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Lifetime HIV Testing Among Three Samples of Adults with Histories of Incarceration in Southern California

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ABSTRACT

Justice-impacted persons may inconsistently access HIV testing. This cross-sectional secondary analysis investigates lifetime HIV testing prevalence as reported by adults with prior histories of incarceration in Southern California, United States, participating in health-focused programming (n=3 studies). Self-reported demographic and lifetime HIV testing data were collected between 2017-2023; descriptive analyses were conducted. Across the three samples, at least 74% of participants were male; Latino and African American individuals accounted for nearly two-thirds of participants. Lifetime HIV testing ranged from 72.8% to 84.2%. Males were significantly more likely than females to report never being tested for HIV in two samples and accounted for >95% of those never tested. No statistically significant differences in testing were observed by race/ethnicity. Single young adults (ages 18-26) were less likely than their partnered peers to report testing. HIV testing is critical for ensuring that individuals access prevention and treatment. HIV testing among justice-impacted adults in this study was higher than in the general population, potentially due to opt-out testing in correctional settings serving this community. Nevertheless, these findings underscore the importance of implementing targeted interventions to reduce structural (e.g., health insurance, access to self-testing kits) and social barriers (e.g., HIV stigma) to increase HIV testing among justice-impacted males and single young adults.

Key Words:

- SDG 3: Good health and well-being
- SDG 4: Quality education

- SDG 5: Gender equality
- SDG 16: Peace, justice and strong institutions
- SDG 17: Partnerships for the goals

INTRODUCTION

This cross-sectional study examines self-reported HIV testing among adults who have experiences of incarceration and are living in the community. HIV testing is a critical step in the HIV care continuum (IAPAC, 2021) and in achieving the United Nations' AIDS targets which aim for 95% of persons living with HIV to know their status, and of these, 95% should access treatment to become virally suppressed (UNAIDS, 2015). The United States' Centers for Disease Control (CDC) recommends that persons ages 13-64 obtain HIV testing at least once, while individuals experiencing conditions that elevate their risk may seek testing annually or potentially, more frequently (e.g., multiple sex partners, sharing of drug injection equipment, condomless anal sex, sex with persons of unknown HIV serostatus or living with HIV, pregnant women) (U.S. Centers for Disease Control and Prevention, 2022). The recommended HIV testing strategies seek to immediately connect individuals living with HIV to treatment, which can help reduce transmission and improve the quality of life through early detection and intervention. These strategies also align with the "Undetectable=Untransmittable" campaign, which advances the use of HIV antiviral treatment to prevent transmission among sero-discordant partners (Prevention Access Campaign, 2023).

Individuals with histories of incarceration often experience higher rates of infectious diseases than the general population, including HIV, tuberculosis, hepatitis B and C, and sexually transmitted infections (STIs) (Bui et al., 2019). In the United States, individuals in prisons or jails do not always receive HIV testing, and some refuse testing due to concerns about stigma and discrimination (Gordon et al., 2013; Lichtenstein & Barber, 2016). Persons exiting jails or prisons and returning to the community may experience behaviors that elevate the risk of HIV

infection (e.g., multiple sexual partners, injection drug use, trading sex) (Gordon et al., 2018). Moreover, justice-impacted individuals often experience logistical and financial barriers to accessing preventive or therapeutic healthcare services (Ojeda et al., 2022) and they may face additional barriers to securing consistent housing and employment. These conditions may increase the risk of HIV infection potentially through greater social vulnerability (Gordon et al., 2018; Wise et al., 2019). Taken together, these data suggest that ensuring that HIV testing is accessible for persons in carceral settings and upon release is critical to maintaining individual and community health.

Much of the literature on HIV care among justice impacted adults focuses on individuals living with HIV (Woznica et al., 2021). However, due to precarity of the process of transition to community, which can vary in pre-release planning and linkages to providers, it is important to also examine HIV testing among individuals who have not been identified as living with HIV as they may benefit from access to testing and treatment, if needed. Thus, this cross-sectional study describes lifetime HIV testing prevalence as reported by justice-impacted adults in Southern California, United States, participating in health-focused programs. Findings may inform strategies to increase HIV testing and potentially, improve health outcomes among adult this population sub-group.

METHODS

This secondary analysis describes the lifetime HIV testing prevalence as reported at baseline among justice-impacted adults in Southern California. We draw on data from three

longitudinal studies (N= 275) which employed venue-based sampling by recruiting at sites that cater to justice-impacted adults. We summarize the studies and HIV testing variables in Table 1.

Study 1 Overview: Engaging Young Adults who are Under Probation Supervision

In brief, the UCSD Re-Entry Community Linkages (RELINK) program was implemented between 2017-2021. This voluntary 6-month pilot program aimed to assess the *feasibility* and *acceptability* of the intervention and its impact on healthcare access among young adults aged 18-26 under supervision of the local Probation department in San Diego, California (N=141). Trained community members experienced in serving justice-impacted adults provided individualized Service Navigation and case management to support healthcare utilization, employment, education and use of health and social services. Additionally, the optional Health Coaching psychoeducational curriculum was delivered by Marriage and Family Therapists who incorporated cognitive behavioral therapy, systemic family therapy, motivational interviewing, narrative therapy, and health coaching techniques to promote health-related knowledge and skills and wellness (Rollnick & Miller, 1995; Semmler & Williams, 2000; Wenzel, 2017). Further details are available in Table 1 and elsewhere (Ojeda et al., 2022).

Study 2 Overview: Randomized Clinical Trial Engaging Justice-Impacted Adults

In brief, in 2023, a randomized clinical trial of the UCSD RELINK program (i.e., Service Navigation and Health Coaching) was initiated (see Study 1, above) with the goal of improving healthcare access. The study targets adults ages 18+ who have been justice-impacted in the past 3 years (i.e., probation, parole, court diverted) in San Diego, California (N=39 from year 1 of the study). Participants who were randomized to the treatment group received a staff-guided version

of the intervention from a Service Navigator and Health Coach; the control group participants completed a self-study version of the health coaching intervention and received brief service navigation support.

Study 3 Overview: Engaging Adults with Prison Incarceration Histories

The UCSD RELINK Service Navigation Program was implemented between 2022-2023. This voluntary 3-month pilot program aimed to increase healthcare access among adults ages 18+ who reported ever being incarcerated in California State prisons (N=95). This program *only* implemented Service Navigation; staff had lived experience and were undergoing masters-level training as Licensed Professional Clinical Counselors.

Variables

This secondary analysis study relies on staff-administered baseline survey data as collected by Service Navigators in all three studies. The studies collected sociodemographic data (age, gender, marital status), race/ethnicity (Jones, 2017) (see Table 2), and HIV testing (Golub & Gamarel, 2013; National Center for Health Statistics, 2017). Responses are based on self-report. Questions on gender included non-cisgender options (e.g., prefer to self-define); all participants selected either male or female. Marital status was dichotomized to partnered (i.e., married, in a relationship and living with a partner, in a relationship and not living with a partner, domestic partnership) vs. unpartnered (i.e., single, separated, divorced, widowed, or other/unreported). Race/ethnicity responses were condensed to non-Hispanic White, non-Hispanic Black, Hispanic/ Latino, and Other (i.e., all other non-Hispanic race/ethnicities, unknown, unreported). Lifetime

HIV testing status was dichotomized to yes (ever tested for HIV) vs. no (never tested) for consistency across all three studies (see Table 1 for details) .

Data Analysis

Descriptive analyses were conducted to describe the participants' characteristics (i.e., mean age, gender, race/ethnicity, marital status) in each study (see Columns labeled "All" in Table 2). Then, we sought to determine if there were differences in age, gender, race/ethnicity, and marital status by lifetime HIV testing status (dichotomized: yes/no) using Students' T-Tests and Pearson's Chi-Squared/Fisher's Exact tests for statistical significance (see Table 2).

Human Subjects Statement

The Human Subjects Research Protections Program of the University of California San Diego approved all three studies and participants provided their informed consent to participate (under protocol #161903 and protocol #804888).

RESULTS

Participant characteristics

Table 2 presents self-reported HIV testing data across the three studies, stratified by never tested vs ever tested. Across each of the studies, overall, most participants were male, accounting for 74% to 84% of the participants. The age range varied due to differences in the target population of each study. In Study 1, participants had a mean age of 22 years, whereas in the remaining studies, participants had a mean age of 40 and 42 years old (studies 2 and 3, respectively). Hispanic/Latino participants comprised approximately half of all three samples

(47% to 56%), while the proportion of African American/Black participants varied with a low of 8% to 25%. White, non-Hispanic participants ranged from 14% to 26% of the samples. Across the three studies, more than three-quarter of participants were not partnered.

Lifetime HIV testing

Study 1, which focused on young adults, had the lowest lifetime HIV testing rate of 72%, while testing rates for Studies 2 (84%) and 3 (82%) were higher. Comparing lifetime HIV testing by age, gender, race/ethnic group, and relationship status, we only observed significant differences by age in testing status in Study 1: a higher mean age (23 years) for those who had ever been HIV tested compared to those who had never been tested (21 years, $p=0.0004$). We also identified significant differences in testing by gender; while men comprised 81% of the overall sample, they made up 97% of participants who reported never being tested for HIV ($p=0.001$). Data from the remaining two studies revealed that 100% of those never tested for HIV were males, though these results were not statistically significant at $p<0.05$. There were no statistically significant differences in testing by race/ethnicity across the studies. However, in Studies 2 and 3, African American/Black adults were disproportionately represented among participants who had never been tested for HIV, while in Study 1, proportionally more Latinos had never been HIV tested. By relationship status, across the three studies, persons who report having a partner formed a greater proportion of participants who had been HIV tested.

DISCUSSION

This study describes the self-reported lifetime HIV testing experiences among justice-impacted adults in San Diego, California. International and national HIV prevention strategies

recognize the need for HIV testing, including targeted testing, with the goal of supporting individual and community health. Thus, it is recommended that individuals be tested at least once in their life, if not more frequently, contingent upon risk factors (U.S. Centers for Disease Control and Prevention, 2022). We found that females were *more likely* than males to report lifetime HIV testing across our samples. Data by race/ethnicity varied: notably, African American/Black adults reported lower prevalence of HIV testing versus Hispanic/Latino and White individuals in two of the three samples. Collectively, these findings provide insights that may assist in developing targeted interventions to improve access to HIV testing across the pre- and post-release continuum.

Overall, lifetime HIV testing was pervasive among study participants. Specifically, the lowest proportion of participants reported ever being tested for HIV was 72%. In contrast, data from the National Health Interview Survey (U.S., waves 2006-2018, n=301,191 persons) found that for each race/ethnic group, the proportion of general population individuals reporting lifetime HIV testing was lower than identified in this study (Whites: 36%, Black: 61%, Hispanic: 47%, Asian: 36%) (Jamal et al., 2023). While our data suggest that most justice-impacted adults from African American/Black and Hispanic/Latino communities are engaging with HIV screening services, it is important to further identify acceptable venues for testing. Significantly, access to free HIV self-testing kits may help individuals overcome logistical barriers to facility-based testing. To further expand access to HIV testing, California passed a law (i.e., SB 306) that requires publicly and privately funded health insurance plans (e.g., Medicaid known as Medi-Cal in California) to pay for at-home test kits for sexually transmitted infections, including for HIV (California Department of Health Care Services, 2021). Other novel strategies to reduce

structural barriers to healthcare are being implemented. In 2023, California received a federal waiver to expand Medicaid health insurance (i.e., Medi-Cal in California) to persons in carceral settings starting 90 days pre-release; this strategy is intended to facilitate access to some services in correctional settings and facilitate reintegration into the community by improving access to health services post-release (California Department of Health Care Services, 2023). Policy interventions such as this one may positively impact access to prevention services such as HIV testing in community settings (e.g., primary care) and this remains an area to be investigated.

We identified unique patterns in HIV testing by age. Study 1, which focused on young adult probationers (i.e., previously incarcerated in county jail), had the lowest rate of lifetime HIV testing at 72% as compared to the other two studies (>80%). Participants in the remaining studies were older and had varied justice involvement due to different enrollment criteria which included incarceration in prison. Older adults likely had more opportunities to receive HIV testing due to their age. Those incarcerated in prison may have a greater likelihood of being tested compared to those detained in local jails. A 2014 U.S. survey found that one-third of prisons have mandatory HIV testing policies, whereas no jails had mandatory testing policies (Solomon et al., 2014). Additionally, some probationers are never incarcerated in jail and serve their sentence under supervision in the community, which may further reduce access to testing (Petersilia, 2011). A recent study found that implementation of universal opt-out HIV screening (i.e., where HIV screening is automatically ordered unless the patient opts out) at intake in California state prisons resulted in significant linkages to care and retention in care (~98%) and viral suppression (88%) (Lucas et al., 2016). California also supports opt-out HIV testing in jails and prisons to facilitate identification of those who are unaware of infection or risk; specifically, it is

recommended that all persons entering a correctional facility be tested for HIV (California Department of Public Health, 2022). Additionally, it is recommended that individuals with other factors such as long-term sentences, testing positive for other sexually transmitted or blood borne infections or hepatitis be screened periodically (California Department of Health Care Services, 2024). California's approach to testing in correctional settings suggests that opt-out testing is an important mechanism toward achieving the United Nation's AIDS testing, treatment and viral suppression goals among individuals who are justice-involved(UNAIDS, 2015).

We also found, across our three samples, that a greater proportion of justice-impacted female (vs. males) reported ever being tested for HIV. One longitudinal analysis of the National Health Interview Survey which was conducted with the general population, demonstrated that females exhibit a higher likelihood of HIV testing compared to males (Jamal et al., 2023). Additionally, a study conducted in Maryland and Rhode Island found that females had 1.5 times the odds of being tested compared to men (Gordon et al., 2016). Gender disparities in HIV testing rates may be attributed to several factors. For example, HIV testing using an opt-out approach is recommended for all pregnant women, which may help explain, in part, the gender differences in HIV testing we observed (American College of Obstetricians and Gynecologists, 2020). Gender norms may also affect uptake of HIV testing in correctional and community settings. Traditional notions of masculinity often depict men as prone to taking risks, exhibiting low concern for their health, and being reluctant to seek help or healthcare (Remien et al., 2009). These perceptions can create significant barriers for men in accessing HIV prevention, testing, and treatment. Some of the barriers men face in getting tested include fear of testing positive, the belief of not engaging in risky behavior (Conway et al., 2015; Schwarcz et al., 2011), time

pressure, and concerns about being labeled as gay or unfaithful to their partners (Lichtenstein et al., 2016). As noted above, HIV self-testing which can be conducted in a space chosen by the individual, may help overcome some of the social barriers to uptake of HIV screening services. Addressing the social and structural barriers to HIV testing among justice-impacted males is critically needed across correctional and community settings.

Limitations

Findings should be considered in light of the following. The data were collected as part of studies designed to test an intervention that seeks to improve healthcare access. Thus, data on HIV risk or factors that may impact testing uptake (e.g., perceived HIV risk, attitudes/beliefs towards testing, local availability of testing) were not collected. HIV testing data is based on self-report and may be affected by recall bias and possibly, under-reported if individuals lack awareness or memory of being tested, especially if results were negative. The results may not be generalizable to other justice-impacted adults due to the use of venue-based sampling approach used in all three studies. Thus, testing behaviors of justice-impacted adults who were not under supervision or at the recruitment sites may not be represented. Nevertheless, this study has several strengths including a large and sample of adults residing in the community with experiences of incarceration, use of validated federal survey items, and interviewer-administered surveys for data collection. The studies also engaged community members with diversity in race/ethnicity and age. The data were collected across multiple years and are suggestive of the need to support access to HIV testing among justice-impacted adults. Future studies may consider including detailed survey items on individual and structural factors that affect testing

access and uptake as well as collecting qualitative data to delve deeply into the barriers to HIV testing among justice-impacted adults residing in community settings.

Conclusions

While the results of this study demonstrate that individuals who are in contact with correctional settings are achieving higher rates of HIV testing as compared to the general population, the results also illustrate that particular demographic subgroups may benefit from targeted or increased access to HIV testing services. Notably, gender differences in HIV testing were evident, implying a need to increase access to HIV testing for justice-impacted males as well as among racial and ethnic minorities. Qualitative data may shed light on the unique barriers faced by racial and ethnic minorities and among males; these topic should be explored in future studies given the high proportion of racial and ethnic minorities and males who are incarcerated annually. Efforts to ensure that HIV testing is accessible to justice-impacted adults who are in the community is a critical component of the reintegration process. Moreover, by addressing gender and racial and ethnic disparities, healthcare providers and policymakers can work towards increasing HIV testing rates, improving health outcomes, and reducing HIV transmission among justice-impacted adults, a group that constitutes an underserved and structurally vulnerable population.

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Declaration of interest statement

We have no conflict of interests to report.

Author Contributions Statement

This manuscript was prepared by Victoria Ojeda, Melissa B. Jaeger, and Sarah Hiller-Venegas and all co-authors reviewed the manuscript and provided feedback on the interpretation of results and public health and policy implications. The final manuscript was approved by all co-authors.

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Table 1. Methods Implemented Across the Three Health-Focused Studies Engaging Justice-Impacted Adults, San Diego, California, United States, 2017-2023

	Study #1	Study #2	Study #3
Study Years	2017-2021	2022-2023	2021-2023
Target Population			
Age Group	18-26	18 & older	18 & older
Justice Involvement Eligibility Criteria	Currently on probation	Incarcerated or on supervision (probation/parole/ court-diverted), the past 3 years	Ever incarcerated in CA state prison
Recruitment Venues	- Local Probation Offices - Sober Living Facility	- Local Probation Offices - Community Service Providers - Sober Living Facilities	- Sober living - Word of mouth - Community Events - Reentry Fairs - Referral from community providers - Peer-to-peer support programs
Study Design	Longitudinal observational	Longitudinal, randomized clinical trial	Longitudinal observational
Intervention Provided			
Service Navigation	Yes	Yes	Yes
Health Coaching	Yes	Yes	No
Intervention Modality			

Phone	Yes	Yes	Yes
Zoom (video conferencing)	Yes	Yes	Yes
In-Person	Yes	Yes	Yes
Incentives			
Gift Cards	No	Yes	Yes
Bus Passes	Yes	No	Yes
HIV Testing Question	The next question is about the test for HIV, the virus that causes AIDS. Except for tests you may have had as part of blood donations, have you ever been tested for HIV? *(Select one answer)*	When was the last time you received an HIV test? *(Select one answer)*	When was the last time you received any of these sexual and reproductive health services? --HIV Test *(Select one answer)*
Response set	-Yes -No -Don't know -Refuse to answer	-Within the past 6 months -Within the past year -Within the last 2 years - Within the last 3 years - Within the last 5 years - Within the last 10 years -10 years ago or more -Never	-Within the last 3 months -Within the last 6 months -Within the last year -Within the last 2 years - 3 or more years ago -Never
Source:	National Health	Golub and Gamarel	Modified from Golub

	Interview Survey, 2016 (National Center for Health Statistics, 2017)	(Golub & Gamarel, 2013) Note that the response set was expanded for this study	and Gamarel (2013)

Table 2. Lifetime HIV Testing Prevalence Among Justice-Impacted Adults in San Diego, California, United States, 2017-2023: A Snapshot From Three Studies

Variables	Study #1				Study #2				Study #3			
	ALL (n=141)	**Never tested (n=39, 27.7%)**	**Ever tested (n=102, 72.3%)**	**P-Value***	**ALL (n=39)**	**Never tested (n=7, 17.9%)**	**Ever tested (n=32, 82.1%)**	**P-Value,**	**ALL (n=95)**	**Never tested (n=15, 15.8%)**	**Ever tested (n=80, 84.2%)**	**P-Value,**
Age (mean in years)	22.2	21.0	22.6	<0.01	40.1	40.7	40.0	0.44	42.4	42.0	42.5	0.44
Gender												
Male	114 (80.9%)	38 (97.4%)	76 (74.5%)	<0.01	29 (74.4%)	7 (100.0%)	22 (68.8%)	0.10	80 (84.2%)	15 (100.0%)	65 (81.3%)	0.06
Female	27 (20.5%)	1 (2.6%)	26 (25.5%)		10 (25.6%)	0 (0.0%)	10 (31.3%)		15 (15.8%)	0 (0.0%)	15 (18.8%)	
Race/Ethnicity												
African American/ Black, NH	35 (24.8%)	9 (23.1%)	26 (25.5%)	0.53	3 (7.7%)	1 (14.3%)	2 (6.3%)	0.39	17 (17.9%)	3 (20.0%)	14 (17.5%)	0.89
Latino/Hispanic	75	24	51		22	3	19		45	7	38	

	(53.2%)	(61.5%)	(50.0%)		(56.4%)	(42.9%)	(59.4%)		(47.4%)	(46.7%)	(47.5%)	
Other, NH	11 (7.8%)	3 (7.7%)	8 (7.8%)		4 (10.3%)	0 (0.0%)	4 12.5%)		14 (14.7%)	3 (20.0%)	11 (13.8%)	
White, Non-Hispanic (NH)	20 (14.2%)	3 (7.7%)	17 (16.7%)		10 (25.6%)	3 (42.9%)	7 (21.9%)		19 (20.0%)	2 (13.3%)	17 (21.3%)	
Relationship Status												
Single	110 (78.0%)	34 (87.2%)	76 (74.5%)	0.10	36 (92.3%)	7 (100.0%)	29 (90.6%)	0.54	73 (76.8%)	13 (86.7%)	60 (75.0%)	0.27
Partnered	31 (22.0%)	5 (12.8%)	26 (25.5%)		3 (7.7%)	0 (0.0%)	3 (9.4%)		22 (23.2%)	2 (13.3%)	20 (25.0%)	

*p-value refers to the comparison: ever tested vs. never tested for HIV

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