



C.H.A.I.N. REPORT 2021-1

Behavioral Health Service Needs and Utilization: Impacts on HIV Outcomes

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Introduction

Mental illnesses and substance use disorders—collectively referred to as behavioral health conditions—often co-occur in people with HIV (PWH) (Blank et al., 2013; O’Grady et al., 2023). Compared to the general population, PWH are at increased risk for mental health conditions, which can be attributed to factors such as the stress of living with a serious illness, potential loss of social support and/or employment, and experiences of HIV/AIDS stigma and discrimination (National Institute of Mental Health, 2020). Furthermore, substance use and HIV are commonly referred to as “twin epidemics” due to their interconnectedness; substance use is both highly correlated with HIV acquisition and prevalent among PWH (Bing et al., 2011; O’Grady et al., 2023). The cluster of symptoms associated with behavioral health conditions including mental illness and substance use disorder often in turn affect PWH’s ability to engage in activities of daily living (ADL) and to adhere to HIV treatment regimens (Lopez et al., 2023; Christensen et al., 2017).

This report draws on previous research of those living with HIV, mental health, and substance use to better understand the health profile of CHAIN respondents. The most commonly reported mental health disorder among PWH is unipolar depression or major depressive disorder. Previous estimates indicate 30% to 42% of PWH have a diagnosis of major depressive disorder, representing a prevalence rate that is two to four times the rate of major depression in the general population (Junaid et al., 2023; Nanni et al., 2015). Prior studies have also estimated higher prevalence rates of bipolar disorder and anxiety disorder among PWH (Chander et al., 2006; Lopes et al., 2012).

Comprising the other component of behavioral health, substance use disorder is one of the most commonly co-occurring conditions among PWH (Bing et al., 2011; O’Grady et al., 2023). Previous estimates suggest that rates of heavy episodic drinking among HIV cohorts are greater than twice that of the general population (Oldfield et al., 2022; Azagba et al., 2020). In addition to alcohol consumption, current and lifetime use of hard drugs is relatively high among PWH; earlier CHAIN research found that over half of study participants have a history of problem drinking and/or hard drug use (Aidala et al., 2022; Hartzler et al., 2017).

There is substantial evidence that mental health impairment negatively impacts HIV care and health outcomes. PWH with co-occurring mental diagnoses and symptoms have been found to experience lower rates of ART utilization and adherence, in addition to immunological changes associated with mental illness (Lopez et al., 2023; Nanni et al., 2015; Sin & DiMatteo, 2014; Yehia et al., 2015). Additionally, depression has been shown to increase the risk of mortality among PWH, even when adjusting for other predictors of mortality (Remien et al., 2019). Studies have also shown that substance use may have adverse effects on common HIV-related comorbidities, and demonstrated a strong association between substance use and lower engagement in care, lower ART initiation, and nonadherence to ART medication (Aidala et al., 2022; Cook et al., 2017; Gwadz et al., 2016;

Williams et al., 2016). Among CHAIN participants, current problem substance use is additionally associated with lower odds of viral suppression, consistent with a study by Feldman et al. which found that individuals with persistent or intermittent drug use were more likely than non-users to have unsuppressed viral load (Aidala et al., 2022; Feldman et al., 2019). Those living with all three diagnoses of HIV, mental health disorders, and substance use disorders—estimated to be approximately 13% to 23% of all PWH—are subsequently at exponential risk for poorer health outcomes (Conway et al, 2021).

Given the significant contribution of mental health impairment to adverse outcomes for PWH, some studies have shown that participation in mental health services can mitigate such outcomes by increasing engagement in medical care and ART adherence (Nanni et al., 2015; Remien et al., 2021; Rooks-Peck et al., 2018; Walkup et al., 2011). Yet, many PWH face barriers to accessing the behavioral health services they need. This report further investigates the behavioral health profile of CHAIN participants' by examining behavioral health service needs and utilization, barriers to receiving services, as well as associations between behavioral health service needs and HIV care continuum outcomes. This information can be used to understand the unique behavioral health needs of PWH and inform recommendations for linkage and care.

Key Findings

- 58% of NYC respondents and 44% of Tri-County respondents are in need of mental health services.
- In both NYC and the Tri-County region, mental health service utilization has decreased over the study period and was lowest in the most recent interview round (2018-2019), with less than half of all respondents with mental health service needs accessing services.
- Prevalence of current substance use was consistently higher in NYC compared to the Tri-County region, and among NYC respondents, hard drug use was more common than problem drinking.
- There was a substantial decrease in alcohol or drug (AOD) service utilization among those with service needs during the study period, particularly among NYC respondents. In 2018-2019, less than 25% of all respondents with AOD service needs reported utilizing AOD services.
- Black respondents from the Tri-County region had higher AOD service needs but lower AOD service utilization. Queens residents also had higher self-reported mental health needs but lower mental health service utilization.

- Receiving food services, housing services, social service case management, and professional AOD services were associated with increased odds of mental health service utilization.
- Respondents with mental health and/or AOD service needs had lower rates of consistent care, receiving appropriate care, adherent ARV use, and viral suppression than those who did not have any behavioral health service needs.
- In terms of socio-demographic differences, among those in need for mental health services, Latino/Latina respondents are about twice as likely as White counterparts to receive services. Among those in need for AOD services, MSM and Black/African American are more than half as likely as their White counterpart to receive AOD services. Those with less than high school education are about 2.5 times more likely than those with high school diploma to receive AOD services. Finally, Tri-County respondents are more than 6 times less likely than NYC respondents to receive AOD services.
- Receiving ancillary services, such as food, housing, and social service case management all increase the odds of receiving mental health services among those in needs, however, do not have such effects on receipt of AOD treatment services for those in need for AOD services.

Methods

Sample

The data used for this report are based on in-person interviews with PWH conducted by the Community Health Advisory & Information Network (CHAIN) Project from 2011-2020¹. CHAIN is an ongoing cohort study of PWH in New York, conducted since 1994. Participants from both NYC and the Tri-County region are recruited through a two-stage, probability sampling method designed to be representative of PWH ages 18 and older who had at least one contact with an HIV service provider in the past year. In the first stage, an equal number of HIV medical and social service locations are randomly sampled. Staff from these sites then assist in randomly selecting clients proportional to total enrollment from the agency roster or using sequential enrollment procedures. Private doctor's offices are not engaged under this sampling design. As such, Non-Hispanic Whites and persons who receive their care from private doctor's offices without a need for social services are underrepresented when compared to all PWH living in NYC and the Tri-County region. The sample, at baseline, is comparable to PWH with some contact with publicly funded services, such as those served by the Ryan White HIV/AIDS Program. In NYC, recruitment of new participants took place during 2002–2004, 2008-2011 and 2015-2019. Follow-up interviews were then completed at approximately 18–24-month intervals. The cohort recruitment begun in 2015 was limited

¹ Total sample includes 22 NYC interviews (4% of NYC 2018-2020 round and 1% of overall NYC sample) completed after March 2020 (during the COVID-19 pandemic)

to PWH under 40 years old, targeting younger HIV-positive New Yorkers to supplement the ongoing cohort recruited in 2008-11 whose mean age in 2015 was 52. In this report, NYC participants recruited between 2009 and 2019 and their interviews conducted between 2011 and 2020 are included.

In the Tri-County region, a repeated cross-sectional design has been implemented since 2008. Recruitment occurs about every two years. After two years, individuals are eligible for inclusion in the next cross-sectional sample and at each recruitment period; thus about 20% of the Tri-County cohort had participated in an earlier interview period and data are available for follow-up analyses. In the Tri-County region, data were collected during 2008-2010, 2010-2012, 2012- 2013, 2015-2017, and 2018-2019. In this study, Tri-County participants recruited and interviewed between 2012 and 2019 are included.

The study sample for this report consists of 1,935 interviews (1,480 for NYC and 455 for the Tri-County region) conducted with 1,024 unique study participants (655 for NYC and 369 for the Tri-County region). Characteristics of the sample are displayed in Table 1.

Table 1. Sample Characteristics

		NYC	Tri-County
Total N		655	369
Gender	<i>Female</i>	31%	51%
	<i>Male</i>	69%	49%
	<i>Transgender</i>	<1%	<1%
Race/ Ethnicity	<i>White</i>	6%	10%
	<i>Black</i>	50%	54%
	<i>Latino</i>	39%	32%
	<i>Asian, Other</i>	6%	4%
Age Group	<i>Age 18-34</i>	35%	11%
	<i>Age 35-49</i>	33%	24%
	<i>Age 50+</i>	31%	66%
Education	<i>Less than High School</i>	34%	38%
	<i>High School Diploma/GED</i>	48%	43%
	<i>More than High School</i>	18%	19%
Place of Residence	<i>Bronx</i>	38%	--
	<i>Brooklyn</i>	29%	--
	<i>Manhattan</i>	19%	--
	<i>Queens</i>	9%	--
	<i>Staten Island</i>	6%	--
	<i>Putnam County</i>	--	1%
	<i>Rockland County</i>	--	18%
	<i>Westchester County</i>	--	81%
Place of Birth	<i>U.S.</i>	72%	60%
	<i>Puerto Rico</i>	5%	7%
	<i>Foreign Born</i>	23%	33%
Food Insecure	<i>Yes</i>	54%	53%
Extreme Poverty	<i>Yes</i>	32%	13%
Housing Stability	<i>Stable</i>	72%	88%
	<i>Unstable</i>	13%	10%
	<i>Homeless</i>	15%	2%
Year of HIV Diagnosis	<i>Before 1997</i>	22%	39%
	<i>1997-2004</i>	27%	28%
	<i>2005 - 2013</i>	38%	24%
	<i>2014 and after</i>	13%	9%
Viral Suppression	<i>Suppressed < 200 copies/mL</i>	92%	89%
	<i>Unsuppressed > 200 copies/mL</i>	8%	11%

Data from most recent interview from 2011 - 2020.

Measures

The CHAIN project collects information on multiple aspects of an individual's life, including detailed housing status, use of social and medical services, as well as sociodemographic, behavioral and well-being measures relevant to need for these services. Study variables for this analysis were chosen based on the theoretical and empirical evidence suggesting the

variable has an effect on access to and retention in HIV medical care as well as HIV health outcomes. Definitions of behavioral health variables are summarized in Table 2 and all outcome indicators are summarized in Table 3.

Table 2. Measures – Behavioral Health Variable Definitions

Variable	Definition
Mental Health Service Needs	
Mental Health Functioning	Mental Component Summary Score on standardized mental and physical health functioning measure (MOS-SF12v2). ¹ <u>Adequate mental health functioning</u> : MCS>=42 <u>Poor mental health functioning</u> : MCS<42 Low functioning: MCS>=37 & MCS<42 Very low functioning: MCS<37
<u>Self-Reported</u> Mental and Emotional Health Service Need	Reporting needing help or assistance in emotional or psychological difficulties, including relationship problems in the last 6 months
<u>Overall</u> Mental and Emotional Health Service Need	Self-report need for mental and emotional health services OR MCS<42
Mental Health Service Utilization	
<u>Any</u> Mental and Emotional Health Services	Any psychological or emotional counseling or therapy, including talking to a pastor or religious counselor or attending a support group focused on mental health or emotional health issues
<u>Professional</u> Mental and Emotional Health Services	Psychological or emotional counseling or therapy from a licensed mental health care professional or clinical social worker in the past 6 months
<u>Non-Professional</u> Mental and Emotional Health Services	Psychological or emotional counseling or therapy from a non-CSW social worker, case manager, pastor or religious counselor, or attending a support group
Alcohol or Drug (AOD) Service Needs	
Current Problem Drinking	Problem drinking as indicated by the CAGE standardized screening tool ² OR drinking five or more drinks in one sitting weekly or more often
Hard Drug Use	<u>Current hard drug use</u> : Use of heroin, cocaine, crack, or methamphetamine in the past 6 months <u>Past hard drug use</u> : Use of heroin, cocaine, crack, or methamphetamine 5x or more in life but not in the past 6 months
<u>Self-Reported</u> AOD Treatment Service Need	Reporting that alcohol or substance abuse treatment is moderately to extremely important
<u>Overall</u> AOD Treatment Service Need	Self-reported need for alcohol and substance abuse treatment OR current problem drinking OR current hard drug use
Alcohol or Drug (AOD) Service Utilization	
<u>Any</u> AOD Treatment Services	Any alcohol or substance use treatment services including AA/NA in the past 6 months

Table 2. Measures – Behavioral Health Variable Definitions

Variable	Definition
<u>Professional</u> AOD Treatment Services	Any type of professional alcohol or substance use treatment (inpatient, outpatient, detox, residential treatment, methadone or other medically assisted) in the past 6 months.
<u>Non-Professional</u> AOD Treatment Services	Alcohol and substance use counseling or treatment services from AA/NA or other self-help groups
¹ Ware et al. (2002). MCS score <42.0 indicates clinically significant mental health symptoms (depression, anxiety, impairment); <37.0 is the mean score in psychiatric inpatient populations ² Ewing J. A. (1984). Detecting alcoholism. The CAGE questionnaire. <i>JAMA</i> , 252(14), 1905–1907. The CAGE questions include whether 1) they ever felt need to cut down on drinking, 2) people annoyed them by criticizing their drinking, 3) they ever felt bad or guilty about drinking, and 4) you ever had a drink as an eye-opener	

Table 3. Measures – HIV Outcome Variable Definitions

Variable	Definition
HIV Care Outcomes	
Consistent Care	None or only 1 missed scheduled appointments for HIV medical care during the past 6 months, AND did not have a period of ‘drop out’—intentionally stopped going to the doctor and had no HIV medical appointments for 6 months or more, since last interview.
Appropriate Care	Meeting the minimum clinical practice standards at the time of interview. Prior to 2013, at least one visit with blood work and complete physical in the past 6 months if CD4 count is 350 or above and viral load is 400 or less; or at least 2 visits with at least one blood work and one complete physical, and on ARV if CD4 count is less than 350 or viral load is over 400. After June 2013, care is not appropriate if not taking ARV, regardless of CD4 or viral load. ¹
Adherent ARV Use	Adherent ARV indicated by taking any recommended ARV regimen and participant report of taking medications “exactly as prescribed, almost never missing a dose” and not missing any medications in the two days preceding the interview. Not adherent to recommended ARV regimen includes those who are not taking any antiretroviral medications and those taking medications not consistent with DHHS’s guidelines in effect at the time of the interview (NIH, AIDSinfo.nih.gov).
Viral Suppression	Self-reported most recent HIV viral load as an actual numerical value or report medical provider designation as “undetectable,” or “good.” Viral load of <400 copies (or <200 copies from November 2009 and after), or provider report as “undetectable,” or “good” were coded as “suppressed viral load” and >400 copies (or >200 copies from November 2009 and after) or reported as “bad” as “unsuppressed viral load.”

1. Indicators based on HHS HIV/AIDS Bureau (HAB) criteria for minimum clinical standards of care (HAB.HRSA.gov) and NIH AIDSInfo guidelines (AIDSinfo.nih.gov).

Subgroups/ Covariates

A number of subgroups or covariates were included in the various descriptive and multivariate analyses, to understand and control for individual characteristics and contextual factors. Models control for socio-demographics (age, gender identity, race/ethnicity, place of birth); socioeconomic status (education, extreme poverty, housing status, food insecurity), receipt of services (food, housing, social service case management, and medical case management), and year of HIV diagnosis.

Socioeconomic status. Education is coded as less than high school, high school/GED, post-secondary; Extreme poverty is measured based on annual household income above or below \$7,500. Housing status is classified as *homeless*, living in a homeless shelter or a single room occupancy (SRO) hotel without services, or sleeping in a car, on the street, or other place not meant for sleeping; *unstable*, living in a temporary or transitional housing program, a residential treatment program with no other address, or temporarily doubled up with friends or family; or *stable*, living in permanent housing, in their own apartment or home. Food insecurity is indicated by any of the following: reporting not enough money for food that the individual or family needs “sometimes” to “very often” in the past 6 months; or “sometimes/often” there is not enough to eat; or the participant has gone a whole day without eating in the last 30 days; or self-report need for services or help with food, groceries, or meals in the past 6 months.

Receipt of Services. Receipt of food services is indicated by reporting receipt of one or more of the following services in the last six months: meals provided in a group setting, prepared meals delivered to home, receipt of food voucher, or food from a food pantry. Receipt of housing services is indicated by reporting receipt of one or more of the following assistances in the last six months: permanent tenant-based (e.g., HOPWA or Section 8 voucher) or facility-based (e.g., congregate permanent supportive housing, public housing) assistance with housing costs, or “practical help” for a housing problem from an agency or paid provider in the form of direct assistance with obtaining housing (e.g., provision of housing, housing placement assistance), application for housing assistance, or a service referral, that resolved need or problem or made “some” or “a great deal” of progress with resolving their housing problem or need. Receipt of medical case management is indicated by reporting receiving assistance from a case manager in the past six months with access or referrals to specific medical services, with taking ARV medication, or with keeping an appointment for medical care. Social services case management indicates receiving one or more of the following services from a case manager in the last six months: care plan development or revision for dealing with needs, or help with access or referrals to specific social services or filling out forms for benefits or entitlements. Note that the measure is based on participant reported *types of services* received, not on classifying *types of case managers* or case management programs. The same case manager may be providing both medical case management and assistance with social service needs.

Analysis

Descriptive Analyses

First, we looked at over-time changes in mental health service needs and mental health functioning which are broken down into three levels (adequate functioning (MCS>42), low functioning (MCS>37 & MCS ≤42), and very low functioning (MCS≤37)) by rounds of interview. We then looked at mental health service utilization by levels of mental health functioning and service needs for each round of interview. The mental health service utilization was then further broken down into professional services, non-mental health professional services, and both types of services at each interview period and presented in Figure 1. The same procedures were taken for substance use service needs and problem substance use which are broken down into four levels (no problem substance use, current problem drinking, current hard drug use, both drinking and hard drug use).

We then shifted our focus to most recent interviews and looked at components which define mental health service needs, alcohol and substance use serviced needs, and co-occurring behavioral health needs. Subsequently, subgroup analyses were conducted to identify characteristics associated with higher needs for and/or lower utilization of behavioral health services. Finally, association between behavioral health service needs and utilization and HIV outcome variables were analyzed.

Multivariate Analyses

A series of random effects logistic regression were performed to estimate effects of various factors on behavioral health service utilization among those in need, adjusted for socio-demographics, region, and receipt of social services and medical case management. Similarly, series of random effects logistic regression was performed to estimate effects of behavioral health service needs and utilization on HIV outcomes, adjusted for demographics, social service needs and utilization, as well as HIV diagnosis year. Using this statistical approach, each interview at each time point provides an opportunity to assess the association between predictors (e.g. client characteristics, mental health service needs etc.) and an outcome (e.g. viral suppression) for every individual in the study sample, adjusting for the correlation within the same individual over several observations at different interview periods.

Qualitative Analyses

Two open-ended questions producing qualitative data were used in this study. Those who reported needing help or assistance for emotional or psychological difficulties were asked if they received any services in the past 6 months. For those who reported needing help or assistance but had not received help or did not seek help, we asked, “You said that you sought help but received no help at all for your emotional or psychological problems. Why not?” or “You said that you didn’t seek help from any professional or agency for your emotional or psychological problems. Why not?” Those who received help, regardless of their reported needs, were asked their level of satisfaction with the services they received. If they reported

somewhat or very dissatisfied, we asked: “Could you briefly describe why you were dissatisfied?” The answers to these questions were separated from any contextual data and provided to two coders. Each coder worked independently to create categories of answers. The two coders then met to compare their results, discussing cases of disagreement. Such cases resulted in discussion. Answers on which the coders could not agree were brought to the attention of a third coder and discussed once more as a group to achieve consensus.

Results

Trends in Behavioral Health Service Needs and Utilization

Trends in Mental Health

Among NYC CHAIN respondents, there is a near even distribution of respondents with adequate mental health functioning and respondents with poor mental health functioning (Table 4). The percentage of NYC respondents with adequate mental health functioning has generally decreased, from 54% in 2011-2013 to 46% in 2018-2020. Overall mental health service needs, which accounts for self-reported service needs in addition to mental health functioning, indicate that the majority of NYC respondents are in need of mental health services.

Over half of Tri-County CHAIN respondents reported adequate mental health functioning throughout the study period. Additionally, the percentage of Tri-County respondents with adequate mental health functioning increased slightly between 2011-2013 and 2018-2019.

Table 4. Trends in Mental Health Functioning and Service Needs

Mental Health Functioning	Round 7	Round 8	Round 9	Round 10
NYC	2011-13	2013-15	2015-17	2018-20
Total N	227	224	524	501
Adequate Mental Health Functioning	54%	51%	41%	46%
Poor Mental Health Functioning	46%	49%	59%	55%
Low Functioning	24%	21%	20%	19%
Very Low Functioning	22%	28%	39%	36%
Overall Mental Health Service Needs¹	51%	60%	60%	58%
Tri-County	2012-13	N/A	2015-17	2018-19
Total N	177	--	182	96
Adequate Mental Health Functioning	55%	--	57%	58%
Poor Mental Health Functioning	45%	--	43%	42%
Low Functioning	18%	--	18%	22%
Very Low Functioning	27%	--	25%	20%
Overall Mental Health Service Needs¹	49%	--	44%	44%

¹ Self-reported need for mental and emotional health services or Mental Component Score, MCS<42

There has been an overall decrease in the utilization of mental health services among CHAIN respondents with any mental health service needs. Among NYC respondents with needs, there was an increase in service utilization from Round 7 to Round 8, followed by a decrease in subsequent interview rounds (Table 5 & Figure 1). In both NYC and the Tri-County region, mental health service utilization was lowest in the most recent round (2018-2020), with less than half of respondents with needs accessing services.

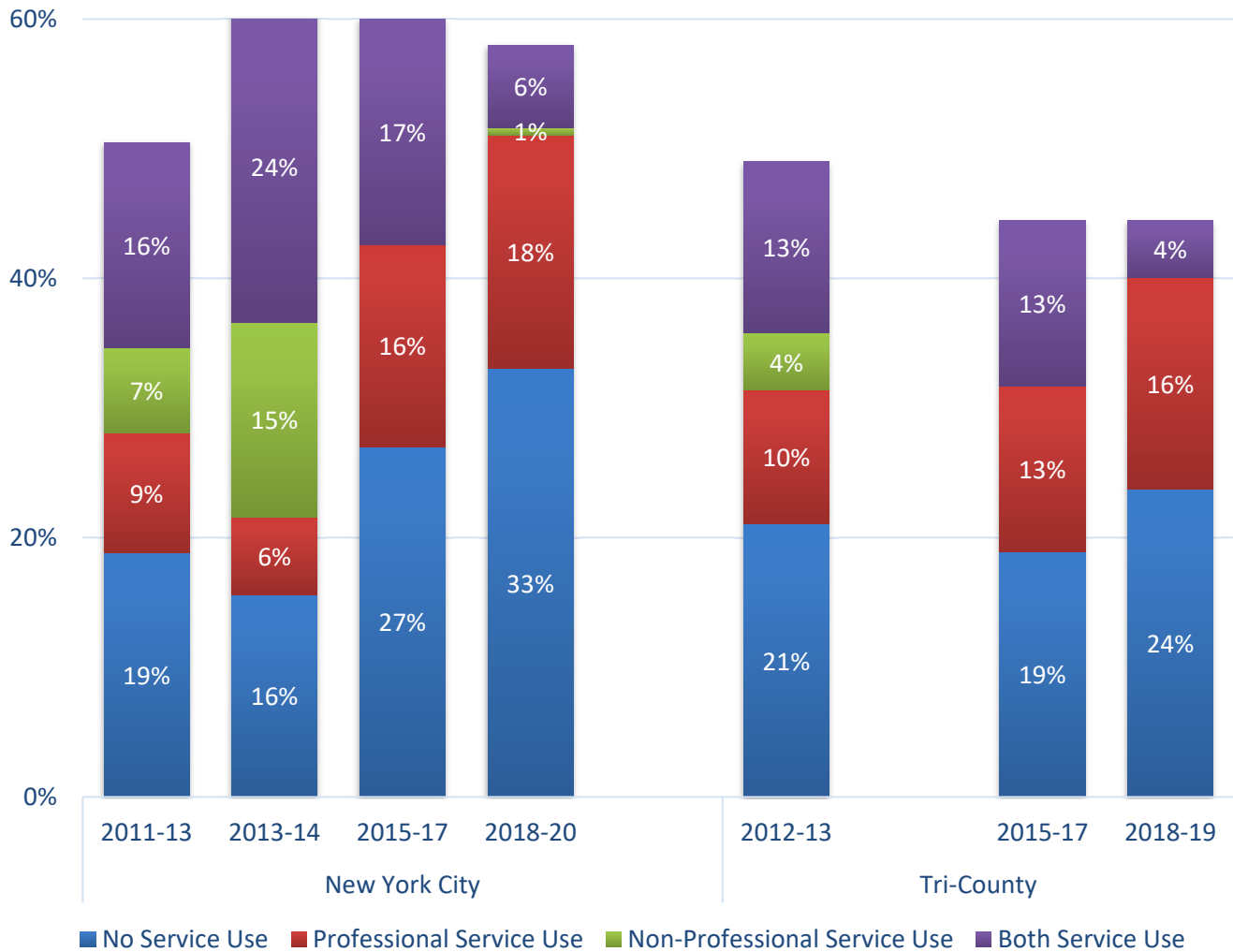
Rates of service utilization among respondents with poor mental health functioning scores were consistently higher than those with adequate mental health functioning, with highest utilization among respondents with very low functioning. This suggests that study participants with greater need are accessing services. However, approximately one-third to over half among those with mental health functioning scores in the range seen among psychiatric inpatient populations were not receiving any mental health services at each of the interview periods.

Overall, utilization of non-professional mental health services has decreased (Figure 1). In the latest interview round, less than 10% of respondents reported utilizing non-professional mental health services; of those, all in Tri-County and nearly all in NYC additionally utilized professional services. Utilization of both professional and non-professional services has also decreased relative to utilization of professional services alone.

Table 5. Trends in Mental Health Service Utilization by Mental Health Functioning and Service Needs

Any Service Utilization (%)	Round 7	Round 8	Round 9	Round 10
NYC	2011-13	2013-15	2015-17	2018-20
Adequate Mental Health Functioning	45%	54%	37%	28%
Poor Mental Health Functioning	59%	68%	55%	44%
Low Functioning	52%	60%	52%	44%
Very Low Functioning	66%	74%	56%	44%
Overall Mental Health Service Needs	63%	74%	55%	43%
Tri-County	2012-13	N/A	2015-17	2018-2019
Adequate Mental Health Functioning	39%	--	41%	28%
Poor Mental Health Functioning	55%	--	56%	45%
Low Functioning	50%	--	55%	38%
Very Low Functioning	59%	--	58%	53%
Overall Mental Health Service Needs	57%	--	58%	46%

Figure 1. Mental Health Service Utilization by Service Type among PWH with Mental Health Needs



Trends in Substance Use

The percentage of respondents who reported having a current problem with drinking and/or reported current hard drug use remained at or below 22% in both NYC and the Tri-County region (Table 6). Prevalence of current problem substance use was consistently higher in NYC compared to the Tri-County region, and among NYC respondents, hard drug use was more common than problem drinking. Conversely, in the Tri-County region, the prevalence of current problem drinking was slightly higher than prevalence of current hard drug use. Furthermore, the percentage of NYC respondents who reported current problem substance use increased slightly during the study period, from 18% in 2011-2013 to 22% in 2019-2020, driven by an increase in current hard drug use. Prevalence of problem substance use in the Tri-County region was about the same in 2018-2019 as in 2011-2013, despite dipping to under 5% in 2015-2017.

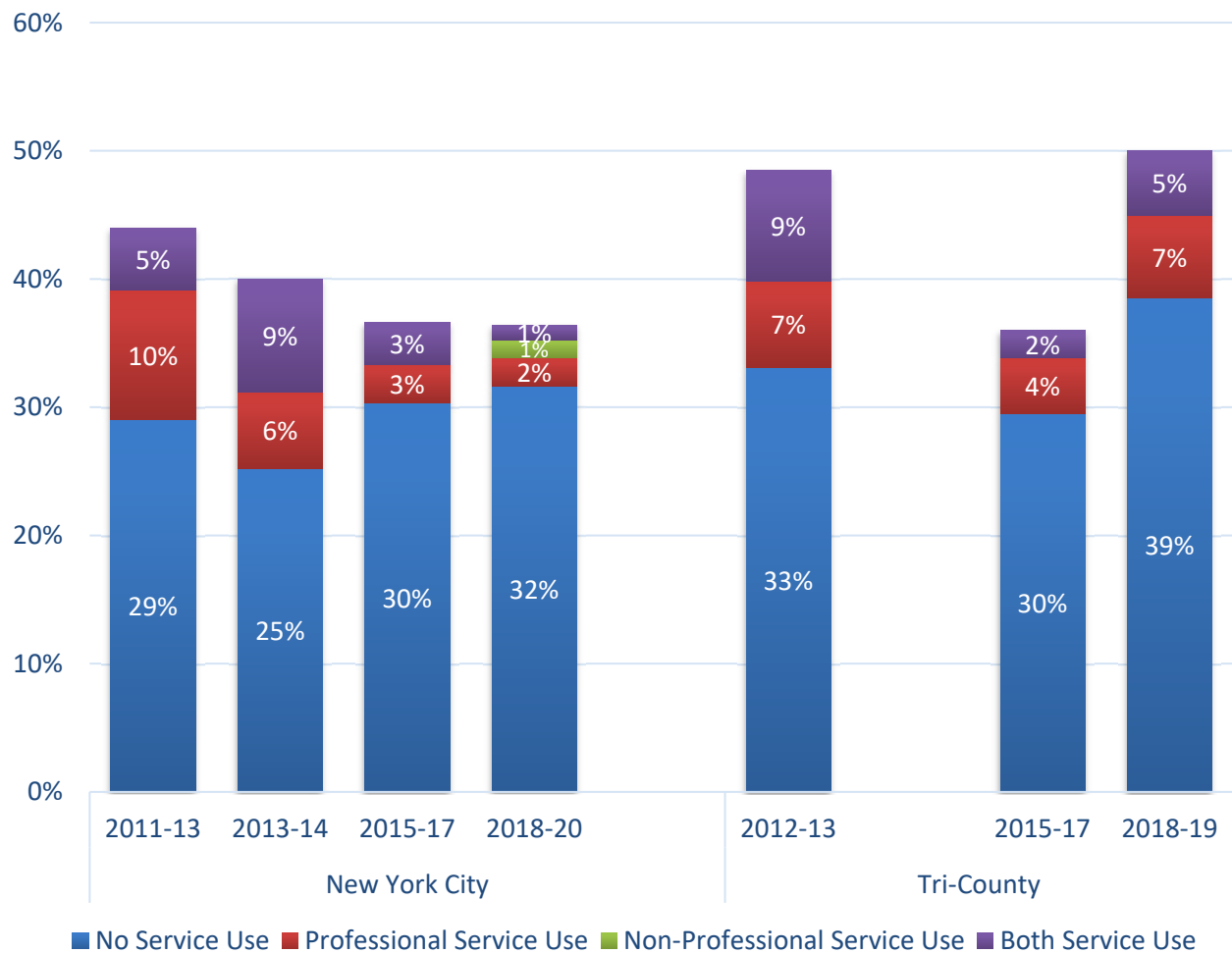
Numerous respondents in both NYC and the Tri-County region did not report current problem drinking and/or hard drug use but self-report need for alcohol and/or substance abuse treatment or further treatment – e.g. to maintain sobriety or avoid relapse. Overall AOD service needs, accounting for self-reported need, decreased among NYC respondents across the study period from 44% (2011-2013) to 36% (2019-2020), but fluctuated among Tri-County respondents from 48% (2011-2013) to 36% (2015-2017) and then 50% (2018-2019).

Table 6. Trends in Substance Use and AOD Service Needs

Alcohol and Hard Drug Use	Round 7	Round 8	Round 9	Round 10
NYC	2011-13	2013-15	2015-17	2018-20
Total N	227	224	524	505
Neither	83%	83%	80%	78%
Current Problem Drinking	6%	6%	7%	7%
Current Hard Drug Use	8%	9%	10%	12%
Both Problem Drinking and Drug Use	4%	2%	4%	3%
Overall AOD Service Needs	44%	40%	37%	36%
Tri-County	2012-13	N/A	2015-17	2018-19
Total N	177	--	182	96
Neither	88%	--	96%	86%
Current Problem Drinking	4%	--	2%	6%
Current Hard Drug Use	6%	--	1%	4%
Both Problem Drinking and Drug Use	2%	--	2%	3%
Overall AOD Service Needs	48%	--	36%	50%

There was a substantial decrease in rates of service utilization among NYC respondents with any AOD service needs during the study period, from 34% in Round 7 (2011-13) to 12% in Round 10 (2018-21). The same trend was observed in Tri-County participants to a lesser degree, decreasing from 31% to 23%. Utilization of non-professional AOD services was rare, and almost always in conjunction with utilization of professional services (Figure 2).

Figure 2. AOD Service Utilization by Service Type among PWH with AOD Needs



Behavioral Health at Most Recent Interview

Table 8 lists the indicators which define mental health service needs, alcohol and substance use, and co-occurring behavioral health needs. Participants’ answers from their most recent interviews were combined into self-reported and overall behavioral health service needs.

Overall mental and emotional health service needs (based on any indicator), overall AOD service needs, as well as co-occurring mental health and substance use needs, were higher among NYC CHAIN respondents at their last interview compared to Tri-County respondents. Co-occurring current hard drug use with poor mental health was more common than co-occurring problem drinking with poor mental health in both groups. Feeling sad, anxious, or worried was the most common self-reported mental health service need for both NYC and Tri-County respondents. Drug treatment was reported as moderately to extremely important more often than alcohol treatment among both NYC and Tri-County respondents.

Table 8. Co-occurring Behavioral Health Conditions

	NYC (N=655)	Tri-County (N=369)
Poor Mental Health Functioning	55%	44%
Low Functioning	19%	19%
Very Low Functioning	36%	25%
Self-reported MH service needs	14%	5%
Feeling sad or anxious, worried	10%	4%
Feeling confused, out of control	5%	1%
Want a therapist, counselor	4%	1%
Recent traumatic or very stressful experience	4%	1%
Other	3%	<1%
Overall Mental and Emotional Health Service Needs	58%	46%
Alcohol or Substance Use	22%	10%
Problem Drinking	10%	6%
Hard Drug Use	15%	7%
Self-reported AOD service needs	18%	20%
Alcohol treatment is moderately to extremely important	6%	7%
Drug treatment is moderately to extremely important	15%	17%
Overall AOD service needs	31%	25%
Co-occurring Alcohol or Substance Use with Poor Mental Health Functioning	15%	7%
Co-occurring Problem Drinking with Poor Mental Health	4%	2%
Co-occurring Current Hard Drug Use with Poor Mental Health	7%	3%
Co-occurring Problem Drinking and Current Hard Drug Use with Poor Mental Health	3%	1%
Co-occurring Overall Behavioral Health Needs¹		
No Service Needs	31%	41%
Only Any Mental Health Service Needs	38%	34%
Only Any AOD Service Needs	10%	13%
Both Any Mental Health Service Needs and Any AOD Service Needs	21%	12%

¹ Indicated by standard screening assessment or self-reported need for mental health or AOD services

Behavioral Health Service Needs and Utilization among Subgroups

Table 9 displays the subgroups who currently have higher mental health service needs and higher alcohol and/or drug treatment needs than the overall study population. Among NYC respondents, subgroups with higher overall mental health service needs included those who were: Latino/a, ages 19 to 34, born in Puerto Rico, virally unsuppressed, current problem drinkers, current hard drug users, unstably housed or homeless, and diagnosed with HIV in 2014 and after. Among Tri-County respondents, subgroups with higher overall mental health service needs included those who were: ages 19 to 34, unstably housed, and had less than a high school education.

Among NYC respondents, subgroups with higher overall AOD service needs included those who were: White or other racial group, Staten Island residents, virally unsuppressed, current problem drinkers, current hard drug users, homeless, and diagnosed with HIV in 2014 and

after. Among Tri-County respondents, subgroups with higher overall AOD service needs included those who were: Black, past hard drug users, unstably housed, diagnosed with HIV before 1997, and had less than a high school education.

Table 9. Subgroups with higher needs

	NYC	Tri-County
Self-Reported MH Need	<ul style="list-style-type: none"> • Latino/a • Queens Residents • Puerto Rico-born • Foreign-born • Problem drinkers 	<ul style="list-style-type: none"> • Latino/a
Overall MH Need	<ul style="list-style-type: none"> • Latino/a • Age 19-34 • Puerto Rico-born • Virally unsuppressed • Problem drinkers • Current hard drug users • Unstably housed • Homeless • Diagnosed 2014 & after 	<ul style="list-style-type: none"> • Age 19-34 • Less than HS education • Unstably housed
Self-Reported AOD Need	<ul style="list-style-type: none"> • White • Less than HS Education • Puerto Rico-born • Virally unsuppressed • Problem drinkers • Current hard drug users • Homeless • Diagnosed before 1997 	<ul style="list-style-type: none"> • Black • Less than HS education • Past hard drug users • Unstably housed • HIV Diagnosis Before 1997
Overall AOD Need	<ul style="list-style-type: none"> • White • Asian, Native American, or other race/ethnic group • Staten Island residents • Virally unsuppressed • Problem drinkers • Current hard drug users • Homeless • Diagnosed 2014 & after 	<ul style="list-style-type: none"> • Black • Less than HS education • Past hard drug users • Unstably housed • Diagnosed before 1997

Table 10 displays the subgroups who currently have lower rates of professional mental health service use or use of any mental health services than the general study population. Among NYC respondents, subgroups with lower utilization of any mental health services included those who were: Queens residents and other racial group, which includes those who identify as Asian or Native American. Among Tri-County residents, subgroups with lower utilization of any mental health services included those who were: Black, Rockland residents, foreign-born, and diagnosed with HIV in 2014 and after.

Among NYC respondents, subgroups with lower utilization of any AOD services included those who were: Black, foreign-born, current problem drinkers, and never hard drug users. Among Tri-County respondents, subgroups with lower utilization of any AOD services included those who were: Black, Rockland residents, foreign-born, not a problem drinker, never hard drug users, and had more than a high school education.

Notably, Black respondents from the Tri-County region had higher AOD service needs but lower AOD service utilization. Queens residents also had higher self-reported mental health needs but lower utilization of mental health services. Details of behavioral health needs and utilization among these subgroups are displayed in Appendix Tables A1, A2, A4, and A5.

Table 10. Subgroups with Lower Service Utilization

	NYC	Tri-County
Any MH Services	<ul style="list-style-type: none"> • Asian, Native American, or other race/ethnic group • Queens residents 	<ul style="list-style-type: none"> • Black • Rockland residents • Foreign-born • Diagnosed 2014 & after
Professional MH Services	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Black • Rockland residents • Foreign-born • Diagnosed 2014 & after
Any AOD Services	<ul style="list-style-type: none"> • Black • Foreign-born • Problem Drinkers • Never hard drug users 	<ul style="list-style-type: none"> • Black • More than HS Education • Rockland residents • Foreign-born • Not a problem drinker • Never hard drug users
Professional AOD Services	<ul style="list-style-type: none"> • Foreign Born • Problem drinkers • Never hard drug users 	<ul style="list-style-type: none"> • Black • More than HS Education • Rockland residents • Foreign-born • Not a problem drinker • Never hard drug users

Too few respondents in both NYC (3%) and the Tri-County (4%) used non-professional AOD services to report on subgroup use.

Factors Influencing Service Utilization

Predictors of Receipt of Behavioral Health Services

Among respondents with overall mental health service needs, Latino respondents had higher odds of mental and emotional health service utilization than other race/ethnic groups (Table 11). Receipt of food services, housing services, social service case management, and professional AOD services were all associated with increased odds of mental health service utilization. On the other hand, respondents 50 years of age or older had lower odds of utilizing professional mental health services.

Table 11. Predictors of Mental and Emotional Health Service Utilization among PWH with MH Service Needs

Among PWH with MH Service Needs		
	Professional MH Services	Any MH Services
	AOR	AOR
Sex ¹		
MSM	1.159	1.214
Female	1.154	1.345
Race/Ethnicity		
Black/African American	1.018	1.112
Latino/Latina	1.921 *	2.189 **
Age ²		
18-34 years old	0.845	0.678
50+ years old	0.608 *	0.731
Education ³		
Less than high school education	0.814	0.837
More than high school education	1.103	1.083
Income ⁴		
Extreme poverty <\$7500/year	0.760	0.897
Residence ⁵		
Outer NYC boroughs	0.867	0.932
Tri-County	1.064	0.911
Service Utilization		
Receipt of food services	2.256 ***	2.186 ***
Receipt of housing services	1.972 *	1.666 #
Receipt of social service case management	2.575 ***	3.096 ***
Receipt of medical case management	1.099	0.813
Receipt of professional AOD services	1.556	1.891 #

AOR = adjusted odds ratio # p < 0.10; * p < .05; ** p < .01; *** p < .001

Logistic regression equations using random effects procedure to adjust for the dependency among multiple observations contributed by the same individual; interviews conducted 2011-2020.

¹ Heterosexual male reference category

² Age 35-49 reference category

³ High school education reference category

⁴ More than \$7,500 yearly income reference category

⁵ Manhattan residence reference category

Among respondents with overall AOD service needs, MSM, Black respondents, and those residing in the Tri-County region had lower odds of utilizing AOD services, while respondents who had less than a high school education had much higher odds of utilizing AOD services (Table 12).

Table 12. Predictors of AOD Service Utilization among PWH with AOD Service Needs

Among PWH with AOD Service Needs		
	Professional AOD Services	Any AOD Services
	AOR	AOR
Sex ¹		
MSM	0.306 ***	0.384 **
Female	0.697	0.685
Race/Ethnicity		
Black/African American	0.440 #	0.376 *
Latino/Latina	0.629	0.540
Age ²		
18-34 years old	1.129	0.943
50+ years old	0.874	0.845
Education ³		
Less than high school education	2.479 **	2.602 **
More than high school education	1.115	0.982
Income ⁴		
Extreme poverty <\$7500/year	1.063	1.028
Residence ⁵		
Other NYC boroughs	0.583	0.540 #
Tri-County	0.158 **	0.128 **
Service Utilization		
Receipt of food services	1.320	1.098
Receipt of housing services	0.732	0.704
Receipt of social service case management	1.466	1.468
Receipt of medical case management	0.669	0.747
Receipt of professional MH services	1.239	1.309

AOR = adjusted odds ratio # p < 0.10; * p < .05; ** p < .01; *** p < .001

Logistic regression equations using random effects procedure to adjust for the dependency among multiple observations contributed by the same individual; interviews conducted 2011-2020.

¹ Heterosexual male reference category

² Age 35-49 reference category

³ High school education reference category

⁴ >\$7,500/year reference category

⁵ Manhattan residence reference category

Barriers to Mental Health Service Utilization

Study participants who indicated a need for mental health services were asked reasons for not receiving any services. Table 13 lists the self-reported reasons for not receiving or not seeking mental health services given in respondents most recent response to the question. The most common reason for not receiving or seeking mental health services was that the respondent didn't feel the need for professional help. Reluctancy to talk about psychological or emotional problems, as well as mistrust in providers were also frequently mentioned.

Many of the other reported reasons for not receiving or seeking mental health services were related to not being able to secure an appointment with a mental health professional, such as not knowing where to go, language barriers, personal time constraints, and logistical issues. A third of NYC respondents who had not received services, reported having the intention to seek services, and 14% of respondents were awaiting a referral from their primary care provider.

Other reasons CHAIN participants who needed services did not get or did not seek services or treatment were related to negative past experiences with mental health service staff and not trusting a mental health service provider to help with their problems. A number of participants reported not wanting to talk about their emotional or psychological troubles to a provider and/or other people in general. There were also NYC respondents who voiced concerns about providers who prescribe medication too readily, referred to as “pill pushing.” The Tri-County sample size was too small for qualitative analysis.

**Table 13. Reasons for not receiving or not seeking Mental Health Services
Multiple responses possible**

	NYC
Total N	43
Have intention/plan to seek services	33%
I didn't feel I needed professional help	28%
Don't know where to go	19%
I don't want to talk to a provider/ to anybody	16%
Don't trust/value providers to understand or help	16%
The staff were not good at listening, respectful, or sensitive to my needs	14%
Awaiting referral	14%
Couldn't get appointment	12%
I couldn't reach agency/worker to help me	5%
The agency I went to was not helping with my problem	5%
Concerned about judgement by others	5%
I wasn't sure if the staff would understand my problems	2%
Pride	2%
Awaiting appointment/waiting list	2%
Have other source(s) of support	2%
No Insurance	2%
Financial burden (co-pays, transportation costs)	2%

This table uses the **most recent observation among respondents who answered the question**. This is different from “most recent interview” as a respondent’s most recent response to a question may not have been in their most recent interview, but in a prior interview.

Reasons for Dissatisfaction with Service Received

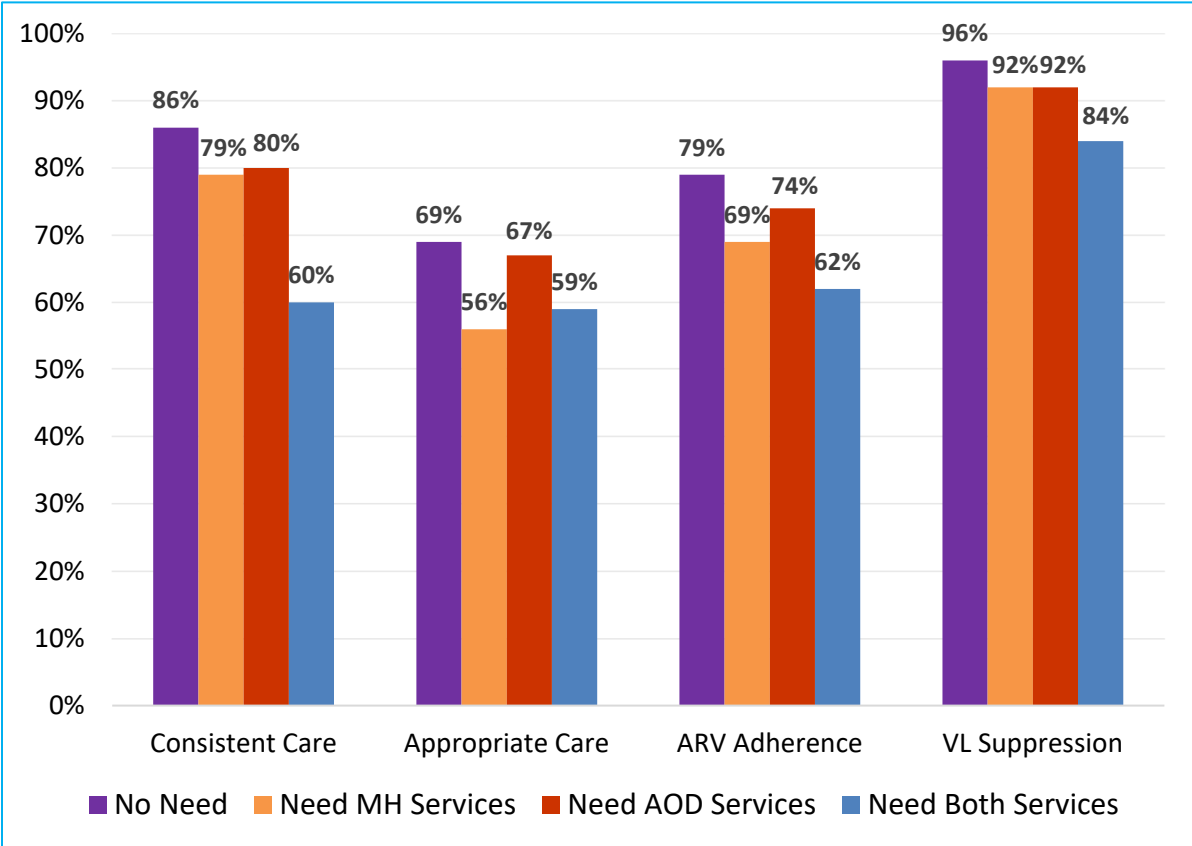
The majority of study participants who received mental health services rated their most recent experience as satisfactory. Although numbers who were less than completely satisfied were small (<25), reported reasons for dissatisfaction primarily fit into three categories: poor experiences with a provider, service system issues, and outcome-related reasons. Service system issues encompass problems getting an appointment, while outcome-related reasons encompass dissatisfaction with progress made (or lack thereof) in addressing respondents’ emotional and psychological needs. Many respondents cited poor experiences with their mental health provider such as feeling like they weren’t being listened

to, not feeling comfortable talking with the provider, or feeling a lack of concern for their wellbeing, as reasons for dissatisfaction (data not shown).

Behavioral Health Service Needs and HIV Care and Health Outcomes

Overall, NYC respondents with no behavioral health service needs had the highest rates of all four care continuum outcomes (Figure 3). Conversely, respondents needing both mental health and AOD services had the lowest rates of consistent care, ARV adherence, and viral suppression. Only 60% of respondents needing both services reported consistent care, meaning that they missed no appointments or missed only one scheduled appointment in the six months prior to the interview. This is notably lower than rates of consistent care for those with AOD service needs alone (80%), those with mental health service needs alone (79%), and those with no need (86%). Similarly, only 62% of those with need for both services were adherent ARV users, compared to 74% of those with AOD service needs alone, 69% of those with mental health service needs alone, and 79% of those with no need. Across all respondents, among all care outcomes, rates of viral suppression were highest although rates of appropriate care, care that met clinical practice standards, had the lowest rates of achievement.

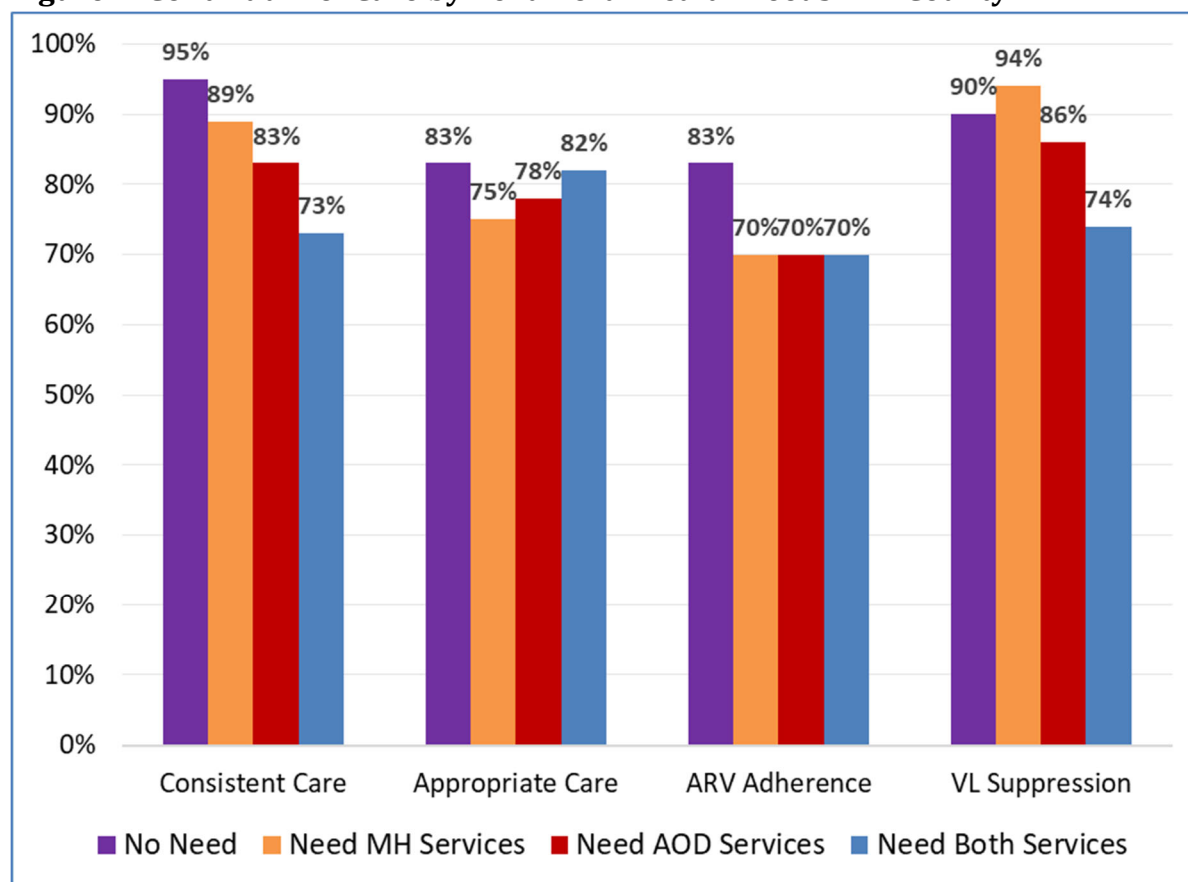
Figure 3. Continuum of Care by Behavioral Health Needs – NYC



Among Tri-County respondents, those needing both mental health and AOD services had the lowest rates of consistent care at 73%, compared to 83% for those with AOD service needs

alone, 89% of those with mental health service needs alone, and 95% of those with no need (Figure 4). However, rates of appropriate care were similar for respondents needing both services and those with no need, while slightly lower for those needing AOD services or mental health services alone. 70% of respondents needing any behavioral health services were adherent ARV users, compared to 83% of those with no need. Respondents with mental health service needs alone had the highest rate of viral suppression, at 94%, followed by 90% of those with no need, 86% of those with AOD service needs alone, and 74% of those needing both services.

Figure 4. Continuum of Care by Behavioral Health Needs: Tri-County



Predictors of HIV Care Continuum Outcomes

We examined mental health service needs and service utilization as predictors of care continuum outcomes, controlling for substance use and a range of sociodemographics and other service needs. Respondents with mental health service needs, irrespective of mental health service utilization, had lower odds of being in consistent care, lower odds of receiving appropriate care, and lower odds of adherent ARV use (Table 14). Current problem substance use was independently associated with lower odds of all four care outcomes – regardless of receipt of mental health services.

Table 14. PWH Characteristics, Service Needs, Mental Health Service Utilization, and HIV Care Continuum Outcomes

	Consistent Care	Appropriate Care	ARV Adherence	Viral Suppression
	AOR	AOR	AOR	AOR
Gender ¹				
MSM	0.803	1.373 #	1.030	1.360
Female	0.923	1.018	0.801	0.962
Race/Ethnicity				
Black/African American	0.895	1.167	0.823	1.831
Latino/Latina	1.083	1.003	0.856	2.163 #
Age ²				
18-34 years old	0.823	0.658 *	0.749	2.027 *
50+ years old	1.083	0.834	1.021	1.196
Diagnosis Year				
1997-2004	0.760	0.798	0.820	1.350
2005-2013	0.703	0.657 *	1.008	0.939
2014 & after	1.315	1.140	1.093	1.851
Food Insecure ³	0.608 **	0.850	0.627 ***	1.061
Unstably Housed/Homeless ⁴	0.748 #	1.050	1.232	0.739
Problem Substance Use ⁵				
Past	1.033	0.956	0.618 **	0.715
Current	0.356 ***	0.752 #	0.499 ***	0.474 *
Received medical case management	0.862	1.298 #	0.914	0.401 ***
Mental health service need and utilization⁶				
Need & received services	0.483 ***	0.640 **	0.618 **	0.865
Need & did not receive services	0.635 *	0.550 ***	0.465 ***	0.700

AOR = adjusted odds ratio # p < 0.10; * p < .05; ** p < .01; *** p < .001

Logistic regression equations using random effects procedure to adjust for the dependency among multiple observations contributed by the same individual; interviews conducted 2011-2020.

¹ Heterosexual male reference category

² Age 35-49 reference

³ Food insecurity indicated by reporting not enough money for food that the individual or family needs sometimes to very often in past 6 months, or sometimes/often there is not enough to eat, or the individual has gone a whole day without eating in past 30 days, or reports a need for food assistance in past 6 months.

⁴ Unstably housed are those not currently in permanent housing, e.g., in a transitional housing program, treatment housing with no other address, or temporarily doubled up others in past 6 months. Homeless refers to those who report being homeless, in a shelter, in an SRO or welfare hotel with no services, sleeping on the street or other place not meant for sleeping in past 6 months.

⁵ Problem drinking indicated by the CAGE assessment (Ewing, 1984) or drinking weekly or more often, consuming five or more drinks when drinking; or hard drug use indicated by heroin, cocaine, crack, methamphetamine use (within past 6 months for current users).

⁶ No mental health service need is reference category

Table 15 examined AOD service needs and service utilization controlling for mental health functioning, sociodemographics and other covariates. Need for alcohol or drug use services was associated with lower odds of consistent care, ARV adherence, and viral suppression,

regardless of receipt of AOD services. Those who needed but did not receive AOD services had lower odds of being virally suppressed, while AOD service needs and utilization did not significantly predict receipt of appropriate care. Low mental health functioning (MCS < 42) was associated with lower odds of being in consistent care, receiving appropriate care, and adherent ARV use, regardless of AOD service need or utilization.

Table 15. PWH Characteristics, Serviced Needs, AOD Service Utilization, and HIV Care Continuum Outcomes

	Consistent Care	Appropriate Care	ARV Adherence	Viral Suppression
	AOR	AOR	AOR	AOR
Gender ¹				
MSM	0.821	1.285	0.983	1.407
Female	0.888	0.994	0.794	0.937
Race/Ethnicity				
Black/African American	0.921	1.165	0.960	1.919 *
Latino/Latina	0.914	0.923	0.982	2.503 **
Age ²				
18-34 years old	0.797	0.636 **	0.678 *	1.856 *
50+ years old	1.240	0.824	1.011	1.246
Diagnosis Year				
1997-2004	0.785	0.799	0.786	1.349
2005-2013	0.752	0.669 *	1.016	1.240
2014 & after	1.506	1.181	1.321	2.896 *
Food Insecure ³	0.588 ***	0.874	0.596 ***	1.068
Unstably Housed/Homeless ⁴	0.707 *	1.004	1.121	0.904
Mental Health Functioning ⁵				
Low Functioning	0.597 **	0.677 *	0.681 *	0.870
Very Low Functioning	0.445 ***	0.565 ***	0.545 ***	0.810
Received medical case management	0.941	1.332 *	0.918	0.370 ***
AOD needs & service utilization⁶				
Need & received services	0.514 *	0.949	0.640 #	0.549 #
Need & did not receive services	0.407 ***	0.911	0.727 *	0.873

AOR = adjusted odds ratio # p < 0.10; * p < .05; ** p < .01; *** p < .001

Logistic regression equations using random effects procedure to adjust for the dependency among multiple observations contributed by the same individual; interviews conducted 2011-2020.

¹ Heterosexual male reference category

² Age 35-49 reference

³ Food insecurity indicated by reporting not enough money for food that the individual or family needs sometimes to very often in past 6 months, or sometimes/often there is not enough to eat, or the individual has gone a whole day without eating in past 30 days, or reports a need for food assistance in past 6 months.

⁴ Unstably housed are those not currently in permanent housing, e.g., in a transitional housing program, treatment housing with no other address, or temporarily doubled up others in past 6 months. Homeless refers to those who report being homeless, in a shelter, in an SRO or welfare hotel with no services, sleeping on the street or other place not meant for sleeping in past 6 months.

⁵ Mental Health functioning based on Mental Component Summary score (MCS); <37.0 is mean score in psychiatric inpatient population; ≥ 37 and <42.0 indicates clinically significant mental health symptoms (depression, anxiety, impairment (Ware et al., 2002).

⁶ No AOD service need is reference category

Summary and Discussion

The co-occurrence of behavioral health conditions, indicated by poor mental health functioning and problem substance use, with HIV is common among CHAIN respondents. The results of this study further found a widening service gap, as the rate of behavioral health service utilization among those with service needs has decreased over time. Furthermore, those with behavioral health service needs are less likely to be engaged along the HIV care continuum or be virally suppressed.

The overall percentage of CHAIN respondents with mental health needs is high: above 50% for NYC and above 40% for Tri-County study participants at every interview period. In the most recent interviews, fewer than half of all respondents with mental health service needs reported service utilization, rates having decreased from previous rounds. NYC respondents reported a range of reasons for not seeking mental health services; most commonly, that they did not feel the need for professional help despite scores on a standardized mental health functioning assessment tool indicating clinically significant mental health symptoms. This indicates a lack of insight into own mental health as well as a lack of idea about receiving mental health services. Nonetheless, a third of respondents reported having the intention to seek services, but cited barriers related to not knowing where to go, language barriers, personal time constraints, logistical issues, and negative past experiences with mental health service providers. The widening mental health service gap suggests that these barriers have become more prohibitive over time.

The service gap and barriers became even more exorbitant since the COVID-19 pandemic. This study only includes 22 interviews that were conducted after March 2020, and thus the impact of the pandemic is not reflected on the results. However, CHAIN conducted a modified protocol for outreach to NYC and Tri-County study participants via telephone during the COVID-19 pandemic (Aidala, Yomogida, & Harned, 2020; Harned, Aidala, & Yomogida, 2021). On this telephone survey conducted between 2020 and 2021, 36% to 48% of respondents scored high on a standardized measure of event-related psychological distress including depression and anxiety symptoms as well as loneliness and hopefulness about the future. At the same time, barriers to telehealth were evident even after a year in the pandemic in 2021. Although almost all (94% in Tri-County and 95% in NYC) respondents had a computer, smart phone, or tablet with internet access in their home, 37% of Tri-County and 32% of NYC respondents reported that they did not know how to use their phone or a computer to participate in a video conference for a medical or other appointment. Moreover, privacy and confidentiality concerns were often mentioned as barriers to telehealth. For example, having no private space at home, and being uncomfortable not knowing where their provider would be (and with whom they would be sharing a space) and how their providers would be accessing their information were mentioned. Many respondents mentioned that they simply prefer in-person interaction with their providers, especially for mental health services.

These barriers and preference indicate that current trends in increasing telehealth services, especially for mental health services, are not accommodating to this population and potentially widening the service gap.

Further integration with social services provides a potential avenue for identifying and referring PWH with mental health service needs. Among CHAIN respondents, those who received food services, housing service, and social service case management were more likely to utilize mental health services as well. Social service providers in NYC and the Tri-County region can help address the unmet need for mental health services among PWH by identifying mental health needs, creating service plans, and connecting clients to appropriate providers, as part of a system of integrated care. Previous studies of mental health service integration by a case manager have shown promising results. For example, a collaborative depression treatment model using social workers to coordinate care for PWH recorded a decrease in depression ratings (Adams et al., 2011). A recent literature review highlights the importance of integrating mental health services into HIV care to improve outcomes for people living with both HIV and mental health and mental health needs (O’Grady et al. 2023).

In addition to mental and emotional health needs, AOD service needs were common among CHAIN study participants. Consistent with trends shown in prior CHAIN research, rates of current substance use – hard drug use or problem drinking – were much lower than past histories of problem substance use. Nonetheless, as of the most recent round of interviews, 22% of NYC and 14% of Tri-County respondents reported current problem substance use. Furthermore, self-reported need for AOD services, indicated by report that AOD treatment is “moderately to extremely important,” was high, particularly among Tri-County respondents. In the last interview round, 36% of Tri-County participants reported a need for AOD treatment or additional treatment. This finding suggests that many past users desire AOD services to maintain sobriety and avoid relapse, even though their current substance use behavior does not meet standard indicators of need for services or treatment.

Similar to trends in mental health service utilization, there is a substantial AOD treatment service gap that has increased over time. In 2011-2013, about a third of all CHAIN respondents with overall AOD service needs reported utilizing AOD treatment services. In the most recent interview period (2018-2020), service utilization dropped to 12% among NYC respondents and 23% among Tri-County respondents. This finding highlights the need for additional research on preferred AOD treatment services among PWH, as well as barriers to seeking services. A study by Schuler et al. (2015) identified attitudinal barriers as a primary reason for low rates of alcohol treatment seeking, including beliefs that the problem was not serious enough or would resolve on its own, as well as stigma-related barriers such as being “too embarrassed to discuss” the problem with anyone (Schuler et al., 2015). Other research has found stigma associated with mental illness serves as a barrier to accessing services (O’Grady, 2023; Remien et al. 2019). Stigma-related barriers to seeking treatment should be carefully considered in the context of PWH, who face a double or triple stigma associated with HIV and substance use and/or mental health needs.

We found that poor mental health functioning was associated with poorer HIV care outcomes, including lower odds of being in consistent care, lower odds of receiving appropriate care, and lower odds of being ARV adherent. Current problem substance use was also associated with lower odds of all four care continuum outcomes. Respondents needing both mental health and AOD services had the lowest rates of consistent care, ARV adherence, and viral suppression. We observed the biggest difference in consistent care, particularly among NYC respondents where only 60% of those reporting a need for both services were engaged in consistent care. Furthermore, behavioral health service needs were associated with poorer outcomes irrespective of service utilization. This may be due to low threshold of service utilization measure we use, that one session in the past 6 months is sufficient for our definition of service utilization. It is also possible, however, that current mental health and AOD treatment services received by CHAIN respondents are not effective or tailored enough to improve HIV care and health outcomes. Future research should investigate the dosage effects of current services, with comparisons to a non-HIV positive population, as well as effects of other behavioral health service models on HIV care and health outcomes. Nevertheless, our findings are consistent with a growing body of research that has documented the extent to which mental health and substance use impairments increase risk for negative outcomes at each step in the HIV care continuum and the limitations of existing behavioral health services and treatment opportunities (Remien et al, 2019; O'Grady et al., 2023; Conway et al., 2021).

These findings further support the need to integrate systematic screening for behavioral health needs, and mental health and substance use services and treatment with medical care and case management for PWH living in NYC and the Tri-County region. We observed that overall need for behavioral health services among CHAIN respondents is high, highlighted a service gap that has increased over time, and found that service needs are associated with lower odds of being engaged in care, receiving appropriate care, being ARV adherent, and being virally suppressed. Findings of this report strongly support the NYC Ryan White Part A (RWPA) Behavioral Health Directive that supports implementation of an integrated spectrum of behavioral health services to improve care for PWH with behavioral health needs (Lawrence, 2021). Care coordination services should take into consideration the behavioral health needs of PWH in order to improve not only their HIV health outcomes but overall wellness and quality of life.

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Appendix

Table A1. Mental and Emotional Service Needs & Service Utilization in NYC	58
Table A2. Mental and Emotional Service Needs & Service Utilization in Tri-County	59
Table A3. AOD Service Needs & Service Utilization in NYC	60
Table A4. AOD Service Needs & Service Utilization in Tri-County.....	61
Table A5. HIV Care Outcomes by Behavioral Health Needs in NYC.....	62
Table A6. HIV Care Outcomes by Behavioral Health Needs in Tri-County.....	62

Table A1. Mental and Emotional Service Needs & Service Utilization in NYC

		Subjective Need	Overall Need	Any Services	Prof. Services	Non-Prof. Services
Total		14%	58%	47%	45%	18%
Gender	<i>Female</i>	14%	59%	48%	46%	18%
	<i>Male</i>	13%	57%	44%	40%	17%
Race/ Ethnicity	<i>White</i>	8%	64%	52%	48%	(22%)
	<i>Black</i>	9%	52%	46%	44%	15%
	<i>Latino</i>	21%	65%	49%	46%	22%
	<i>Other</i>	16%	66%	36%	36%	--
Age Group	<i>Age 18-34</i>	15%	66%	42%	41%	16%
	<i>Age 35-49</i>	18%	61%	54%	52%	16%
	<i>Age 50+</i>	9%	47%	44%	39%	22%
Education	<i>Less than High School</i>	13%	58%	44%	39%	17%
	<i>High School Diploma/GED</i>	13%	57%	49%	47%	20%
	<i>More than High School</i>	18%	63%	47%	47%	13%
Place of Residence	<i>Bronx</i>	15%	60%	46%	44%	18%
	<i>Brooklyn</i>	12%	58%	49%	45%	19%
	<i>Manhattan</i>	13%	59%	49%	49%	15%
	<i>Queens</i>	21%	54%	40%	40%	6%
	<i>Staten Island</i>	11%	51%	45%	40%	(19%)
Place of Birth	<i>U.S.</i>	11%	58%	47%	45%	17%
	<i>Puerto Rico</i>	26%	68%	57%	57%	(35%)
	<i>Foreign Born</i>	22%	58%	44%	40%	16%
Viral Suppression	<i>Suppressed</i>	14%	56%	50%	47%	18%
	<i>Unsuppressed</i>	17%	72%	53%	53%	20%
Current Problem Drinking	<i>Yes</i>	29%	72%	45%	45%	18%
	<i>No</i>	12%	56%	47%	44%	16%
Hard Drug Use	<i>Never</i>	15%	59%	44%	42%	17%
	<i>Past</i>	13%	52%	53%	48%	20%
	<i>Current</i>	15%	70%	48%	48%	16%
Housing Stability	<i>Stable</i>	13%	54%	45%	43%	16%
	<i>Unstable</i>	17%	67%	55%	52%	25%
	<i>Homeless</i>	15%	73%	48%	46%	19%
Year of HIV Diagnosis	<i>Before 1997</i>	8%	51%	51%	46%	28%
	<i>1997-2004</i>	12%	56%	48%	46%	17%
	<i>2005-2013</i>	18%	60%	46%	45%	15%
	<i>2014 and after</i>	16%	69%	43%	42%	13%

(%) represents cells with small sample size (N<25).

Table A2. Mental and Emotional Service Needs & Service Utilization in Tri-County

		Subjective Need	Any Need	Any Services	Prof. Services	Non-Prof. Services
Total		5%	46%	53%	49%	24%
Gender	<i>Female</i>	6%	49%	57%	53%	28%
	<i>Male</i>	5%	43%	48%	44%	21%
Race/ Ethnicity	<i>White</i>	6%	50%	(56%)	(56%)	(22%)
	<i>Black</i>	2%	41%	41%	39%	16%
	<i>Latino</i>	12%	52%	67%	61%	36%
	<i>Other</i>	(7%)	(60%)	(56%)	(56%)	(22%)
Age Group	<i>Age 18-34</i>	3%	56%	(55%)	(55%)	(14%)
	<i>Age 35-49</i>	6%	49%	53%	49%	21%
	<i>Age 50+</i>	6%	43%	52%	49%	28%
Education	<i>Less than High School</i>	6%	55%	56%	49%	26%
	<i>High School Diploma/GED</i>	5%	38%	50%	50%	25%
	<i>More than High School</i>	4%	45%	50%	50%	20%
Place of Residence	<i>Putnam</i>	(0%)	(75%)	(67%)	(67%)	(33%)
	<i>Rockland</i>	6%	48%	23%	19%	16%
	<i>Westchester</i>	5%	45%	59%	56%	25%
Place of Birth	<i>U.S.</i>	2%	46%	56%	55%	23%
	<i>Puerto Rico</i>	(17%)	(58%)	(57%)	(57%)	(43%)
	<i>Foreign Born</i>	9%	43%	45%	36%	23%
Viral Suppression	<i>Suppressed</i>	4%	44%	53%	46%	21%
	<i>Unsuppressed</i>	8%	51%	54%	53%	29%
Current Problem Drinking	<i>Yes</i>	(4%)	(61%)	(57%)	(57%)	(21%)
	<i>No</i>	7%	49%	61%	57%	33%
Hard Drug Use	<i>Never</i>	5%	44%	48%	43%	21%
	<i>Past</i>	7%	46%	55%	52%	28%
	<i>Current</i>	(0%)	(63%)	(73%)	(73%)	(27%)
Housing Stability	<i>Stable</i>	6%	44%	53%	49%	25%
	<i>Unstable</i>	0%	58%	(45%)	(45%)	(18%)
	<i>Homeless</i>	(0%)	(83%)	(80%)	(80%)	(40%)
Year of HIV Diagnosis	<i>Before 1997</i>	4%	40%	49%	46%	28%
	<i>1997-2004</i>	7%	48%	54%	52%	13%
	<i>2005-2013</i>	7%	52%	61%	54%	37%
	<i>2014 and after</i>	3%	52%	41%	41%	(12%)

(%) represents cells with small sample size (N<25).

Table A3. AOD Service Needs & Service Utilization in NYC

		Subjective Need	Overall Need	Any Services	Prof. Services	Non-Prof. Services
Total		18%	31%	16%	13%	7%
Gender	<i>Female</i>	14%	20%	15%	15%	5%
	<i>Male</i>	19%	37%	17%	13%	7%
Race/ Ethnicity	<i>White</i>	34%	43%	(53%)	(33%)	(33%)
	<i>Black</i>	14%	28%	9%	8%	6%
	<i>Latino</i>	19%	34%	18%	15%	4%
	<i>Other</i>	21%	34%	(15%)	(15%)	(8%)
Age Group	<i>Age 19-34</i>	15%	31%	13%	10%	9%
	<i>Age 35-49</i>	20%	34%	21%	19%	7%
	<i>Age 50+</i>	18%	29%	15%	10%	5%
Education	<i>Less than High School</i>	22%	34%	20%	18%	3%
	<i>High School Diploma/GED</i>	16%	30%	14%	10%	10%
	<i>More than High School</i>	14%	30%	14%	14%	9%
Place of Residence	<i>Bronx</i>	17%	33%	14%	13%	5%
	<i>Brooklyn</i>	13%	23%	17%	15%	5%
	<i>Manhattan</i>	24%	38%	22%	13%	13%
	<i>Queens</i>	12%	26%	(13%)	(13%)	(7%)
	<i>Staten Island</i>	22%	44%	(17%)	(17%)	(6%)
Place of Birth	<i>U.S.</i>	20%	34%	17%	13%	8%
	<i>Puerto Rico</i>	24%	32%	(45%)	(45%)	(0%)
	<i>Foreign Born</i>	9%	22%	3%	3%	3%
Viral Suppression	<i>Suppressed</i>	15%	29%	14%	10%	6%
	<i>Unsuppressed</i>	35%	50%	25%	25%	8%
Current Problem Drinking	<i>Yes</i>	32%	100% ¹	3%	3%	1%
	<i>No</i>	16%	23%	23%	19%	9%
Hard Drug Use	<i>Never</i>	7%	13%	0%	0%	0%
	<i>Past</i>	25%	31%	34%	25%	14%
	<i>Current</i>	43%	100% ¹	14%	13%	6%
Housing Stability	<i>Stable</i>	16%	29%	14%	10%	7%
	<i>Unstable</i>	14%	34%	18%	18%	(7%)
	<i>Homeless</i>	27%	43%	23%	23%	8%
Year of HIV Diagnosis	<i>Before 1997</i>	27%	37%	25%	19%	10%
	<i>1997-2004</i>	12%	24%	12%	12%	5%
	<i>2005-2013</i>	14%	31%	14%	11%	7%
	<i>2014 and after</i>	23%	39%	16%	13%	6%

(%) represents cells with small sample size (N<25).

¹ 100% by definition

Table A4. AOD Service Needs & Service Utilization in Tri-County

		Subjective Need	Overall Need	Any Services	Prof. Services	Non-Prof. Services
Total		20%	25%	23%	23%	11%
Gender	<i>Female</i>	18%	21%	26%	28%	11%
	<i>Male</i>	23%	30%	19%	19%	11%
Race/ Ethnicity	<i>White</i>	17%	17%	(50%)	(50%)	(17%)
	<i>Black</i>	26%	30%	16%	16%	14%
	<i>Latino</i>	12%	21%	28%	28%	4%
	<i>Other</i>	(27%)	(27%)	(50%)	(50%)	(0%)
Age Group	<i>Age 19-34</i>	13%	23%	(11%)	(11%)	(11%)
	<i>Age 35-49</i>	15%	22%	26%	26%	5%
	<i>Age 50+</i>	24%	27%	23%	23%	13%
Education	<i>Less than High School</i>	24%	31%	30%	30%	12%
	<i>High School Diploma/GED</i>	18%	21%	19%	19%	16%
	<i>More than High School</i>	19%	26%	(11%)	(11%)	(0%)
Place of Residence	<i>Westchester</i>	21%	27%	26%	26%	13%
	<i>Rockland</i>	16%	19%	(8%)	(8%)	(0%)
	<i>Putnam</i>	(25%)	(25%)	(0%)	(0%)	(0%)
Place of Birth	<i>U.S.</i>	28%	32%	23%	23%	14%
	<i>Puerto Rico</i>	24%	32%	(38%)	(38%)	(0%)
	<i>Foreign Born</i>	6%	12%	13%	13%	(0%)
Viral Suppression	<i>Suppressed</i>	18%	22%	19%	19%	9%
	<i>Unsuppressed</i>	37%	45%	(41%)	(41%)	(24%)
Current Problem Drinking	<i>Yes</i>	(48%)	(100% ¹)	(4%)	(4%)	(4%)
	<i>No</i>	18%	20%	29%	29%	4%
Hard Drug Use	<i>Never</i>	5%	7%	(7%)	(7%)	(0%)
	<i>Past</i>	34%	37%	30%	30%	15%
	<i>Current</i>	(58%)	(100% ¹)	(17%)	(17%)	(8%)
Housing Stability	<i>Stable</i>	19%	23%	19%	19%	10%
	<i>Unstable</i>	32%	39%	27%	27%	(20%)
	<i>Homeless</i>	(50%)	(67%)	(75%)	(75%)	(0%)
Year of HIV Diagnosis	<i>Before 1997</i>	30%	34%	24%	24%	10%
	<i>1997-2004</i>	16%	19%	(17%)	(17%)	(11%)
	<i>2005-2013</i>	14%	21%	(21%)	(21%)	(16%)
	<i>2014 and after</i>	12%	18%	(33%)	(33%)	(0%)

(%) represents cells with small sample size (N<25).

¹ 100% by definition

Table A5. HIV Care Continuum Outcomes by Behavioral Health Needs in NYC

	Consistent Care	Appropriate Care	ARV Adherence	VL Suppression
Total Sample	77%	62%	71%	92%
Behavioral Health Needs				
No need	86%	69%	79%	96%
Need MH Services	79%	56%	69%	92%
Need AOD Services	80%	67%	74%	92%
Need Both Services	60%	59%	62%	84%
MH Service Needs & Gaps				
No need	84%	68%	78%	95%
Need & received MH services	70%	60%	72%	89%
Need and did not receive MH services	74%	55%	62%	90%
AOD Service Needs & Gaps				
No need	82%	61%	74%	94%
Need & received AOD services	64%	58%	64%	79%
Need and did not receive AOD services	67%	63%	67%	88%

Table A6. HIV Care Continuum Outcomes by Behavioral Health Needs in Tri-County

	Consistent Care	Appropriate Care	ARV Adherence	VL Suppression
Overall	88%	79%	75%	89%
Behavioral Health Needs				
No need	95%	83%	83%	90%
Need MH Services	89%	75%	70%	94%
Need AOD Services	83%	78%	70%	86%
Need Both Services	73%	82%	70%	74%
MH Service Needs & Gaps				
No need	92%	82%	80%	89%
Need & received MH services	78%	75%	61%	85%
Need and did not receive MH services	92%	80%	80%	93%
AOD Service Needs & Gaps				
No need	92%	79%	77%	92%
Need & received AOD services	81%	86%	75%	65%
Need and did not receive AOD services	77%	79%	69%	84%