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The usefulness of the CRAFFT in screening for problematic drug and alcohol use among youth living with HIV

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Abstract

Substance use is highly prevalent among youth living with HIV (YLWH) and negatively impacts HIV care. This study sought to determine whether the CRAFFT, designed to screen for problematic substance use, is reliably associated with substance use behaviors among YLWH. A cross-sectional sample of 2216 youth (ages 12–26) were recruited through the Adolescent Medicine Trials Network for HIV/AIDS Interventions. Participants completed a self-administered survey. Over half screened positive on the CRAFFT (i.e., ≥ 2). Among frequent substance users, those older in age, behaviorally infected, with history of incarceration or unstably housed were more likely to screen positive on the CRAFFT. Study findings suggest that the CRAFFT reliably identifies youth who use substances. Thus, screening measures such as the CRAFFT should be utilized routinely in HIV clinical settings for youth.

Abstract

El uso de sustancias entre jóvenes que viven con el VIH es muy prevalente y afecta negativamente el cuidado del VIH. Este estudio trató de determinar si el CRAFFT, una prueba diseñada para detectar el uso problemático de sustancias, se asocia con fiabilidad con comportamientos de consumo de sustancias entre los jóvenes que viven con el VIH. Una muestra transversal de 2216 jóvenes (edades 12–26) fueron reclutados a través del Adolescent Medicine Trials Network para Intervenciones contra el VIH/SIDA. Los participantes completaron una encuesta autoadministrada. Más de la mitad fueron seleccionados como positivos por el CRAFFT (es decir, ≥ 2). Entre los usuarios frecuentes de sustancias, los mayores de edad, los infectados por conducta en comparación con aquellos infectados perinatalmente, y aquellos con antecedentes de encarcelamiento y viviendas inestables fueron más propensos a resultados positivos en el CRAFFT. Los hallazgos del estudio sugieren que el CRAFFT identifica de manera fiable a los jóvenes que usan sustancias. Por lo tanto, pruebas como el CRAFFT deben utilizarse de forma rutinaria en contextos clínicos de VIH para los jóvenes.

Keywords

Youth; HIV; substance use screening; CRAFFT

INTRODUCTION

In 2014, youth 13–24 years of age accounted for 22% of new HIV infections and made up 7% of the more than 1 million people living with HIV in the United States (U.S.) (1). The use and misuse of alcohol, tobacco, marijuana and other illicit drugs is highly prevalent among adolescents and young adults (2). One of the primary reasons for concern regarding substance use among youth living with HIV (YLWH) is its potential for contributing to disease progression, morbidity, and transmission. For example, people living with HIV who use substances are less likely to be prescribed antiretroviral therapy (ART), and those on ART have reduced adherence (3). Research has also shown an association between active substance use (alcohol and illicit drug use) and high-risk HIV transmission behaviors, such as engaging in condomless anal and vaginal sex with HIV-negative partners (4). This association may be particularly strong for adolescents and young adults whose cognitive control system is still developing (5). Specifically, neural mechanisms in the developing brain lead to heightened responsiveness to both reward and emotional cues, while adolescents' behavior and emotion regulation capacities are still relatively underdeveloped (6). In addition, tobacco use is highly prevalent among people living with HIV (7), and has the potential to contribute to non-AIDS defining illnesses and mortality in this population (8). Importantly, early substance use is associated with increased risk of substance dependence, psychiatric and medical disorders, and mortality (9). In light of the risks associated with substance use, screening YPLH for substance use is critical.

Screening for substance use and identifying those with risky alcohol and drug use behaviors in primary care settings allows for integrated approaches to provide adequate preventative care and treatment. Alcohol and drug use screening is particularly important in HIV care settings where substance use is highly prevalent among patients (10). The Patient Protection and Affordable Care Act, approved in 2010, supports the integration of substance abuse interventions and treatments into mainstream healthcare systems, and the U.S. Public Health Service has endorsed routine and universal alcohol and tobacco screening in primary care (11). Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an important model for identifying and addressing substance use problems in health care settings (12). However, not all HIV primary care clinics routinely screen patients for alcohol and other substances (13) and the screening guidelines do not recommend a specific screening tool (14).

Although multiple substance use screening tools have been validated for use with adults, recent meta-analytic work identifies only a few screening processes that have substantial empirical support for use with adolescents (15). The first is the Alcohol Use Disorders Identification Test (AUDIT), which screens for hazardous alcohol use, and the second is the Drug Use Disorders Identification Test (DUDIT), which screens for drug-related problems. Both the AUDIT and DUDIT have been validated in samples of substance using adolescents

(16). The other is the CRAFFT (Car, Relax, Alone, Forget, Friends, and Trouble) questionnaire which was designed to assess the consequences of alcohol and/or other drug use and can identify problem and dependent use (17). Although the AUDIT and the DUDIT are validated among adolescents, filling out both questionnaires involves answering up to twenty-one items with separate scoring for each tool. In contrast, the CRAFFT addresses both alcohol and other substance use in six items and has a relatively simple scoring system. A CRAFFT score of 2 or higher has been shown to have good sensitivity and specificity in identifying substance-related problems and disorders in a general population of adolescent medical clinic patients (14). To date, the CRAFFT has been utilized in samples of youth living with HIV as an indicator of problematic substance use (18–21); however, to our knowledge, research has yet to validate its use by examining how it is associated with self-report substance use behaviors.

Given the importance of brief screening tools for clinicians working with YLWH in HIV care settings, the purpose of this study is two-fold: 1) to determine if the CRAFFT is reliably associated with substance use behaviors among a sample of YLWH in a clinical settings; and 2) to examine if there are any sociodemographic differences, specifically by age, race/ethnicity, gender identity, sexual orientation identity, route of HIV acquisition, unstable housing, and history of incarceration, among those who were frequent substance users in the CRAFFT's ability to positively identify problematic substance use. A better understanding of whether the CRAFFT is associated with substance use behaviors, and is able to identify problematic substance use regardless of sociodemographic factors, will provide important information on whether the CRAFFT can be used in HIV care settings.

METHODS

Details of the study methods have been described previously (20, 21). From December 2009 through January 2012, 2216 youth living with HIV were recruited at 20 geographically diverse clinics to participate in a cross-sectional survey. The clinics were broadly distributed across the continental United States and Puerto Rico in 17 metropolitan areas where HIV prevalence and incidence rates are high, including Boston, Baltimore, Chicago, Denver, Fort Lauderdale, Houston, Los Angeles, Miami, Memphis, New Orleans New York City, San Francisco, Tampa, Washington, DC, and San Juan, Puerto Rico. To be eligible, youth had to be: 1) between 12 and 26 years of age; 2) living with HIV/AIDS; 3) aware they were HIV-infected; 4) engaged in care in one of the Adolescent Trial Network for HIV/AIDS Intervention (ATN) adolescent medicine clinical sites or affiliates; and 5) able to understand English or Spanish. The study was approved by the Institutional Review Boards (IRB) at each participating site as well as those of members of the protocol team.

Sampling and Recruitment

Research staff approached all youth meeting eligibility criteria during one of their regularly scheduled clinic visits to describe the study. Youth were told that the purpose of the survey was to help design programs for youth and young adults living with HIV to help them lead healthier and happier lives. Youth were informed that the survey would ask questions about their health, sexual behaviors and substance use behaviors. After a thorough explanation of

the study and its procedures, staff obtained signed informed consent or youth assent from all youth who agreed to participate. Eighteen of the 22 sites obtained waivers of parental consent; however, written parental permission was obtained when required for youth under the age of 18.

Procedures

Within 2 weeks of providing informed consent/assent, participants completed audio computer assisted self-interviews (ACASI) to assess psychosocial and health factors. The assessment took 45–90 minutes to complete. Participants were compensated for their time and transportation in accordance with site IRB guidelines.

Measures

CRAFFT—Regardless of whether participants reported any substance use, they completed the CRAFFT, which is a six-item behavioral health screening tool designed to assess the consequences of alcohol and/or other drug use (example items: “Have you ever ridden in a CAR driven by someone (including yourself) who was ‘high’ or had been using alcohol or drugs?;” “Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?”; “Do you ever use alcohol or drugs while you are by yourself, or ALONE?” “Do you ever FORGET things you did while using alcohol or drugs?”; “Do your FAMILY or FRIENDS ever tell you that you should cut down your drinking or drugs?”; “Have you ever gotten into TROUBLE while you were using alcohol or drugs?”) (22). A score of two or greater indicates that individual may be at risk for substance-related problems and disorders (14).

Substance Use—We used five indicators of substance use in our analysis (i.e., alcohol, marijuana, tobacco, non-marijuana illicit drug use, and a composite variable of any alcohol, marijuana, tobacco, or non-marijuana illicit drug use). The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) was used to collect data on the frequency of using 10 different substances over the 3 months prior to completing the survey (23). While the CRAFFT is not designed to assess tobacco-related problems, tobacco use frequently co-occurs with alcohol and other drugs (2). Therefore, we included tobacco use as a substance use variable to determine whether the CRAFFT would be helpful tool for identify tobacco users. For tobacco, alcohol and marijuana use, we categorized use into none, at least once a month, and weekly or more. Given the small number of participants who endorsed weekly or greater non-marijuana illicit drug use, we create a dichotomous variable of any past three month non-marijuana illicit drug use (self-reported use of crack, cocaine, amphetamine, inhalants, opioids, sedatives, hallucinogens). Finally, we created a dichotomous variable (ATOD) indicating whether a participant reported weekly or greater use of alcohol, tobacco, or marijuana, or any past three month other illicit drug use.

Sociodemographic variables—Participants self-reported their age, sex assigned at birth, gender identity, race and ethnicity, sexual orientation, route of infection with HIV, past history of incarceration, unstable housing (e.g., foster care or group home, halfway house, on the streets), their own monthly income, education level, and employment status.

Statistical Analyses

First, we calculated descriptive statistics to summarize substance use and other characteristics of the sample. Next, we examined bivariate differences using Fisher's exact tests and logistic regression models to compare sociodemographic and substance use behaviors according to whether or not participants screened positive on the CRAFFT (i.e., 2 or higher). Finally, we used a series of chi-square analyses to examine whether there were differences in key sociodemographic characteristics (i.e., age, race/ethnicity, gender, and sexual identity, route of HIV acquisition, unstable housing, and history of incarcerations) among participants who reported weekly or more substance use by screening status on the CRAFFT.

RESULTS

Participant Characteristics

The sample consisted of 2216 youth living with HIV who ranged in age from 12 to 26 ($M=22.22$, $SD = 2.78$). The majority of the sample was behaviorally infected with HIV (72.4%) and were members of racial/ethnic minority groups (64.0% Black, 19.7% Latino/Hispanic, and 7.6% Other). More than half of the sample self-identified as a sexual minority (39.4% Lesbian or Gay, 12.2% Bisexual, and 2.9% Questioning or Queer). The majority of sample self-reported a male gender identity (63.8%); however, 3.2% identified as a transgender woman and 0.6% identified as a transgender man. Approximately half of the sample identified as students (51.7%) and 46.3% reported earning less than \$250 per month. In total, 5.1% reported unstable housing and 31.9% reported a history of criminal justice involvement.

Over half of the sample screened positive on the CRAFFT (57.4%). In total, 61.2% ($n = 1358$) endorsed CAR, 43.7% ($n = 970$) endorsed RELAX, 43.0% ($n = 954$) endorsed ALONE, 26.5% ($n = 589$) endorsed FORGET, 25.2% ($n = 559$) endorsed FRIENDS or FAMILY, and 17.2% ($n = 381$) endorsed TROUBLE. On the ASSIST, the percent of participants reporting at least weekly use was 21.3% for alcohol, 32.9% for tobacco, and 27.5% for marijuana. Approximately one in four participants reported any non-marijuana illicit drug use (22.5%) in the past 3 months. The majority of the sample reported ATOD (59.8%).

As shown in Table 1, youth who screened positive on the CRAFFT were significantly more likely to 18 to 20 years of age ($OR=2.44$, 95%CI: 1.88, 3.15, $p<0.001$) and 21 to 26 ($OR=3.51$, 95%CI: 2.75, 4.49, $p<0.001$) compared to youth 12 to 17 years of age. Youth who screened positive on the CRAFFT were significantly more likely to be behaviorally-infected with HIV ($OR=2.27$, 95%CI: 1.87, 2.74, $p<0.001$), identify as gay or lesbian ($OR=1.91$, 95%CI: 1.45, 2.52, $p<.001$), self-identify male ($OR=2.04$, 95%CI: 1.70, 2.44, $p<0.001$) or a transgender woman ($OR=2.29$, 95%CI: 1.36, 3.82, $p<0.01$), report unstable housing ($OR=1.92$, 95%CI: 1.26, 2.91, $p<0.01$), and report any lifetime involvement in the criminal justice system ($OR=3.30$, 95%CI: 2.70, 4.03, $p<0.001$). Young people of color were significantly less likely to screen positive on the CRAFFT compared to their white counterparts. Specifically, Black/African American ($OR=0.54$, 95%CI: 0.39, 0.74),

$p<0.001$), Latino/Hispanic (OR=0.68, 95%CI: 0.48, 0.98, $p<0.05$), and those who identified as an Other Race (OR=0.55, 95%CI: 0.36, 0.85, $p<0.01$) were significantly less likely to screen positive on the CRAFFT compared to their White counterparts.

Table 2 presents bivariate comparisons of those who screened positive on the CRAFFT with those who did not on each of the substance use variables. Youth who screened positive on the CRAFFT were significantly more likely to report weekly or greater alcohol use (OR=11.07, 95%CI: 8.72, 14.07, $p<0.001$), tobacco use (OR=24.30, 95%CI: 17.29, 34.15, $p<0.001$), marijuana use (OR=30.11, 95%CI: 21.41, 42.34, $p<0.001$), any past 3 month non-marijuana illicit drug use (OR=5.93, 95%CI: 3.44, 10.42, $p<0.001$), and ATOD (OR=14.40, 95%CI: 11.70, 17.74, $p<0.001$). In fact, the CRAFFT accurately differentiated 79% of the sample who reported any ATOD.

Tables 3 through 5 present bivariate comparisons among frequent substance users on each of the sociodemographic characteristics by screening status on the CRAFFT. Participants who reported weekly or greater marijuana use ($\chi^2(2)=10.26$, $p<0.01$), any non-marijuana illicit drug use ($\chi^2(2)=14.91$, $p<0.01$), or any ATOD ($\chi^2(2)=9.62$, $p<0.01$) in the past 3 months were more likely to screen positive on the CRAFFT if they were older in age compared to those younger in age. Youth who reported weekly or greater tobacco use ($\chi^2(1)=7.58$, $p<0.01$) marijuana use ($\chi^2(1)=15.73$, $p<0.001$), or any ATOD ($\chi^2(1)=17.04$, $p<0.001$) were more likely to screen positive on the CRAFFT if they had a history of incarceration compared to those with no history of incarceration. Youth who reported weekly or greater marijuana use were more likely to screen positive on the CRAFFT if they reported unstable housing compared to those with stable housing ($\chi^2(1)=9.55$, $p<0.01$). Furthermore, youth who reported any non-marijuana illicit drug use in the past 3 month were more likely to screen positive on the CRAFFT if they were behaviorally infected with HIV compared to perinatally infected ($\chi^2(1)=9.75$, $p<0.01$). There were no other significant sociodemographic differences by screening status on the CRAFFT among participants who reported substance use.

DISCUSSION

Approximately 6 out of 10 (57%) young people living with HIV in this sample screened positive on the CRAFFT (indicating problematic substance use). We found that the CRAFFT was reliably associated with each of the five substance use behaviors; that is, youth who reported higher levels of substance use had an increased odd of screening positive on the CRAFFT. Reported substance use in this HIV clinic sample was comparable to other studies of HIV-infected adult and young adults in HIV primary care (24–26). When compared to the U.S. general population of young adults (2), a number of studies, including ours, document considerably higher rates of smoking among YLWH, which is a serious concern given the well-documented increased mortality associated with smoking among people living with HIV (27, 28). This sample of YLWH exhibited slightly higher levels of marijuana and alcohol use compared to U.S. general population of youth but similar levels of non-marijuana illicit drugs (2). Thus, this study underscores the importance of substance using screening in HIV care settings for YLWH.

In this study, participants who were older in age, behaviorally infected with HIV, self-identified as white race/ethnicity, and those who identified as a male or transgender female compared to non-transgender females had a significantly higher odds of screening positive on the CRAFFT in the sample. The prevalence of substance use problems is known to increase with age in the general population and ethnic differences are documented in the literature (29). Our findings are consistent with previous literature on sociodemographic and structural factors associated with substance use (30, 31), which provides preliminary support for the utility of the CRAFFT as a brief screening tool for YLWH.

An additional aim of the study was to examine whether there were any sociodemographic differences among those who reported frequent substance use among those who screened positive on the CRAFFT compared to frequent substance users who did not screen positive on the CRAFFT. Similar to the original validation study of the CRAFFT (14), few sociodemographic differences arose among the youth who reported frequent substance use in our sample. Although this was the case, there were some differences that are worth noting. Specifically, for youth who reported weekly or more marijuana use and reported any other illicit drug, those who were older in age were more likely to screen positive on the CRAFFT compared to those younger in age. Given that the CRAFFT assesses whether youth have *ever* experienced negative consequences related to substance use (e.g., FORGETTING things while using drugs or alcohol), it is plausible that older youth have had more opportunities to have had these experiences over the course of their lifetime. Among non-marijuana illicit drug users, youth who were behaviorally infected with HIV were also more likely to screen positive on the CRAFFT compared to perinatally infected youth. It is plausible that behaviorally infected youth may use multiple substances as a means of coping with an HIV diagnosis and therefore, are more likely to experience greater consequences related to substance use. Notably, youth who with a history of incarceration and unstable housing who used substances were more likely to screen positive on the CRAFFT. Prior research illustrates the high co-occurrence of incarceration, unstable housing, and substance use among youth (32); thus, youth who report a history of incarceration and/or unstable housing may need additional assessments to better understand how contextual factors may exacerbate substance use. Specifically, the CRAFFT could be used to identify problematic substance use and then young people could receive brief interventions, and individuals with more severe substance use problems could be referred to specialized treatment. Given the high prevalence of substance use among YLWH and its impact on HIV care engagement (18, 21), using the CRAFFT as a screening tool to guide delivery of brief interventions and/or referral to specialized substance use treatment for youth in HIV care settings could be a critical component of HIV care coordination. Research is warranted to better understand how the CRAFFT compares to other substance use screening tools to guide the delivery of brief interventions and/or treatment referral within the context of primary care HIV clinics for youth.

Study Limitations

The current findings must be interpreted in light of several limitations. First, the results are generalizable only to YLWH who have been diagnosed and linked to care in the cities which were represented with the ATN sample. Future work should extend these findings to other

geographic regions that are heavily impacted by HIV in the United States. Second, the cross-sectional design of the study limits our ability to make causal inferences. Although ACASI technology was used to mitigate social desirability bias, the self-reported data from this study may still be subject to social desirability and recall bias; thus, to the extent that some participants may have underreported and others over-reported is unknown. However, self-report alcohol and other drugs has been shown to be generally reliable and comparable to other methods of substance use detection (26, 33, 34). Fourth, other substance use screening tools, such as the AUDIT or DUDIT, were not included in the ATN survey and thus could not be used to further validate the CRAFFT results. Thus, future research is warranted to use more advanced statistical modeling to better understand the predictive validity of the CRAFFT. Fifth, the CRAFFT was not designed to screen for tobacco use; thus, although screening positive on the CRAFFT appears to be associated with tobacco use in this sample, without further information it is unclear whether this is because tobacco is commonly co-used with other substances or whether the CRAFFT can be used specifically to screen for tobacco use as well. Finally, an item determining the presence of heavy episodic alcohol use was not available. Although we can report on weekly or more frequent alcohol use, we cannot report our samples response to heavy episodic alcohol use, which is an important indicator for further assessment.

Conclusions

Despite these limitations, this study provides strong support for the usefulness of the CRAFFT as a screening tool for youth in HIV care settings. Given the high prevalence of substance use among YLWH and its potential impact on medication adherence and linkage to care, HIV clinical settings should systematically screen for and address substance use among youth in HIV care settings. Youth living with HIV may benefit from a holistic team-based approach to screening and brief intervention which is integrated into HIV care settings (24).

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Table 1

Demographic Characteristics by Screening Positive on the CRAFFT (N=2216)

	Total		CRAFFT Yes		CRAFFT No		Statistic	OR	95% CI
	N=2216	n=1271	N (%)	n=945	N (%)	n=945			
Age									
12 to 17	367 (16.6)	125 (9.9)	242 (25.7)				$\chi^2(2)=110.82^{***}$	--	--
18 to 20	713 (32.3)	404 (32.0)	309 (32.8)					2.44 ^{***}	1.88, 3.15
21 to 26	1125 (51.0)	735 (58.1)	390 (41.4)					3.51 ^{***}	2.75, 4.49
Route of HIV acquisition							$\chi^2(1)=73.13^{***}$		
Perinatal	612 (27.6)	262 (37.0)	350 (20.6)					--	--
Behavioral	1604 (72.4)	1009 (79.4)	595 (63.0)					227 ^{***}	1.87, 2.74
Race/Ethnicity							$\chi^2(3)=18.03^{***}$		
Black	1418 (64.0)	778 (61.2)	640 (67.8)					0.54 ^{***}	0.39, 0.74
White	192 (8.7)	134 (10.5)	58 (6.1)					--	--
Latino	436 (19.7)	265 (20.8)	171 (18.1)					0.68 [*]	0.48, 0.98
Other	169 (7.6)	94 (7.4)	75 (7.9)					0.55 ^{**}	0.36, 0.85
Sexual Identity							$\chi^2(3)=102.21^{***}$		
Heterosexual	1005 (45.5)	461 (36.4)	544 (57.9)					--	--
Gay or Lesbian	871 (39.4)	576 (45.4)	295 (31.4)					1.91 ^{***}	1.45, 2.52
Bisexual	269 (12.2)	189 (14.9)	80 (8.5)					2.43	0.66, 8.99
Other	63 (2.9)	42 (3.3)	21 (2.2)					1.27	0.75, 2.15
Gender Identity							$\chi^2(3)=62.48^{***}$		
Male	1413 (63.8)	891 (70.1)	522 (55.2)					2.04 ^{***}	1.70, 2.44
Female	719 (32.4)	328 (25.8)	391 (41.4)					--	--
Transgender Female	70 (3.2)	46 (3.6)	24 (2.5)					2.29 ^{**}	1.36, 3.82
Transgender Male	14 (0.6)	6 (0.5)	8 (0.8)					0.89	0.31, 2.60
Unstable Housing							$\chi^2(1)=9.55^{**}$	1.92 ^{**}	1.26, 2.91

	Total	CRAFFT Yes n=1271	CRAFFT No n=945		
	N (%)	N (%)	N (%)	Statistic	OR 95% CI
<i>Juvenile Justice Involvement</i>	707 (31.9)	535 (42.2)	171 (18.1)	$\chi^2(1)=144.62^{***}$	3.30 ^{***} 2.70, 4.03
<i>Less than \$250 monthly</i>	1027 (46.3)	601 (47.3)	526 (45.1)	n.s.	1.09 0.92, 1.29
<i>Currently Employed</i>	735 (33.4)	441 (34.9)	294 (31.2)	n.s.	1.18 0.99, 1.42

p<0.001;

**
p<0.01;

*
p<0.05

Table 2

Substance Use Outcomes by Screening Positive on the CRAFFT (N=2216)

	Total (N=2216)	CRAFFT Yes (n=1271)	CRAFFT No (n=945)	Statistic	OR	95% CI
<i>Tobacco Use</i>				$\chi^2(2)=505.83$ ***		
None	1123 (50.7)	387 (30.4)	736 (77.9)		--	--
At least Monthly	363 (16.4)	261 (20.5)	102 (10.8)		4.87***	3.75, 6.31
Weekly or More	730 (32.9)	623 (49.0)	107 (11.3)		11.07***	8.72, 14.07
<i>Alcohol Use</i>				$\chi^2(2)=485.70$ ***		
None	671 (30.3)	173 (13.6)	498 (52.7)		--	--
At least Monthly	1073 (48.4)	627 (53.2)	397 (42.0)		4.90***	3.96, 6.06
Weekly or More	472 (21.3)	422 (33.2)	50 (5.3)		24.30***	17.29, 34.15
<i>Marijuana Use</i>				$\chi^2(2)=669.17$ ***		
Never	1122 (50.6)	354 (27.9)	768 (81.3)		--	--
At least Monthly	484 (21.8)	348 (27.4)	136 (14.4)		5.55***	4.39, 7.02
Weekly or More	610 (27.5)	569 (44.8)	41 (4.3)		30.11***	21.41, 42.34
<i>Any Non-Marijuana Drug Use</i>	126 (5.7)	111 (8.7)	15 (1.6)	$\chi^2(1)=51.61$ ***	5.93***	3.44, 10.42
<i>ATOD, past 3 months</i>	1325 (59.8)	1070 (84.2)	255 (27.0)	$\chi^2(1)=737.68$ ***	14.40***	11.70, 17.74

Note: ATOD = Any weekly or more alcohol, marijuana, or tobacco use and any illicit drug use in the past three months;

p<0.001

Demographic differences by screening positive on the CRAFFT among participants who reported weekly or more tobacco and alcohol use in the past 3 months

Table 3

	Weekly or more tobacco use			Weekly or more alcohol use		
	CRAFFT Yes	CRAFFT No	χ^2	CRAFFT Yes	CRAFFT No	χ^2
Age			n.s.			n.s.
12 to 17	31 (79.5)	8 (20.5)		11 (84.6)	2 (15.4)	
18 to 20	196 (85.2)	34 (14.8)		96 (88.7)	12 (11.3)	
21 to 26	394 (86.0)	64 (14.0)		317 (89.8)	36 (10.2)	
Route of HIV acquisition						n.s.
Perinatal	78 (84.8)	14 (15.2)		42 (89.4)	5 (10.6)	
Behavioral	545 (85.4)	93 (14.6)		380 (89.4)	45 (10.6)	
Race/Ethnicity			n.s.			n.s.
Black	376 (84.5)	69 (15.5)		219 (88.3)	29 (11.7)	
White	76 (86.4)	12 (13.6)		68 (90.7)	7 (9.3)	
Latino	123 (86.6)	19 (13.4)		103 (92.8)	8 (7.2)	
Other	48 (87.3)	7 (12.7)		32 (84.2)	6 (15.8)	
Gender Identity			n.s.			n.s.
Male	434 (86.8)	66 (13.2)		343 (90.3)	37 (9.7)	
Female	153 (83.2)	31 (16.8)		67 (85.9)	11 (14.1)	
Transgender Female	34 (81.0)	8 (19.0)		11 (91.7)	1 (22.0)	
Transgender Male	2 (50.0)	2 (50.0)		1 (50.0)	1 (50.0)	
Sexual Identity			n.s.			n.s.
Straight	211 (83.7)	41 (16.3)		100 (87.0)	15 (13.0)	
Gay or Lesbian	294 (86.5)	46 (13.5)		252 (90.3)	27 (9.7)	
Bisexual	97 (89.0)	12 (11.0)		56 (90.3)	6 (9.7)	
Other	20 (76.9)	6 (23.1)		14 (87.5)	2 (12.5)	
Unstable Housing			n.s.			n.s.
Yes	55 (88.7)	7 (11.3)		32 (94.1)	2 (5.9)	

	Weekly or more tobacco use				Weekly or more alcohol use			
	CRAFT Yes	CRAFT No	χ^2		CRAFT Yes	CRAFT No	χ^2	
<i>History of Incarceration</i>								
No	568 (85.0)	100 (15.0)			390 (89.0)	48 (11.0)		
Yes	340 (88.8)	43 (11.2)			181 (91.4)	17 (8.6)		
No	283 (81.6)	64 (18.4)			241 (88.0)	33 (12.0)		

 $\chi^2(1)=7.58^{**}$

n.s.

p<0.001;**
p<0.01

Demographic differences by screening positive on the CRAFFT among participants who reported weekly or more marijuana use and any non-marijuana illicit drug use in the past 3 months

Table 4

	Weekly or more marijuana use			Any non-marijuana illicit drug use		
	CRAFFT Yes	CRAFFT No	χ^2	CRAFFT Yes	CRAFFT No	χ^2
<i>Age</i>			$\chi^2(2)=10.26^{**}$			$\chi^2(2)=14.91^{**}$
12 to 17	73 (75.3)	24 (24.7)		3 (42.9)	4 (57.1)	
18 to 20	298 (81.4)	68 (18.6)		28 (87.5)	4 (12.5)	
21 to 26	541 (86.6)	84 (13.4)		80 (92.0)	7 (8.0)	
<i>Route of HIV acquisition</i>			n.s.			$\chi^2(1)=9.75^{**}$
Perinatal	162 (81.0)	38 (19.0)		8 (61.5)	5 (38.5)	
Behavioral	755 (84.5)	139 (15.5)		103 (91.2)	10 (8.8)	
<i>Race/Ethnicity</i>			n.s.			n.s.
Black	563 (81.7)	126 (18.3)		49 (90.7)	5 (9.3)	
White	97 (89.8)	11 (10.2)		29 (90.6)	3 (9.4)	
Latino	188 (85.8)	31 (14.2)		30 (85.7)	5 (14.3)	
Other	69 (88.5)	9 (11.5)		3 (60.0)	2 (40.0)	
<i>Gender Identity</i>			n.s.			n.s.
Male	673 (85.1)	118 (14.9)		82 (89.1)	10 (10.9)	
Female	204 (80.3)	50 (19.7)		21 (84.0)	4 (16.0)	
Transgender Female	36 (81.8)	8 (18.2)		6 (85.7)	1 (14.3)	
Transgender Male	4 (80.0)	1 (20.0)		2 (100.0)	0	
<i>Sexual Identity</i>			n.s.			n.s.
Straight	302 (81.6)	68 (38.6)		24 (80.0)	6 (20.0)	
Gay or Lesbian	421 (84.2)	79 (15.8)		73 (91.3)	7 (8.8)	
Bisexual	154 (86.0)	25 (14.0)		11 (84.6)	2 (15.4)	
Other	39 (90.7)	4 (9.3)		3 (100.0)	0	
<i>Unstable Housing</i>			$\chi^2(1)=9.55^{**}$			n.s.
Yes	64 (94.1)	4 (5.9)		13 (92.9)	1 (7.1)	
No	853 (84.1)	183 (16.9)		98 (87.5)	14 (12.5)	

<i>History of Incarceration</i>	Weekly or more marijuana use			Any non-marijuana illicit drug use		
	CRAFT Yes	CRAFT No	χ^2	CRAFT Yes	CRAFT No	χ^2
Yes	428 (88.8)	54 (11.2)	$\chi^2(1)=15.73^{***}$	52 (92.9)	4 (7.1)	n.s.
No	489 (79.9)	123 (20.1)		59 (84.3)	11 (15.7)	

p<0.001;

**
p<0.01

Table 5

Demographic differences by screening positive on the CRAFFT among participants who reported ATOD in the past 3 months

Any ATOD			
	CRAFFT Yes	CRAFFT No	χ^2
Age			$\chi^2(2)=9.62^{**}$
12 to 17	77 (70.6)	32 (29.4)	
18 to 20	337 (79.7)	86 (20.3)	
21 to 26	650 (82.8)	135 (17.2)	
Route of HIV acquisition			n.s.
Perinatal	180 (77.3)	53 (22.7)	
Behavioral	890 (81.5)	202 (18.5)	
Race/Ethnicity			n.s.
Black	641 (78.8)	172 (21.2)	
White	124 (85.5)	21 (14.5)	
Latino	228 (83.8)	44 (16.2)	
Other	77 (81.1)	18 (18.9)	
Gender Identity			n.s.
Male	774 (82.6)	163 (17.4)	
Female	251 (76.5)	77 (23.5)	
Transgender Female	41 (75.9)	13 (24.1)	
Transgender Male	4 (66.7)	2 (33.3)	
Sexual Identity			n.s.
Straight	352 (78.4)	97 (21.6)	
Gay or Lesbian	510 (81.9)	113 (18.1)	
Bisexual	166 (83.0)	34 (17.0)	
Other	41 (82.0)	9 (18.0)	
Unstable Housing			n.s.
Yes	73 (86.9)	11 (13.1)	
No	997 (80.3)	244 (19.7)	
History of Incarceration			$\chi^2(1)=17.04^{***}$
Yes	488 (85.9)	80 (14.1)	
No	582 (76.9)	175 (23.1)	

Note: ATOD= At least weekly alcohol, tobacco, marijuana use and any other illicit drug use in the past 3 months;

p<0.001;

**
p<0.01