

Social Determinants of Health Predict HIV Prevention and Care Continua Status among Sexual Minority Men Who Use Methamphetamine

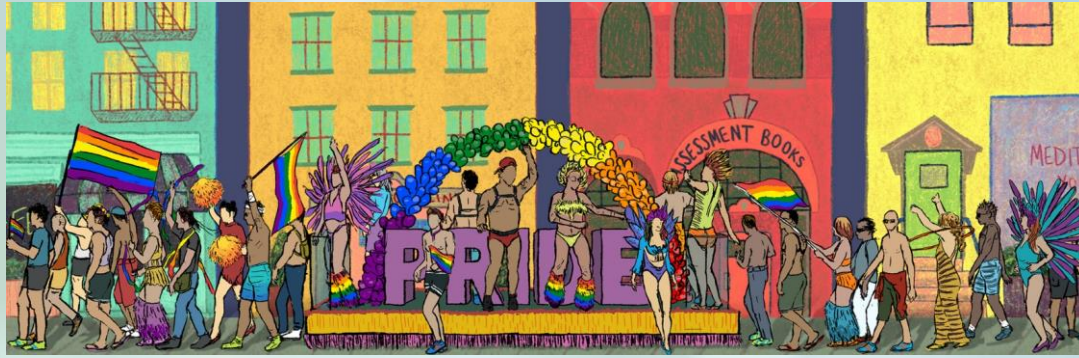


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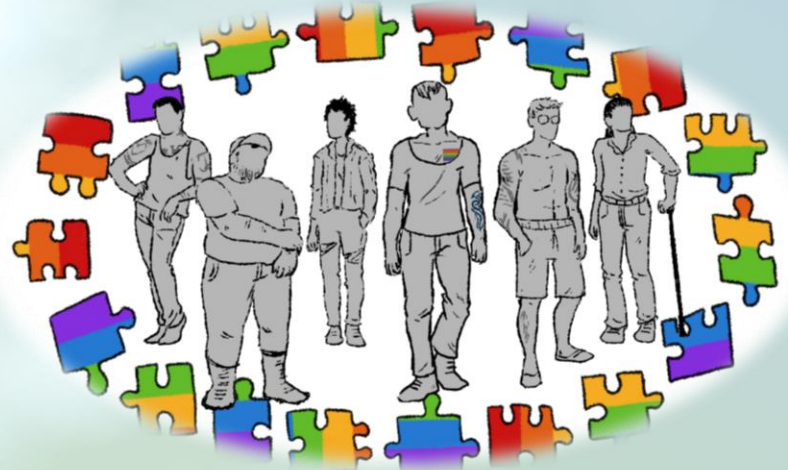
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- In the United States, methamphetamine is commonly used by gay and bisexual men, and other sexual minority men (SMM), in conjunction with sex (Goldstein et al., 2016; Halkitis et al., 2014; Reback et al., 2013)
- Among SMM, there are strong associations between methamphetamine use, sexual risk behaviors, and HIV prevalence rates (Reback, 1997; Reback et al., 2004; Colfax et al., 2005)
 - Changes in sexual behaviors
 - Changes in decision-making processes
- Among SMM, methamphetamine use is linked to 1 in 3 new HIV infections (Groves et al., 2020)
- People with HIV who use methamphetamine have lower rates of ART adherence (Reback et al., 2003) and complete viral suppression than people who formerly used methamphetamine receiving the same treatment.

Given the growth of mHealth technology, treatment should be extended beyond traditional brick-and-mortar sites.

Getting Off

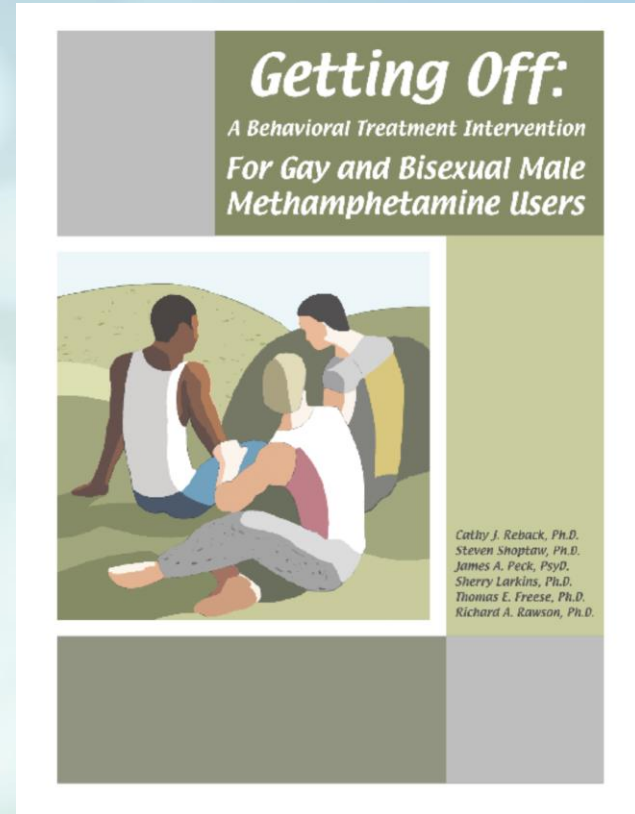
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Manual-driven, group-based gay-specific Cognitive Behavioral Therapy intervention; 24 sessions delivered over 8 weeks (3 sessions/week).

The focus of *Getting Off* is to:

- 1) Eliminate or reduce methamphetamine use.
- 2) Eliminate or reduce HIV sexual risk behaviors.
- 3) Increase ART initiation and medication adherence among those living with HIV.
- 4) Increase PrEP/PEP initiation and adherence among those who are HIV negative.



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Study Aims

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Conduct a RCT to evaluate reductions of methamphetamine use and HIV sexual risk behaviors, and increased advancement along the HIV Prevention or Care Continuum.

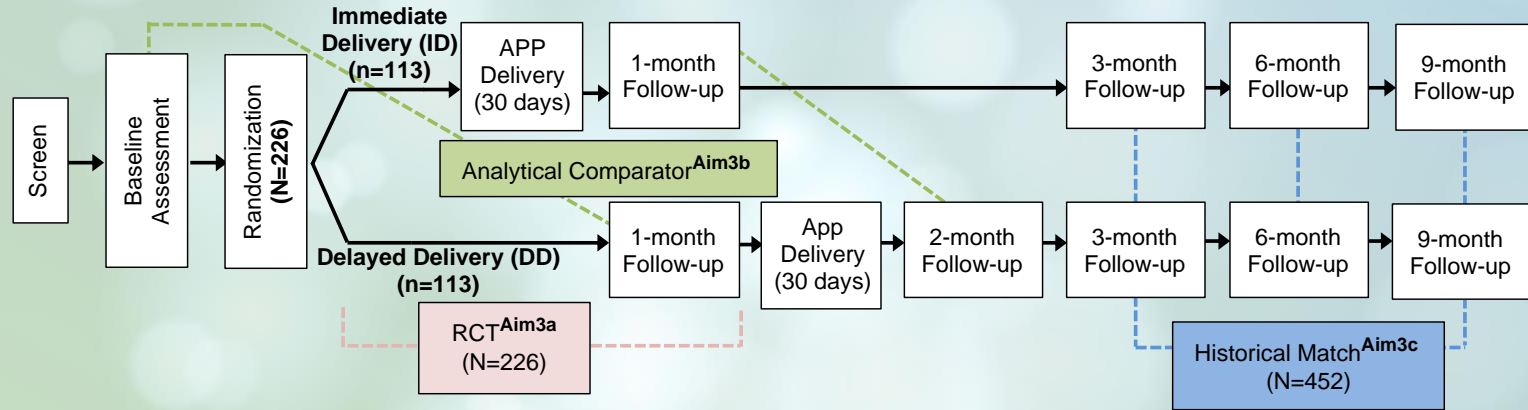
Determine the impact of structural- (e.g., housing insecurity, food scarcity, educational attainment, access to healthcare) and individual-level (e.g., homophobia, stigma, discrimination) factors as moderators of intervention outcomes.

Simultaneously assess both the efficacy of the app and confirm its non-inferiority to the existing group-based intervention.

The aim of this specific analysis was to identify social determinants of advancement along the HIV Prevention or Care Continuum among SMM who use methamphetamine and participated the mobile health study.



Study Design



Aim3a: Efficacy Trial - Two-arm RCT to determine intervention effects through comparison of ID and DD arms.

Aim3b: Efficacy Trial - Observed treatment effects analysis to compare pre/post data from the pooled ID and DD arms.

Aim3c: Non-inferiority Trial - A historical matched comparison design to evaluate the outcomes of the Getting Off app (ID + DD) to a historical matched sample of participants who attended the brick-and-mortar Getting Off intervention.

Methods

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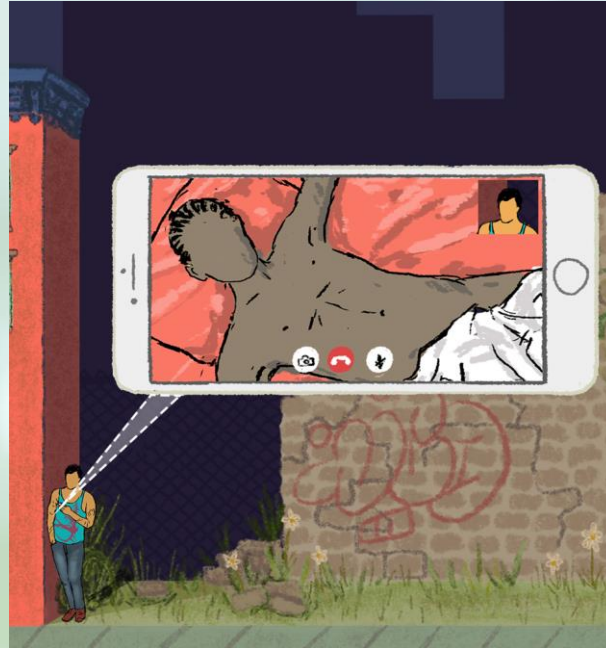


- Translate Getting Off into an app from April 2019 through May 2021
 - Physical location vs. app delivery
 - Clinical vs. self-directed
 - Group vs. individual
 - Maintain all CBT core elements, modify key characteristics
- Eligibility
 - Self-identified SMM
 - Methamphetamine use within the past 365 days
 - Between 18 and 65 years
 - Resident of Los Angeles County
 - Has iPhone 7 or Android capable of downloading the app
 - Willing to download app and has at least 2 GB of storage
- Enrollment from May 2021 through May 2023
- Assessment time points and incentives:
 - Baseline = \$40
 - 1-mo, 2-mo (DD only), 3-mo, 6-mo, 9-mo f/u = \$50 each
- Audio Computer Assisted Self Interview (ACASI) administered through Qualtrics





Moving from Manual to App: Screenshots



Session 3: Trigger – Thought – Craving – Use

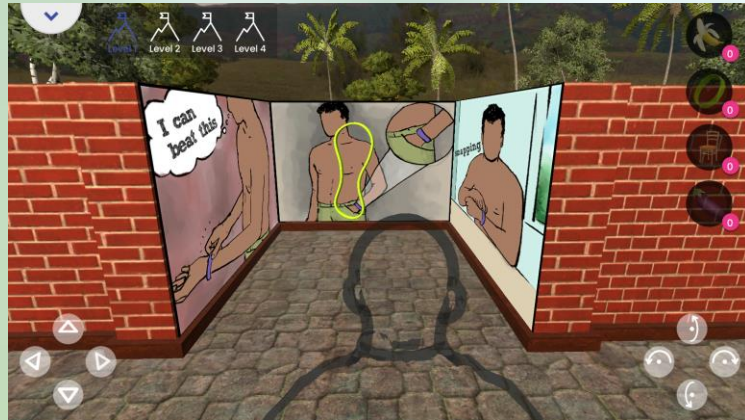
Session 18: Relapse Analysis

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Round 1

Ex-Boyfriend	Euphoric Recall	Sober Friends	Feeling High	Thought-Stopping	Anxiety
Pipe	Relaxation	Dealer	Euphoric Recall	Hook-Up Alley	Group Participation
Thought-Stopping	Hook-Up Alley	Support Meetings	Needle	Support Meetings	Exercise
Anxiety	Sober Friends	Dealer	Visualization	Relaxation	Group Participation
Ex-Boyfriend	Feeling High	Needle	Exercise	Pipe	Visualization



Snapping:

Wear a rubber band on your wrist loosely. Each time you become aware of meth thoughts, snap the band and "NO!" to the thoughts as you make yourself think about something else. Plan ahead to have something is meaningful and interesting to you to think about.



you say that

Visualization:



Picture a switch or a lever in your mind. Imagine yourself actually moving it from **ON** to **OFF** to stop the meth thoughts. Have another picture ready to think about in place of the meth thoughts. You may have to change what you are doing to make this switch.

Urge Surfing:

Cravings can feel so strong that you may feel as though they will never end. However, cravings are very much like the swells in the ocean. As they reach the shore they get bigger and seem to have more energy, but then they reach a peak and slide back into calm water. One way to stop cravings is to ride them out; other activities or thoughts will soon take over and the craving will go away. Doing something else to take your mind off the feelings may speed this process along. "Sit Therapy" is also very effective for this—sit in a chair and wait until the feelings go away. Another alternative to "surfing the urge" is to picture your mind as if it were a non-stick pan—allow the urges to slide right off the non-stick surface of your mind.



Relaxation:



Feelings of hollowness, heaviness, and cramping in the stomach are physical manifestations of cravings. These can often be relieved by breathing in deeply and breathing out very slowly. Do this three times. You should be able to feel the tightness leaving your body. Repeat this whenever the feeling returns.









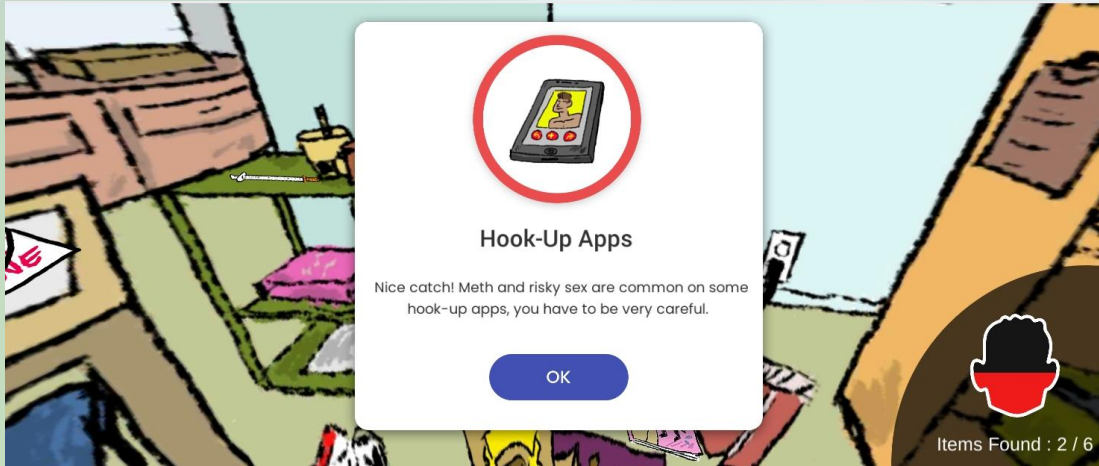
Session 6: External & Internal Triggers

Internal Trigger Questionnaire

We just looked at situations in the world around us that lead to meth use or high-risk sex. There are also triggers inside of us—how we are feeling—that can lead to craving meth or to putting ourselves at risk sexually. Read the following list of possible internal triggers and see if any of them apply to you.

When I'm Feeling...

- | | | |
|--|---|---|
| <input type="checkbox"/> Affectionate | <input type="checkbox"/> Exhausted | <input type="checkbox"/> Lonely |
| <input type="checkbox"/> Fearful | <input type="checkbox"/> Frustrated | <input type="checkbox"/> Tired |
| <input type="checkbox"/> Angry |  <input type="checkbox"/> Guilty | <input type="checkbox"/> Neglected  |
| <input type="checkbox"/> Bored | <input type="checkbox"/> Happy |  <input type="checkbox"/> Anxious |
| <input type="checkbox"/> Confident | <input type="checkbox"/> Hopeless | <input type="checkbox"/> Jealous |
| <input type="checkbox"/> Excited | <input type="checkbox"/> Horny |  <input type="checkbox"/> Under Pressure |
| <input type="checkbox"/> Defiant | <input type="checkbox"/> Inadequate | <input type="checkbox"/> Relaxed |
| <input type="checkbox"/> Depressed  | <input type="checkbox"/> Insecure | <input type="checkbox"/> Sad  |
| <input type="checkbox"/> Irritable | <input type="checkbox"/> Embarrassed / Ashamed | <input type="checkbox"/> Sexy |



Many of the same feelings lead to either meth use or high-risk sex (or both of them at the same time). In the next exercise, we will explore this.

Session 8: Redefining Your Place in the World

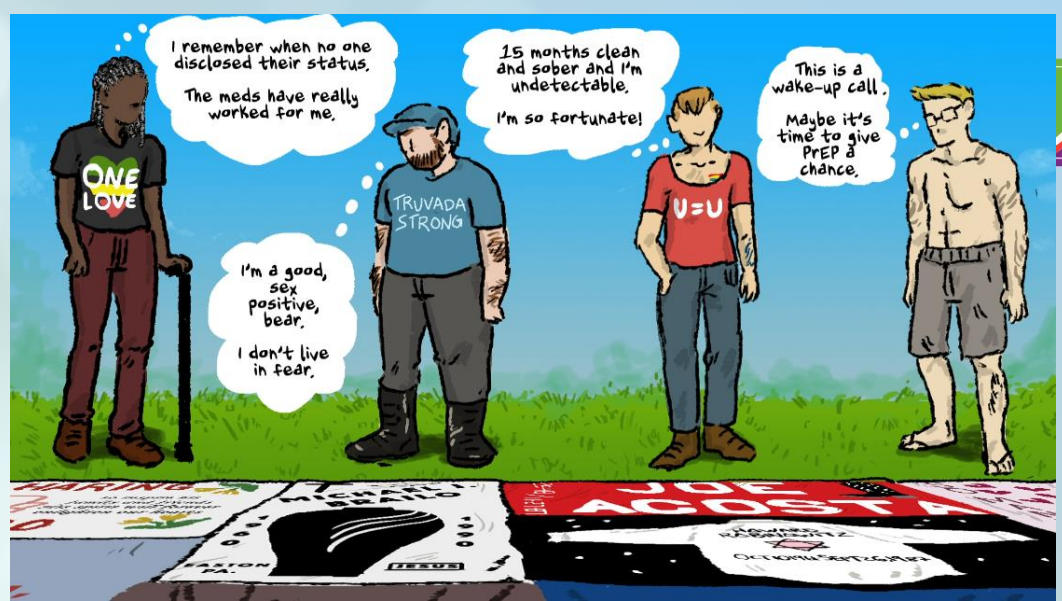
Session 8: Redefining Your Place in the World

Sometimes one of the things that people who have been involved in meth use and meth sex come to feel is that their meth use provides a sense of identity and a subculture to which they belong. Giving up meth might mean re-examining what it means for you to be gay or bisexual, and where you fit in. Being gay or bisexual is often described as being part of a community, yet we don't always clearly feel that there is a community out there welcoming us. Our sense of self as a gay or bisexual man is strongly influenced by where we see ourselves fitting in. Now that you are leaving behind the meth subculture, you will need to find a new social group that feels like a good fit with who you are.

What does it mean for you to be a gay or bisexual man?

How does sex fit into your definition of yourself as a gay or bisexual man?

How does your HIV status fit into your definition of yourself as a gay or bisexual man?



Recruitment Flyers

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Put Meth on Mute

ARE YOU A MAN WHO HAS SEX WITH OTHER MEN, DO YOU USE METH, ARE YOU BETWEEN 18-65 YEARS OLD, AND DO YOU OWN A SMARTPHONE?

If so, you may be eligible to participate in a 30-day research study to test a treatment intervention mobile app for reducing meth use and high-risk sexual behaviors, and increasing PEP uptake and adherence, or HIV care and medication adherence. Participants will be randomized to 1 of 2 study conditions. Participation also includes an initial assessment and follow-up assessments all conducted virtually.

FOR MORE INFORMATION, CALL OR TEXT 323-493-6824

[#continuumflyer.org](https://www.continuumflyer.org)

A project of HHS Research Institute, funded by the National Institute on Drug Abuse.

You may earn up to \$500 or \$550 (based on randomization) in gift cards.

Swipe Left on Meth

ARE YOU A MAN WHO HAS SEX WITH OTHER MEN, DO YOU USE METH, ARE YOU BETWEEN 18-65 YEARS OLD, AND DO YOU OWN A SMARTPHONE?

If so, you may be eligible to participate in a 30-day research study to test a treatment intervention mobile app for reducing meth use and high-risk sexual behaviors, and increasing PEP uptake and adherence, or HIV care and medication adherence. Participants will be randomized to 1 of 2 study conditions. Participation also includes an initial assessment and follow-up assessments all conducted virtually.

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Tired of the PNP Grind?

ARE YOU A MAN WHO HAS SEX WITH OTHER MEN, DO YOU USE METH, ARE YOU BETWEEN 18-65 YEARS OLD, AND DO YOU OWN A SMARTPHONE?

If so, you may be eligible to participate in a 30-day research study to test a treatment intervention mobile app for reducing meth use and high-risk sexual behaviors, and increasing PEP uptake and adherence, or HIV care and medication adherence. Participants will be randomized to 1 of 2 study conditions. Participation also includes an initial assessment and follow-up assessments all conducted virtually.

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Baseline Demographics and SDoH by HIV Status (N = 226)

		HIV- (n=99)		HIV+ (n=127)		Total sample (N=226)	
		n	%	n	%	n	%
Age (Mean+/- SD)		45.3	10.8	45.3	9.2	45.3	20.0
Race/Ethnicity	Latinx	32	32.3	45	35.4	77	34.1
	White	21	21.2	47	37.0	68	30.1
	African American	34	34.3	18	14.2	52	23.0
	Other	12	12.1	17	13.4	29	12.8
Marital Status	Married/Partnered	8	8.1	12	9.7	20	9.0
	Single/Divorced/Widowed	91	91.9	112	90.3	203	91.0
Education Attainment	HS/GED or below	31	32.6	36	28.8	67	29.6
	Some college or college graduate	27	28.4	47	37.6	74	32.7
	Post graduate	37	39.0	42	33.6	79	35.0
Annual Income	\$15,000 and under	53	58.2	72	61.0	125	55.3
	\$15,001-\$30,000	11	12.1	21	17.8	32	14.2
	\$30,000-\$60,000	13	14.3	11	9.3	24	10.6
	\$60,001 and above	14	15.4	14	56.5	28	12.4

Baseline
Demographics
and SDoH
by
HIV Status
(N = 226),
continued

		HIV- (n=99)		HIV+ (n=127)		Total Sample (N=226)	
		n	%	n	%	n	%
Insurance Type	No insurance	11	11.1	13	10.2	24	10.6
	Employer-provided health plan	12	12.1	8	6.3	20	8.8
	Medicaid, Medicare, VA, or CA Healthcare Exchange	72	72.7	101	79.5	173	76.5
	Other	4	4.0	5	3.9	9	4.0
Unstable housing	No	67	69.8	90	71.4	157	70.7
	Yes	29	30.2	36	28.6	65	29.3
Justice Involvement	Never convicted felony or misdemeanor	52	54.2	73	59.4	125	57.1
	Convicted misdemeanor, never felony	22	22.9	35	28.5	57	26.0
	Convicted felony, never misdemeanor	6	6.3	7	5.7	13	5.9
	Convicted felony and misdemeanor	16	16.7	8	6.5	24	11.0

HIV Prevention/Care Continua Placement at Baseline

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	n	% Relative to the Above Cascade Placement	% of Total Sample at Risk (n=99) / with HIV (n=127)
Among Those at Risk of HIV (n=99)			
Had an HIV test in the past 90 days	57	57.6%	57.6%
Had heard about 2:1:1 PrEP	62	62.6%	62.6%
Ever taken 2:1:1 PrEP	26	41.9%	26.3%
Had taken 2:1:1 PrEP in the last 6 months	10	16.1%	10.1%
Had heard about PrEP	77	77.8%	77.8%
Ever taken PrEP	47	61.0%	47.5%
Currently on PrEP	28	36.4%	28.3%
PrEP adherence in the past 4 days	18	64.3%	18.2%
Among Those Living with HIV (n=127):			
Currently on ART	96	75.6%	75.6%
Did not miss any dose in the past 7 days	49	51.0%	38.6%
Had a viral testing in the past 90 days	61	48.0%	48.0%
Virally suppressed in most recent test (within 90 days)	48	37.8%	37.8%

Association between SDofH and HIV Prevention/Care Continua Placement

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	Among Those at Risk of HIV: Currently Taking PrEP				Among Those Living with HIV: Did Not Miss Any ART Dose in the Past 7 Days			
	OR	95% Confidence limits		p-value	OR	95% Confidence limits		p-value
Age (in years)	1.03	0.98	1.09	0.2965	1.02	0.97	1.07	0.5409
Race/Ethnicity (Reference=White)								
African American	0.83	0.18	3.84	0.3878	0.96	0.26	3.53	0.2930
Latinx	0.91	0.19	4.29	0.5247	0.44	0.15	1.26	0.4736
Other	3.13	0.40	24.42	0.1777	0.27	0.05	1.51	0.2254
Education (Reference: HS/GED or lower)								
Post graduate	6.36	1.37	29.52	0.0016	8.40	1.97	35.81	0.0042
Some college or college graduate	0.63	0.12	3.41	0.0574	3.12	0.80	12.14	0.8834
Annual income of \$15,000 and under	1.09	0.28	4.21	0.9033	1.27	0.42	3.84	0.6744
Commercial insurance	1.58	0.29	8.52	0.5928	5.34	0.80	35.81	0.0848
Married	0.45	0.06	3.67	0.4590	1.42	0.31	6.43	0.6507
Unstable housing	1.85	0.42	8.23	0.4187	2.78	1.00	7.71	0.0501
No criminal justice system involvement	1.24	0.42	3.68	0.7024	0.43	0.16	1.14	0.0909

Conclusions

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- All the CBT core elements in the manual were maintained when *Getting Off* was translated to an app.
- Mean age was 45 years; most participants identified as BIPOC (~70%), gay (~77%), living with HIV (~56%).
- Close to one-third (29%) report housing instability, and ~29% reported their educational attainment as HS diploma, GED, or less.
- Although any methamphetamine use in the past 365 days was the eligibility criterion, 90% were diagnosed with MUD.
- Among those at risk of HIV, 77 (78%) had heard of PrEP, 47 (61%) had ever taken PrEP, 28 (36%) were currently on PrEP.
- Controlling for demographics, income, insurance, marital and housing status, and justice system involvement, those with post-graduate education were more likely to use PrEP (OR=6.36, P=0.0016).
- Among those living with HIV (n=127; 56%), 61 (48%) had viral load testing in the past three months; however, only 48 (38%) were virally suppressed.
- Among the participants on ART (n=96; 76%), only half (n=49; 51%) reported not missing any dose over the past week.
- Post-graduate education was also correlated with better 7-day ART adherence (OR=8.40; P=0.0042).

There were notable gaps in the HIV prevention/care continua, particularly among those with lower educational attainment.

Findings underscore the need for interventions to address social determinants of health to improve HIV prevention/care continua outcomes.

References

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Colfax G, Coates TJ, Husnik MJ, Huang Y, Buchbinder S, Koblin B, ... & Vittinghoff E. (2005). Longitudinal patterns of methamphetamine, popper (amyl nitrite), and cocaine use and high-risk sexual behavior among a cohort of San Francisco men who have sex with men. *J Urban Health*, 82:i62-i70.

Goldstein ND, Burstyn I, LeVasseur MT, & Wells SL. (2016). Drug use among men by sexual behaviour, race and ethnicity: Prevalence estimates from a nationally representative US sample. *Intl J Drug Policy*, 36:148–150.

Grov C, Westmoreland D, Morrison C, Carrico AW, & Nash D. (2020). The crisis we are not talking about: One-in-three annual HIV seroconversions among sexual and gender minorities were persistent methamphetamine users. *JAIDS*, 85(3):272-279.

Halkitis P, Levy M, Moreira A, Ferrusi C. (2014). Crystal methamphetamine use and HIV transmission among gay and bisexual men. *Curr Addict Rep*, 1(3):206-13.

Reback, CJ. (1997). *The Social Construction of a Gay Drug: Methamphetamine Use Among Gay & Bisexual Males in Los Angeles*. Report for the City of Los Angeles, AIDS Coordinator. Los Angeles. www.friendscommunitycenter.org

Reback, CJ., Larkins, S. & Shoptaw, S. (2003). Methamphetamine abuse as a barrier to HIV medication adherence among gay and bisexual men. *AIDS Care*, 15:775-785.

Reback, CJ., Larkins, S. & Shoptaw, S. (2004). Changes in the meaning of sexual risk behaviors among gay and bisexual male methamphetamine abusers before and after drug treatment. *AIDS and Behav*, 8:87-98.

Reback CJ, Fletcher JB, Shoptaw S, Grella CE. (2013). Methamphetamine and other substance use trends among street-recruited men who have sex with men, from 2008 to 2011. *Drug Alcohol Depend*, 133(1):262-5.

Reback, CJ, Fletcher, JB, Mata, RP. (2021). A Theory-based mHealth Intervention for Methamphetamine-using MSM: Study Protocol for a Randomized Controlled Trial (Getting Off). *JMIR Research Protocols*. 10(2).



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Getting Off

Thank You!

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