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My name is Emily Wang, and I am an Assistant Professor at the Yale School of Medicine, where my clinical practice and research is focused on improving the health of vulnerable populations, especially those with a history of incarceration. I submit this patient story and our publication as written testimony for the National Commission on Hunger.

Carla walked into my office quickly revealing that she had returned to her former life of prostitution. She wasn't proud or defiant: I could see the despair in her face. The 23-year-old had been released from prison almost four months earlier. She had made impressive progress since then. Carla had regained custody of her kids after being behind bars for three years. She was no longer selling marijuana. She'd enrolled in a local community college. But she was still unemployed, had no consistent source of income, and felt she had no other alternative than to go back to sex work. She burst out "I am putting myself at risk for HIV to get my kids a f---ing happy meal."

If she'd committed rape or murder, Carla could have gotten food stamps to feed herself and her children. But because the crime she committed was a drug felony, Carla joined the hundreds of thousands of drug felons who are not eligible, despite having completed their prison sentences. Since the 1996 passage of the welfare reform act, by law, a person may not receive benefits through the Supplemental Nutrition Assistance Program (commonly known as food stamps) once he or she has been convicted of a drug felony; and that includes offenses involving not just dealing, but also possession.

The ban was implemented, supposedly to prevent drug addicts from selling their food stamps for drugs. But that concern is virtually unwarranted today. Unlike old food stamp coupons, today's food stamps are distributed electronically, which makes selling or trading them quite difficult.

Nonetheless, the law persists in 32 states. According to the Pew Charitable Trusts, six states have a lifetime ban for food stamp eligibility for people convicted of drug felonies. Twenty-six states have a partial ban, such as permitting eligibility for persons convicted of drug possession but not sale, or for persons enrolled in drug treatment programs. Only 18 states and the District of Columbia have no ban on this public entitlement. While some states like Texas have recently loosened the bans on food stamps, other states like Maine and Pennsylvania are considering changing policies so that it is harder to get food stamps.

Denying food stamp benefits to people convicted of drug offenses is an excessive and ineffective crime control strategy. The policy increases an individual's risk of returning to prison by making it more difficult for people to survive after they get out, slowing or possibly even preventing their reintegration into society. What's more, the food stamp ban is a law that works against good public health policy.

As a doctor who cares predominantly for individuals who are released from prison, I see the damaging consequences of this ban on food stamps. Not having access to food is

associated with bad health outcomes including worsening diabetes, HIV, depression, and in young children anemia, diabetes, and depression.

Our research group at Yale found that patients like Carla who report going hungry were more likely to report HIV risk behaviors, including sex work. Those living in food stamp ban states were more likely to report having gone more than 24 hours without food and engaging in risky sexual behaviors.¹

Women with children are especially affected. It's estimated that 70,000 women and their children are banned from obtaining food stamps. This means mothers who are simply trying to feed themselves and their children, and who are trying to get back on their feet after serving their time, are banned from receiving the money to pay for the basic alimentation necessary to survive. Meanwhile, 46 million others, including college graduates and PhDs with far more resources, can receive food aid.

No other criminal conviction results in such a ban--not arson, not rape, not even murder. Carla was arrested at 20 for selling marijuana. At the time, she had also been making money working for her "boyfriend" as a sex worker. Her boyfriend was also arrested for robbery. He could qualify for food stamps upon release. But not Carla. She continues to pay for selling marijuana— a drug which two states have now voted to legalize outright—and the price is health risks for herself and for her children.

Punishing people by denying access to food is terrible public policy. It threatens overall public health. It does nothing to fight addiction or drug use, nor does it end up saving taxpayers money. It is time we end the food stamp ban in all states where this injustice persists.

¹ Wang E.A., Zhu, G.A., Evans L., Carroll-Scott, A., Desai, R., and Fiellin L.E. "A Pilot Study Examining Food Insecurity and HIV Risk Behaviors among Individuals Recently Released from Prison" AIDS Education and Prevention 2013 Apr 25 (2): 112-23.

A PILOT STUDY EXAMINING FOOD INSECURITY AND HIV RISK BEHAVIORS AMONG INDIVIDUALS RECENTLY RELEASED FROM PRISON

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Annually 700,000 individuals are released from U.S. prison, many at risk for food insecurity and HIV. The association between food insecurity and HIV risk behaviors has been established but not in this population. To investigate this association, we recruited 110 recently released prisoners to participate in a survey. Ninety-one percent of our sample was food insecure; 37% did not eat for an entire day in the past month. Those who did not eat for an entire day were more likely to report using alcohol, heroin, or cocaine before sex or exchanging sex for money compared to those who had at least a meal each day. From this pilot study, released prisoners appear to be at risk for food insecurity, and not eating for an entire day is associated with certain HIV risk behaviors. HIV prevention efforts should include longitudinal studies on the relationship between food insecurity and HIV risk behaviors among recently released prisoners.

Each year 700,000 individuals are released from U.S. prisons, the majority of whom are poor, unemployed, and marginally housed or homeless (Sabol & West, 2010). These individuals generally have difficulties meeting their basic needs, including accessing government resources such as Supplemental Nutrition Assistance Program (SNAP) food benefits, previously called food stamps (Harlow, 2003; Luther, Reichert, Holloway, Roth, & Aalsma, 2011; Springer, Spaulding, Meyer, & Altice, 2011). In many states, individuals convicted of drug felonies are statutorily prohibited from obtaining SNAP food benefits (Office of National Drug Control Policy, 2003). Lacking access to these food benefits, individuals released from prison may

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be at greater risk of food insecurity (Gundersen & Oliveira, 2001; Wilde, 2007), defined as the absence of “access at all times to enough food for an active, healthy life” (Anderson, 1990).

Internationally, studies have shown that food insecurity is associated with increased HIV risk behaviors in HIV-infected (Byron, Gillespie, & Nangami, 2008; Cluver, Orkin, Boyes, Gardner, & Meinck, 2011) and HIV-negative individuals (Davidoff-Gore, Luke, & Wawire, 2011; Tsai, Hung, & Weiser, 2012; Weiser et al., 2007). Food insecure women, in particular, are at increased risk of HIV acquisition because they may be forced to engage in sex work to procure food for themselves or their children (Oyefara, 2007; Weiser et al., 2007). In the U.S., food insecurity has been found to adversely affect health behavior and outcomes for individuals with HIV (Wang et al., 2011; Weiser, Bangsberg et al., 2009; Weiser, Frongillo et al., 2009; Weiser et al., 2013), but few studies in the U.S. have studied the association between food insecurity and engagement in HIV risk behaviors. One study, conducted among HIV-infected injection drug users, found that not eating for an entire day was associated with unprotected sex (Shannon et al., 2011). Another recent study found that food insecurity was independently associated with unprotected sexual activity and multiple sexual partners among HIV-infected marginally housed and homeless individuals (Vogenthaler et al., 2011).

Thus, we sought to examine the potential association between food insecurity and HIV risk behaviors among individuals recently released from U.S. prisons in a pilot study. Recently-released prisoners may be at risk for incident food insecurity as they are moving from prison, where three meals a day are guaranteed, to the community where they must procure their own food (Luther et al., 2011). Past research has also shown that during this transition, recently-released individuals often return to HIV risk behaviors they engaged in prior to incarceration and, to a lesser extent, in prison, including sex with multiple partners, noncondom use, and substance abuse, putting them and their partners at risk for acquiring or transmitting HIV (Adams, Nowels et al., 2011; Adams, Kendall et al., 2011; Cartier, Greenwell, & Prendergast, 2008; Grinstead et al., 2005; Khan et al., 2008; MacGowan et al., 2003; Morrow & Project START Group Study, 2009; Ravi, Blankenship, & Altice, 2007; Ziedenberg & Schiraldi, 2005). For these reasons, the period of time immediately following release from prison may be a key window of opportunity for public health interventions focused on either social determinants (including providing food) or structural level interventions (including eliminating the food stamp ban) to control HIV transmission in this high-risk population. For this pilot study, we sought to characterize food insecurity in a population of recently-released prisoners and hypothesized that former prisoners who were food insecure would be more likely to report engaging in HIV risk behaviors compared with those who were food secure. Secondarily, we wanted to explore how living in a state with a ban on SNAP food benefits would affect the relationship between food insecurity and HIV risk behaviors.

METHODS

SAMPLE AND SETTING

Using a community-based participatory research approach, we partnered with a national, community-based civil rights organization of formerly incarcerated individuals for the design and execution of this cross-sectional survey and the dissemi-

nation of its findings. We identified three states with differing SNAP food benefit policies: Texas, California, and Connecticut. In Texas, all individuals convicted of drug felonies are subject to a lifetime ban on SNAP food benefits, without exception. In California, individuals convicted of certain types of drug felonies who have not completed a drug treatment program are subject to a lifetime ban on SNAP food benefits. In Connecticut, individuals convicted of drug felonies remain eligible for SNAP food benefits so long as they are compliant with their court sentence. In each state, we hired one to two individuals with histories of incarceration as research assistants and trained them using a curriculum designed to train lay people in survey design and administration, confidentiality, and the ethics of research (Carroll-Scott, Toy, Wyn, Zane, & Wallace, 2012). Research assistants were instructed to interview 50 individuals (25 men and 25 women) recently released from prison in each of their respective states and to recruit from “wherever individuals live upon release,” including but not limited to the streets, shelters, and reentry programs. Recent release from prison was defined as having been released one to twelve months prior to participation in the study. Participants verbally consented to the study and were given \$10 grocery vouchers for their participation. Throughout the course of the study, the Principal Investigator communicated with the research assistants to troubleshoot issues regarding the administration of the survey. The Yale University School of Medicine Human Investigation Committee approved this study.

VARIABLES

Trained research assistants conducted a structured interview (average length of 30 minutes) in a quiet location (park bench, private office, room in transitional housing or clinic) with English-speaking individuals released from prison. We collected data on background characteristics, including age, gender, racial/ethnic self-identification, education, marital/partner status, family size, income, and history of homelessness and incarceration.

We used an established measure of food insecurity to capture our independent variable of interest. The Food Security Module (FSM) designed by the United States Department of Agriculture (USDA) measures three different realms of food security—access, quality, and sufficiency—for the respondent’s household, with particular questions focused on food insecurity among the respondent’s children (Bickel, Nord, Price, Hamilton, & Cook, 2000). Food insecurity, as measured by the FSM, is correlated with common indicators of food consumption, poor physical and mental health among children and adults, worse self-reported health status, and higher rates of chronic conditions (Nord, Andrews, & Carlson, 2011).

For this pilot study, we used a modified FSM survey consisting of fifteen items that had been used in past studies of low-income populations to measure food insecurity (Hromi-Fiedler, Bermudez-Millan, Melgar-Quinonez, & Perez-Escamilla, 2009). Based on pilot interviews, we adapted the FSM items such that they responded to a recall period of “since being released from prison” as opposed to “in the past 12 months.” For respondents with no children, we administered the first eight FSM questions. If there were both adults and children under 18 years of age living in the household, we administered all fifteen questions and classified individuals based on standard definitions. We classified respondents with zero affirmative responses as food secure and those with at least one affirmative response as food insecure. Consistent with the USDA scale, 1–3 affirmative responses was coded as marginal food security, 4–5 affirmative responses as low food security, and 6–8 affirmative responses

TABLE 1. Participants Recently Released from Prison, N = 110

Variables	N (%) or Median (IQR)
Food Insecurity Variables	
Food Insecure	100 (90.9)
Marginal food security	10 (9.1)
Low food security	80 (72.7)
Very low food security	10 (9.1)
Not eating a meal for an entire day*	41 (37.3)
Median SNAP Food Benefit, \$, N (IQR)	200 (150, 200)
Sociodemographic Variables	
California Residents	50 (45.5)
Connecticut Residents	49 (44.5)
Texas Residents	11 (10.0)
Age	
18–25	17 (15.5)
26–35	35 (31.8)
36–45	30 (27.3)
46–55	24 (21.8)
> 55	4 (3.6)
Gender	
Female	50 (45.5)
Race**	
White	35 (31.8)
Black	67 (60.9)
Other	15 (13.6)
Ethnicity	
Hispanic	15 (13.6)
Not Hispanic	95 (86.4)
Employed	10 (9.1)
Marital Status	
Married	15 (13.6)
Never married	72 (65.5)
Separated, divorced, or widowed	22 (20.0)
Has at Least 1 Minor Child	33 (30.0)
Education	
Less than high school	38 (34.5)
High school degree or GED	50 (45.5)
Some college	21 (19.1)
Employed	10 (9.1)
Low-income (\leq 130% FPL)***	91 (82.7)
Incarceration History Variables	
Days Since Most Recent Release	124 (74, 237)
Times Incarcerated, Lifetime	
1	34 (30.9)
2–5	32 (29.1)
> 6	37 (33.6)
Don't know	5 (4.5)
Total Years Incarcerated, Lifetime	
\leq 1	33 (30.0)
2–10	51 (46.4)
> 10	26 (23.6)
On Parole	96 (87.3)

*The variable is defined as not eating for at least one day in the past month because “you did not have enough money.”

**Participants could report multiple racial and ethnic categories with which they self-identified.

***Low-income was categorized as \leq 130% federal poverty level for a single-person household (\$1108, as of October 2011), as that is the income cutoff for SNAP food benefits for most households. See http://www.fns.usda.gov/SNAP/applicant_recipients/eligibility.htm.

TABLE 2. Association Between Not Eating for an Entire Day, HIV Risk Behaviors, and Presence of SNAP Food Benefit Ban, $N = 110$

Dependent Variables	Participants who reported not eating for an entire day	Participants who had at least one meal each day	Chi-square test statistic	p -value
	$N = 41$ N (%)	$N = 69$ N (%)	χ^2	
Resides in state with SNAP food benefit ban	32 (78.1)	29 (42.0)	13.51	< 0.001
Risk Behaviors [†]				
Always uses condoms during intercourse	5 (20.8)	14 (38.9)	2.17	0.14
Used alcohol prior to intercourse	18 (78.3)	13 (36.1)	10.0	0.002
Used cocaine/crack prior to intercourse	13 (56.5)	7 (20.0)	8.19	0.004
Used opioids prior to intercourse	7 (30.4)	3 (10.0)	3.55	0.059
Used heroin prior to intercourse	7 (30.4)	2 (6.3)	5.72	0.017
Paying for or being paid for sex work	7 (25.9)	3 (7.7)	4.13	0.042

[†]Out of individuals who report having sex ($N = 64$) using chi-square tests.

es as very low food security. If there were both adults and children in the household, all 15 questions were asked, in which case, 0 affirmative responses was food secure; 1–5 affirmative responses, marginal food security; 6–10 affirmative responses, low food security, 11–15 affirmative responses, very low food security. (United States Department of Agriculture Economic Research Service, 2012) A priori, we also analyzed the association between not eating for an entire day in the past month, which the USDA describes as the severest form of food insecurity, and HIV risk behaviors. (United States Department of Agriculture Economic Research Service, 2012). Finally, we collected information about the receipt of SNAP food benefits, the amount of SNAP food benefits per month, and access to other sources of free food (i.e., local food banks, shelters).

We measured HIV risk behaviors, our dependent variables of interest, with the HIV Risk-Taking Behavior Scale-PLUS, a modified instrument that includes measures of sexual risk behaviors (multiple partners, noncondom use, transactional sex, sex while using drugs) and drug use risk behaviors (sharing needles, sharing drug paraphernalia) that have been correlated with HIV serostatus and seroconversion (Battjes, Pickens, Haverkos, & Sloboda, 1994; Darke, Hall, Heather, Ward, & Wodak, 1991; Erbeling, Stanton, Quinn, & Rompalo, 2000; Jarlais et al., 2005; Kalichman, Kelly, & Rompa, 1997; Lemp et al., 1994; Nicolosi, Leite, Musicco, Molinari, & Lazzarin, 1992; Shoptaw, Reback, & Freese, 2002; Wiebel et al., 1996). We asked participants if they had engaged in these behaviors in the past 30 days.

The entire survey was pre-tested and adapted prior to formal survey administration with 20 individuals living in New Haven, Connecticut, recently released from prison. These surveys were not included in the final analyses.

ANALYSIS

We described the sample by sociodemographic characteristics, history of homelessness, and incarceration, and presence and severity of food insecurity. We generated proportions for categorical variables and medians and interquartile ranges for continuous variables. We estimated the Cronbach's alpha internal consistency test to

evaluate the reliability of the modified FSM instrument in our sample. We then tested for bivariate associations between food insecurity and HIV risk behaviors, as well as between not having food to eat for an entire day and HIV risk behaviors using chi-square tests. Among those HIV risk behaviors found to be significantly associated with food insecurity or not eating for an entire day, we were interested in the role that the SNAP food benefit ban played in the observed associations. We created a dichotomous SNAP food benefit ban variable, where California and Texas residents were categorized as living with a full or partial food stamp ban and Connecticut residents were categorized as living without a ban. We then explored the association between the observed food insecurity and HIV risk behaviors by controlling for age, sex, and race/ethnicity, and living in a state with a SNAP food benefit ban. Given that this was a pilot study with a smaller sample, we chose to only include these covariates a priori based on the past literature on food insecurity and HIV risk behaviors, choosing what we believed to be the strongest and potentially most biasing confounders. The model was thus not intended to be a fully adjusted model, but to assist with generating hypotheses for further research.

RESULTS

Between March and August 2010, we approached a total of 113 recently-released individuals in Connecticut, Texas, and California for participation in the study. We enrolled 110 individuals in the study, amounting to a participation rate of 97%. Forty-six percent of participants were female, 37% were living on the streets or homeless, and 30% had minor children living in the home (Table 1). The median time since release for this sample was 124 days (IQR 74–237 days). A majority of participants (91%, $N = 100$) reported any food insecurity (9.1% marginal food security, 72.7% low food security, and 9.1% very low food security). Rates of food insecurity did not vary by the time post release. The Cronbach's alpha of the FSM items in this sample was 0.9. Among the 41 participants who reported not having eaten for an entire day, 39% reported receiving SNAP food benefits, where the median monthly benefit was \$200 and lasted 18 days out of the month.

We found no association between the various categories of food insecurity and HIV risk behaviors in the entire sample (see Table 2). We did find associations between not having eaten for an entire day and HIV risk behaviors. Participants who went without food for an entire day were more likely to use alcohol (78% vs. 36%, $p = 0.002$), heroin (30% vs. 6%, $p = 0.02$), and cocaine (57% vs. 20%, $p = 0.004$) prior to sex and to exchange sex for money (26% vs. 8%, $p = 0.04$) compared to those who had at least one meal each day. They were more likely to use opioids prior to sex (30% vs. 10%, $p = 0.06$), though this association was only marginally significant. We did not find associations between not eating for an entire day and other HIV risk behaviors, such as condom use or sharing or exchanging needles or drug paraphernalia. Finally, formerly incarcerated individuals who did not eat for an entire day were more likely to live in a state with a SNAP food benefit ban compared to a state without a SNAP food benefit ban (78% vs. 42%, $p < 0.001$).

Multivariate adjustment for age, sex, race/ethnicity altered the association between not eating for an entire day and some, but not all, HIV risk behaviors (Table 3). After adjustment, participants who had not eaten for an entire day had twenty times greater odds of using alcohol (AOR 20.7, 95% CI [3.7, 114.7]) and six times greater odds of using cocaine (AOR 6.1, 95% CI [1.6, 23.3]) prior to intercourse

TABLE 3. Association Between Not Having Eaten for an Entire Day and HIV Risk Behaviors, *N* = 110

HIV risk behavior	Unadjusted odds ratio	Adjusted odds ratio*	Adjusted odds ratio**
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Using alcohol prior to intercourse	6.36 (1.92, 21.18)	20.67 (3.72, 114.74)	9.84 (1.50, 64.36)
Using cocaine/crack prior to intercourse	5.2 (1.62, 16.73)	6.09 (1.59, 23.31)	3.96 (0.90, 17.54)
Using heroin prior to intercourse	6.56 (1.22, 35.37)	3.67 (0.47, 28.42) [†]	0.19 (0.003, 14.42)
Paying or being paid for sex work	4.20 (0.98, 18.06)	4.25 (0.91, 19.98)	2.54 (0.41, 15.61)

*Adjusted for age, sex, race.

**Adjusted for age, sex, race, and existence of SNAP food benefit ban.

[†]Sex was dropped (collinearity).

compared to those who had eaten at least one meal each day. Sex work and using heroin prior to intercourse were no longer significantly associated with not having eaten in an entire day in multivariate models. Controlling for the presence of a state SNAP food benefit ban reduced the odds of alcohol and cocaine use before sex, suggesting that the ban may impact the association between not eating for an entire day and certain HIV risk behaviors.

DISCUSSION

Individuals released from prison are at high risk for food insecurity. The vast majority of released prisoners (91%) reported food insecurity, and 37% reported not having eaten for an entire day because there was not enough money. While being food insecure is more common among U.S. racial and ethnic minorities and low-income individuals, the levels we report in this study far exceed those sampled in the national USDA survey and mirror the magnitude of food insecurity in developing countries (Anema, Vogenthaler, Frongillo, Kadiyala, & Weiser, 2009; Nord, Andrews, & Carlson, 2011; Weiser et al., 2007). Larger epidemiologic studies are needed to characterize the prevalence of food insecurity among individuals recently released from prison, particularly the timing of risk and geographic variations.

We were unable to detect the association between any food insecurity and HIV risk behaviors in this population of recently-released prisoners. This may be due to the unusually high rate of food insecurity in our sample and, thus, limited variation with which to discover associations. However, we did find a significant association between not having eaten for an entire day and certain HIV risk behaviors, including exchanging sex for money and using alcohol, cocaine, and heroin before intercourse. Our findings are similar to other studies in high-risk populations, which have similarly documented associations between varying degrees of food insecurity and frequent illicit drug use, inconsistent condom use, and exchanging sex for drugs or alcohol (Normen et al. 2005; Shannon et al., 2011; Vogenthaler et al., 2012; Weiser et al., 2007). Given that low socioeconomic status and drug use are associated with both food insecurity and HIV risk behaviors, the role of poverty and drug use in the association between HIV risk behaviors needs to be further studied (Nord et al., 2011; Shannon et al., 2011; Vogenthaler et al., 2012; Werb, Kerr, Zhang, Montaner, & Wood, 2010). Better characterizing the causal association between food insecurity and HIV risk behaviors may inform structural interventions designed to reduce food insecurity and thus HIV transmission, including providing food to individuals at risk for HIV.

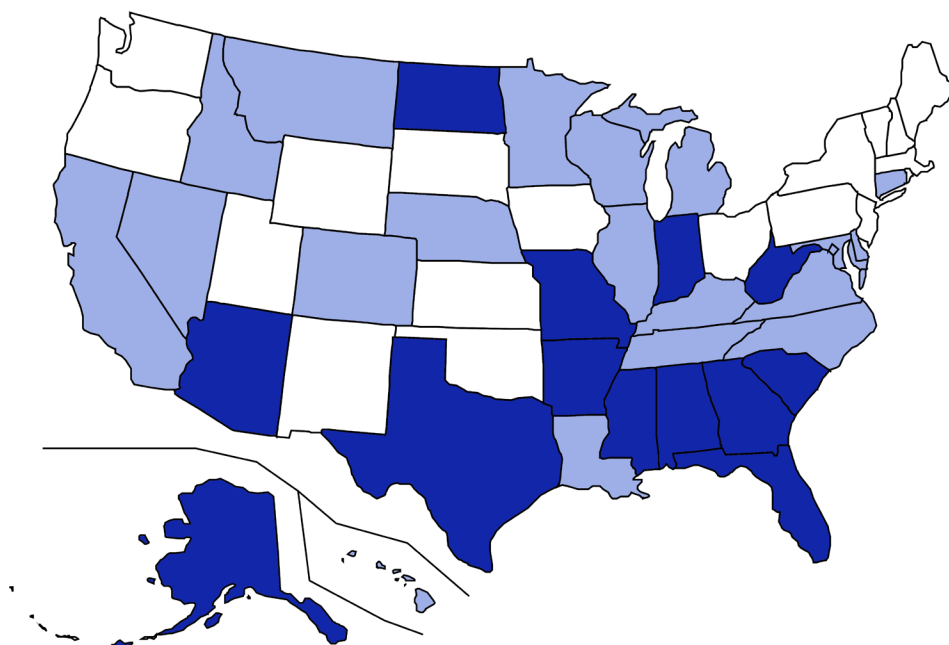


FIGURE 1. Status of SNAP Food Benefit Ban, 2011. States with a full ban on SNAP food benefits are dark colored. States with a partial ban on SNAP food benefits are light colored. States with no ban on SNAP food benefits are white colored. For more information about the SNAP food benefit ban, see <http://www.nationalreentryresourcecenter.org/reentry-council/activities>.

We found that residing in a state with a full or partial ban on SNAP food benefits may influence the association between not having eaten in an entire day and alcohol and cocaine use before intercourse. These results should be confirmed with larger samples and suggest that more research is required to measure the health impact of policies that prohibit or deter individuals released from prisons from obtaining SNAP food benefits. In 1996, the U.S. government mandated the prohibition of SNAP food benefits for drug felons as part of the federal Personal Responsibility and Work Opportunity Reconciliation Act (Legal Action Center, 2011). Currently 13 states have a full ban enacted and 19 states have a partial ban, leaving only 18 states and the District of Columbia with no ban on this public entitlement (Figure 1). However, our study revealed that living in a state without a ban did not ensure that individuals released from prison were enrolling in the SNAP food benefit program or receiving sufficient benefits. Only 10% of participants living in Connecticut (a state in which all compliant drug felons are eligible for SNAP food benefits) who reported not having eaten in an entire day were enrolled in the SNAP food benefit program and receiving sufficient aid to last the full month. One reason may be because ongoing programs such as Operation Talon, where local law enforcement agencies are positioned at SNAP food benefit enrollment offices, deter individuals from applying for SNAP food benefits (Cook County Sheriff Department, 2010).

LIMITATIONS

There are several important limitations to this study. This was a pilot study and was intended to explore the extent of food insecurity and its association with HIV risk behaviors among recently-released prisoners. We cannot draw definitive conclusions from this study due to its cross-sectional design and small sample size, which limited full adjustment in multivariate models. One possible alternative explanation of our findings is that individuals using illicit drugs are spending their money on drugs instead of food, which would suggest the need for increased drug treatment access upon release. Another possibility is that food insecurity is a surrogate measure for low socioeconomic status, which is also associated with HIV risk behaviors. These hypotheses merit further investigation using prospective study designs with larger samples to explore such dynamics. Also, 42% of participants in this study reported undergoing weekly urine toxicology testing as part of parole or drug treatment programming. Thus, our study sample may not be generalizable to the population of individuals released from prison who are no longer under the purview of the criminal justice system and who may be more apt to engage in drug-related HIV risk behaviors once they are no longer mandated to provide a weekly urine sample (Himmelgreen et al., 1998). Future studies should explore the association between food insecurity and HIV risk behaviors after individuals are released from parole or probation, as return to HIV risk behaviors is expected to be particularly prevalent once supervision ceases. Moreover, as the majority of our recruitment strategy depended on convenience sampling through community-based research assistants and appropriate venues to approach and enroll recently-released prisoners, our sample may not be representative of all recently-released prisoners in these three states. Lacking a more representative sample of recently-released prisoners to compare to, we do not know the extent of differences and consider this sample a good first step in understanding this issue in this population.

In spite of these challenges, using a community based participatory research approach contributed to the success of the study. Individuals face a number of competing demands upon release from correctional facilities and are often difficult to recruit into studies given time constraints, mistrust of academic researchers, and skepticism of research. A 97% response rate is high and may not have been achieved had we not employed previously-incarcerated research assistants with the comfort and camaraderie to approach potential respondents and enroll participants. This participation rate is in part credited to our partnership with our community-based organization and the efforts of our community-based research assistants.

CONCLUSION

In this pilot study, individuals recently released from prison are at risk for food insecurity. Not having food to eat for an entire day, food insecurity in its most severe form, is associated with HIV risk behaviors including use of alcohol, cocaine, and heroin prior to sex and exchanging sex for money. Recently-released individuals who did not eat for an entire day were more likely to live in a state with a SNAP food benefit ban compared to a state without a SNAP food benefit ban, and residing in a state with a full or partial ban on SNAP food benefits may impact certain HIV risk

behaviors. Longitudinal studies are needed to characterize the prevalence of food insecurity among individuals recently released from prison and to better understand the relationships between food insecurity and HIV risk behaviors in this high-risk population.

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