

Christina Ho and Anne Zinski request a co-first author designation, as both authors contributed equally to this manuscript.

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## Introduction

Depression and the associated effects of depressive symptoms on self-care behaviors for chronic conditions, particularly with respect to HIV adherence and retention in care, are evident in a growing recent literature [28, 33]. In the current framework of longitudinal HIV care, individuals ideally progress through a continuum from timely diagnosis to linkage, retention, and optimal engagement in treatment.

Engagement and retention include uninterrupted antiretroviral therapy (ART) medication receipt and adherence to scheduled appointments, and ultimately determine favorable clinical outcomes [4, 36]. Barriers that may potentially deter progress across this continuum can emerge at any step, and a myriad of individual and contextual factors that influence HIV health seeking behaviors, treatment utilization, adherence, and outcomes have been established [6, 8, 18]. Mental illness and psychiatric co-morbidities are commonly reported and associated with deleterious health behaviors and outcomes in persons living with HIV [5].

Up to half of persons living with HIV/AIDS have at least one coexisting psychiatric condition, such as depression, post-traumatic stress, bipolar disorder, and substance use [5, 13, 31]. The most common co-occurring mental health condition is major depression, which accompanies HIV in as many as 30–50 % of patients [1, 19]. In addition to reduced quality of life, depressive symptoms and poorly controlled psychiatric illness are associated with an increased risk of delayed linkage to medical care, retention challenges, non-adherence to anti-retroviral medications, and negative effects on the immune system [18, 25, 30]. As co-morbid mental health disorders may contribute to substandard self-care behavior, lower medication receipt, poor retention in medical care, and worse clinical outcomes, such as HIV-related morbidity and mortality, access to mental health services is critical to the long-term success of HIV therapy [6, 11, 12, 20, 26, 28]. Moreover, as treatment of depression has been associated with improved HIV adherence and outcomes, recently released guidelines highlight depression management as a foremost recommendation in HIV primary care [11, 33].

Numerous contemporary investigations demonstrate that engagement in HIV primary care is essential for achieving optimal outcomes, and inadequate linkage and retention in care are associated with therapeutic delays and poorer short- and long-term clinical outcomes, including suboptimal virologic control and increased mortality [22, 35]. In contrast, far fewer investigations describe factors that influence engagement in mental health services among HIV-infected persons. In the present study, we sought to (1) characterize linkage to mental health services among HIV infected primary care patients following a provider referral to a co-located psychiatry clinic, and (2) determine factors associated with failure to establish psychiatry care in an urban HIV multispecialty clinic.

## Methods

### Setting and Population

The University of Alabama at Birmingham (UAB) 1917 HIV/AIDS Outpatient Clinic (1917 Clinic) has provided

comprehensive preventive, medical, and supportive care services for more than 9,000 HIV-infected individuals in the Southeastern US since 1988. Located in the urban medical center district in Birmingham, AL, the clinic provides outpatient primary HIV and multispecialty care, including dermatology, neurology, nephrology, endocrinology, dental, palliative and supportive care, hematology–oncology, and psychiatric services for over 2,500 active patients who participate in the 1917 Clinic Cohort, a prospective clinical cohort study that has been described previously [24]. Detailed socio-demographic, psychosocial, and clinical data across a wide range of domains is systematically captured from most patients at the clinic via computerized Patient Reported Outcome (PRO) questionnaires during regularly scheduled primary HIV care visits, which are made available to providers to assess symptoms and patient psychosocial characteristics. PRO behavioral and mental health domains include depression (PHQ-9), anxiety (PHQ A), alcohol risk (AUDIT-C), and substance abuse (ASSIST) [15, 17].

In this investigation, we conducted a retrospective cohort study of records of patients at the 1917 Clinic who were referred to psychiatry specialty care during a two-year observation period (4/1/2008 to 6/1/2010). The study population included all adults who received an initial referral to the co-located psychiatry clinic by an HIV primary care provider who had also completed at least one PRO survey during the observation period. While this clinic employs a team-based approach to healthcare, in which nurses and social work support staff may contribute to provider decisions about referrals for psychiatry services, formal referrals to psychiatry specialty care are made at the discretion of primary care providers. Appointments with co-located psychiatric services providers are scheduled immediately upon primary provider referral. Referred individuals were categorized as “show” if they arrived for a scheduled psychiatry care appointment within 6 months of the initially scheduled referral visit and “no show” if they did not attend a psychiatry appointment within 6 months. Referrals to other psychiatric care facilities were not included in this analysis.

### Variables

The primary outcome variable was “no show”, or failure to attend any scheduled psychiatry visit at the co-located psychiatry clinic within 6 months of the initial referral visit. Independent variables included socio-demographic (age, race, gender), clinical (history of substance or alcohol abuse as evaluated by PRO questionnaires, as well as history of schizophrenia, depression, or bipolar disorder by chart review), clinic-level attendance (number of days from referral to psychiatry care appointment date), and

laboratory (CD4 count and viral load at psychiatry referral date) data.

### Statistical Analyses

Descriptive statistics were employed to evaluate overall patient and clinic level characteristics and to ensure distributional assumptions for statistical tests were met. The distribution of socio-demographic and clinic characteristics of study groups (“show” vs. “no show”) was characterized. For the continuous variables age and number of days from referral to appointment date, Wilcoxon Rank-Sum tests were used to test for differences between the “show” and “no show” groups. For categorical variables Pearson Chi squared tests were used. Univariate and multivariable logistic regression models were then fit to evaluate factors associated with patients’ failure to establish psychiatric care at the 1917 Clinic (“no show”). Variables in the multivariable model were selected based upon statistical significance in univariate analyses, and a priori clinical considerations for behavioral or mental health comorbidities (reported substance or alcohol abuse, as well as schizophrenia, depressive symptoms, or bipolar per chart review). The data analysis for this paper was generated using SAS software version 9.2 (SAS Institute Inc. Cary, NC). The University of Alabama at Birmingham Institutional Review Board approved this investigation.

### Results

During the 2-year study period, 370 individual patients were referred for an initial psychiatric clinic appointment by HIV primary care providers and were included in the analysis (Table 1). The population median age was 42 (IQR 35, 49) years, with a majority white (61 %) and male (74 %). Nearly half of referred patients (48 %) had a suppressed viral load (<50 c/mL), and 62 % had a CD4 count greater than 350, as measured at the primary care visit closest to the initial referral date. Overall, nearly one quarter of referred patients (23 %) failed to attend a psychiatry appointment within 6 months of initial referral. The median time from referral date to scheduled appointment date was 35 days (IQR 21, 49). Median days to scheduled psychiatric care visit was 35 days (IQR: 18, 47) among patients who attended a psychiatry visit within 6 months of referral, and 42 days (IQR 27, 71) for psychiatry visit “no shows.”

In univariate logistic regression analysis (Table 2), non-white patients (OR 2.64; 95 % CI 1.61–4.33) and patients whose viral load was not suppressed at time of referral had greater odds of “no show” (OR 2.22; 95 % CI 1.32–3.73). Patients with longer visit wait time to initial scheduled

psychiatric appointment (included in the model as a continuous variable) also had greater odds of “no show” (OR 1.10 per 7 days; 95 % CI 1.05–1.15); as such, for each additional week of wait time, we anticipate a 10 % increase in the odds of failing to establish psychiatric care. For age (as a continuous variable), older individuals had decreased odds of “no show” (OR 0.73 per 10 years; 95 % CI 0.57–0.95); for each additional 10 years of age, we expect to see about a 27 % decrease in the odds of failing to establish psychiatric care.

In multivariable analysis, non-white race (OR 3.04; 95 % CI 1.66–5.56), non-suppressed viral load (OR 2.20; 95 % CI 1.22–3.96), and increased visit wait time to appointment date (OR 1.12 per 7 days; 95 % CI 1.06–1.18) showed increased odds of psychiatry “no show”. Older patients (OR 0.73 per 10 years; 95 % CI 0.54–0.98 per 10 years) and persons with a concurrent diagnosis of schizophrenia (OR 0.10; 95 % CI 0.01–0.84) had decreased odds of “no show”. Our analysis found no statistically significant associations between increased incidence of psychiatry “no show” and history of substance abuse, alcohol abuse, or diagnosis of depression or bipolar disorder.

### Discussion

Despite the clinic’s primary care team-based approach that aims to increase continuity and access to co-located specialty services, 23 % of patients failed to attend a psychiatry visit at this site within 6 months of referral. As observed in similar outpatient settings, increased wait time to initial psychiatric appointments was associated with failure to successfully engage in care [21, 22]. Notably, non-white race had more than three times the odds of failure to establish psychiatric care within 6 months of referral. Identification of barriers and factors associated with disparities in psychiatric care appointment attendance will help inform interventions in HIV-infected populations.

While psychiatric care referrals are a first step toward addressing mental health concerns by primary providers, the deleterious effects of deferred or unsuccessful psychiatric care initiation may be critical, as delayed mental health diagnoses, treatment initiation, and subsequent symptom management, may negatively influence HIV treatment outcomes and overall health [3, 32, 36]. Individuals with mental illness or uncontrolled psychiatric symptoms are particularly vulnerable to HIV infection and mortality from untreated HIV due to a higher prevalence of poverty, homelessness, higher-risk sexual activity, drug abuse, sexual abuse, and social marginalization [14, 27]. Accordingly, persons with non-suppressed viral load in this study showed twice the odds of failing to establish

**Table 1** Socio-demographic and clinical characteristics of patients referred for initial psychiatry visit from HIV primary care (n = 370), April 2008 to June 2010

Characteristic	Overall n = 370	Show n = 285	No show n = 85	P value <sup>1</sup>
Age, median (Q1, Q3)	42.0 (35.0, 49.0)	43.0 (35.5, 49.0)	39.0 (32.0, 48.0)	0.026
Race, N (%)				<0.001
White	224 (61 %)	188 (66 %)	36 (42 %)	
Non-white	146 (39 %)	97 (34 %)	49 (58 %)	
Sex, N (%)				0.148
Male	274 (74 %)	216 (76 %)	58 (68 %)	
Female	95 (26 %)	68 (24 %)	27 (32 %)	
Visit wait time <sup>a</sup> , median (Q1, Q3)	35.0 (21.0, 49.0)	35.0 (18.0, 47.0)	42.0 (27.0, 71.0)	0.001
Substance abuse <sup>b</sup> , N (%)				0.427
Current	70 (19 %)	56 (20 %)	14 (17 %)	
Historical	205 (56 %)	153 (54 %)	52 (62 %)	
Never	93 (25 %)	75 (26 %)	18 (21 %)	
Alcohol use, N (%)				0.453
No risk	172 (48 %)	131 (47 %)	41 (49 %)	
Lower risk (1–4)	145 (40 %)	110 (39 %)	35 (42 %)	
At risk ( $\geq 5$ )	45 (12 %)	38 (14 %)	7 (8 %)	
Depressive symptoms, N (%)				0.366
Yes	301 (81 %)	229 (80 %)	72 (85 %)	
No	69 (19 %)	56 (20 %)	13 (15 %)	
Schizophrenia, N (%)				0.038
Yes	28 (8 %)	26 (9 %)	2 (2 %)	
No	342 (92 %)	259 (91 %)	83 (98 %)	
Bipolar, N (%)				0.303
Yes	37 (10 %)	31 (11 %)	6 (7 %)	
No	333 (90 %)	254 (89 %)	79 (93 %)	
Viral load <sup>c</sup> , N (%)				0.002
<50	169 (48 %)	142 (53 %)	27 (33 %)	
$\geq 50$	182 (52 %)	128 (47 %)	54 (67 %)	
CD <sub>4</sub> <sup>c</sup> , N (%)				0.431
<200	73 (21 %)	52 (19 %)	21 (26 %)	
200–349	60 (17 %)	46 (17 %)	14 (17 %)	
$\geq 350$	220 (62 %)	173 (64 %)	47 (57 %)	

<sup>a</sup> Visit wait time indicates the number of days from referral date to appointment date

<sup>b</sup> Crack or cocaine, amphetamines, opioids, and injection drug use

<sup>c</sup> VL and CD<sub>4</sub> are the closest available value to the psychiatry referral date [−180, +14 days] Missing values: age 1, sex 1, substance abuse 2, alcohol use 8, viral load 19, CD<sub>4</sub> 17

<sup>1</sup> Wilcoxon Rank-Sum tests (2-tailed) for continuous variables (age, wait time); Pearson's Chi squared tests for categorical variables

psychiatric care. Additionally, the time from referral to psychiatric appointment is particularly critical for this population, as mental health issues do not remain static; a longer wait time to address emotional or behavioral needs may be perceived as disinterest, or relief may be sought elsewhere [16].

Our study identified several groups with an increased risk for failure to engage in psychiatric care following a referral from an HIV primary care provider. These results indicate a disparity between race and age groups for linkage to psychiatric care. This is consistent with previous findings that show underutilization or discontinuation of mental health services among racial and ethnic minority persons [29]. Paradoxically, poor uptake of mental health services has been attributed to factors related to mental health symptoms, including denial,

fatigue, and disorganization, as well as misconceptions or stigma about mental health treatment, which may ultimately affect adherence and outcomes [2, 29, 34]. Some of these factors may, in part, explain the higher risk of “no show” in this population; however persons with a concurrent diagnosis of schizophrenia showed lower odds of “no show” to psychiatric services. This may reflect recent guidelines that endorse timely initiation of anti-psychotic treatment, or perceived severity of symptom burden by providers and patients [9, 10].

Several recent publications have demonstrated the negative influence of co-morbid mental health disorders on HIV outcomes, specifically for virologic control and treatment adherence, as well as delays in the initiation of antiretroviral therapy [36], which was supported in this analysis. However the intended consequences of the *test*

**Table 2** Univariate and multivariable logistic regression models for failure to attend scheduled psychiatry visit (“no show”) within 6 months of initial referral

Characteristic	Univariate OR (95 % CI)	Multivariable <sup>a</sup> OR (95 % CI)
Age (per 10 years)	0.73 (0.56–0.95)*	0.73 (0.54–0.98)*
Race		
White	1.00	1.00
Non-white	2.64 (1.61–4.33)*	3.04 (1.66–5.56)*
Sex		
Male	1.00	1.00
Female	1.48 (0.87–2.52)	1.29 (0.68–2.44)
Visit wait time <sup>b</sup> (per 7 days)	1.10 (1.05–1.15)*	1.12 (1.06–1.18)*
Substance abuse <sup>c</sup>		
Current	1.04 (0.48–2.27)	1.29 (0.53–3.17)
Historical	1.42 (0.77–2.59)	1.96 (0.97–3.95)
Never	1.00	1.00
Alcohol use		
No risk	1.00	1.00
Lower risk (1–4)	1.02 (0.61–1.71)	1.02 (0.56–1.88)
At risk ( $\geq 5$ )	0.59 (0.24–1.42)	0.61 (0.23–1.62)
Depressive symptoms		
Yes	1.35 (0.70–2.62)	1.26 (0.58–2.74)
No	1.00	1.00
Schizophrenia		
Yes	0.24 (0.06–1.03)	0.10 (0.01–0.84)*
No	1.00	1.00
Bipolar		
Yes	0.62 (0.25–1.55)	0.65 (0.22–1.89)
No	1.00	1.00
Viral load <sup>d</sup>		
<50	1.00	1.00
$\geq 50$	2.22 (1.32–3.73)*	2.20 (1.22–3.96)*
CD4 <sup>d</sup>		
<200	1.49 (0.82–2.71)	
200–349	1.12 (0.57–2.21)	
$\geq 350$	1.00	

\* Statistically significant at 0.05 level

<sup>a</sup> Multivariable model includes age, race, sex, visit wait time, substance abuse, alcohol use, depressive symptoms, schizophrenia, bipolar, and viral load (N = 342)

<sup>b</sup> Visit wait time indicates the number of days from referral date to appointment date

<sup>c</sup> Crack or cocaine, amphetamines, opioids, and injection drug use

<sup>d</sup> VL and CD4 are the closest available value to the psychiatry referral date [–180, +14 days]

and *treat and treatment as prevention* campaigns may lead to earlier detection and treatment, thereby improving both individual and epidemiological outcomes for underserved and at-risk populations [7]. Without concomitant efforts to

screen and link HIV positive persons with mental health co-morbidities to psychiatric care, however, the vital individual, community, and public health systems benefits of such initiatives may not be fully achieved. Therefore the identification and implementation of both systems- and individual- level interventions to connect this population to providers will be critical to address psychiatric co-morbidities and achieve longer-term HIV prevention and therapeutic success.

This investigation was conducted at a single academic clinic located in the Southeast, and the applicability of our results to other geographic regions or non-academic sites in the US may be limited. In addition, individuals with insurance coverage that included external behavioral health providers may have sought and received mental health services outside of the co-located psychiatric clinic, and no comparisons of co-located referrals to outside psychiatry referrals were performed. As with all observational studies, we are able to report associations with linkage to psychiatric care but are unable to determine causality.

## Conclusions

In conclusion, we found that nearly one in four HIV-infected patients failed to link to co-located psychiatric care services following a referral from a primary HIV care provider. Longer delays in the time to initial psychiatric appointment negatively impacted linkage to mental health care, and non-white race and persons with non-suppressed viral load showed disparate linkage to psychiatric care. As overcoming health disparities is a principal tenet of the National HIV/AIDS Strategy, successful engagement in mental health care provides additional opportunity to address differences in treatment access and outcomes among racial/ethnic minorities and underserved populations living with HIV [23, 33]. Subsequent investigations of associated patient- and systems- level factors that influence linkage to psychiatric support services from primary care are essential for impacting individual and community HIV health outcomes.

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