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Hepatitis C Antibody Reactivity among High-Risk Rural Women: Opportunities for Services and Treatment in the Criminal Justice System

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Abstract

Purpose: This study examines drug use and criminal justice factors related to hepatitis C (HCV) antibody reactivity among rural women in the United States recruited from local jails.

Design/Methodology/Approach: Analyses included 277 women with a history of injection drug use from three rural jails in Kentucky. Participants completed health and drug-use questionnaires and received antibody testing for HCV.

Findings: The majority of women tested reactive to the HCV antibody (69%). Reactivity was associated with risk factors, such as dirty needle use. Criminal justice variables, including an increased likelihood of prison incarceration, an earlier age of first arrest, and a longer incarceration history, were associated with HCV reactive tests. Participants also endorsed several barriers to seeking healthcare before entering jail that were more prevalent in women testing HCV reactive regardless of HCV status awareness before entering jail.

Originality/Value: Injection and high-risk sharing practices as well as criminal justice factors were significantly associated with HCV reactivity. Future research and practice could focus on opportunities for linkages to HCV treatment during incarceration as well as during community re-entry to help overcome real or perceived treatment barriers. The current study highlights the importance of the criminal justice system as a non-traditional, real-world setting to examine drug use and related health consequences such as HCV by describing the association of high-risk drug use and criminal justice consequences with HCV among rural women recruited from local jails.

Keywords

barriers; cocaine; injection drug use; jail; substance use; women's health

Introduction

Drug use and misuse are associated with physical health impediments to living a longer, healthier life, including cardiovascular toxicity, respiratory damage, and the acquisition and transmission of sexually transmitted infections (e.g., Stein, 1999). These outcomes may result from the direct effects of the abused substance or the increased likelihood of risky sexual or drug use behaviors (e.g., unprotected sexual intercourse; needle sharing) throughout the procurement of, engagement in, and period following substance use. Targeting health consequences of drug use could further elucidate risk factors underlying susceptibility and help to identify novel venues for interventions.

A drug-use related health consequence posing a particularly salient and growing public health concern is the hepatitis C virus (HCV). HCV is a blood-borne viral infection that can progress into chronic liver hepatitis when left untreated (Alter *et al.*, 1992). Sustained infection may result in cirrhosis of the liver, immune system damage, and ultimately death (Alter and Seeff, 2000). Treatments for acute and chronic HCV have greatly improved in recent years with the development of HCV protease inhibitor therapies (Casey and Lee, 2013). However, access to or knowledge about available resources providing HCV prevention and treatment can limit dissemination (e.g., Goldberg and Seth, 2008; Mehta *et al.*, 2008). This is particularly relevant for many at-risk populations (e.g., people who inject drugs) whose treatment may prove particularly beneficial given an increased likelihood of transmission when chronic infection is present due to high-risk drug use or sexual behaviors.

An increased risk of HCV infection and transmission is well documented in substance-using populations, and in particular, among people who inject drugs. High-risk injection drug use practices (e.g., needle sharing) critically contribute to HCV transmission and other non-injection, high-risk drug use practices are also common routes of transmission (Alter, 2007). Transmission by injection and related drug use practices is disconcerting given increased rates of opioid prescription and diversion in the United States (Dart *et al.*, 2015). The nonmedical use of prescription opioids in the United States has more than doubled over the last decade (Saha *et al.*, 2016), with some prescription users transitioning to injection heroin following increasing prescription regulations and decreasing heroin costs (Cicero *et al.*, 2014; Mars *et al.*, 2014). Research on risk factors related to blood borne pathogens, such as HCV, in emergent high-risk groups is critical for curtailing further infection and transmission.

A majority of research on risk factors or correlates of HCV infection has focused on urban areas. Many rural areas, such as those in the Appalachian region of the United States, face unique challenges from an economic, social, and health disparities perspective. This vulnerable group experiences poorer health status coupled with and consequent to decreased access to health care resources (e.g., Lengerich *et al.*, 2005). Higher rates of poverty and unemployment and lower educational attainment also strain existing medical infrastructure (e.g., Holt, 2007; Shaw *et al.*, 2004). The transmission of HCV and other blood-borne infections may be compounded when community health care services are not available or perceived as not available (Staton-Tindall *et al.*, 2015b).

Previous rural HCV studies have demonstrated many similar risk factors as in urban areas, including risky injection drug use (Havens *et al.*, 2013; Zibbell *et al.*, 2014). Individuals in rural areas of the United States are increasingly likely to report non-medical prescription opioid and injection drug use (Havens *et al.*, 2007; Staton-Tindall *et al.*, 2015a, 2015b). These factors combined with a growing HCV prevalence suggest that these regions are primed for an increased prevalence of the human immunodeficiency virus (HIV). For example, the recent Indiana HIV outbreak suggests that a steady rise in HCV infections may serve as a marker for community increases in HIV transmission risk (Peters *et al.*, 2016). In fact, many counties in the rural Appalachian region rank in the top 5% of those vulnerable to an HIV/HCV outbreak among people who inject drugs (Van Handel *et al.*, 2016). These trends may be particularly problematic for women, for whom the association of drug use and HCV is often exacerbated by injection drug use and sharing injection drug use equipment with partners who engage in high risk behaviors (Tompkins *et al.*, 2006). Despite these associated risks, and the subsequent health care costs, research is limited in non-traditional, real world settings for drug users at high-risk for HCV, particularly in rural areas. A recent qualitative study of rural women in Kentucky jails in Appalachia found that despite knowledge associated with HCV risk, women were generally unconcerned or apathetic about the long-term consequences of infection (Staton-Tindall *et al.*, 2015b). This finding highlights the need for additional research on rural populations to identify novel and non-traditional approaches to increase treatment access.

The current study highlights the importance of the criminal justice system as a non-traditional, real-world setting to examine drug use and related health consequences such as HCV by describing the association of high-risk drug use and criminal justice consequences with HCV among rural women recruited from local jails. Jails are ideal venues to identify high-risk drug users in rural areas because a number of individuals serve time in county jails for drug use and/or drug-related offenses (e.g., Karberg and James, 2005). The criminal justice system may also prove a unique location to provide testing or informational services related to HCV given disproportionately higher rates of infection reported in United States and international samples (Butler *et al.*, 2007; Larney *et al.*, 2013; Semaille *et al.*, 2013). This study addresses three primary questions: 1) what risk factors are associated with HCV prevalence, 2) is contact with the criminal justice system related to HCV reactivity, and 3) do women testing HCV reactive differentially report barriers to utilizing health services in the community.

Methods

Participants

Participants were adult incarcerated women who were randomly selected for participation and screened as a part of larger parent study (BLINDED FOR REVIEW). Recruitment for that parent study took place in three rural jail facilities from three rural Kentucky counties in Appalachia. Women were selected for participation based on criteria including: 1) willingness to participate, 2) a score of 4 or greater for any drug on the National Institute of Drug Abuse-Modified Alcohol, Smoking, and Substance Involvement Screening Test (National Institute of Drug Abuse, 2012); 3) self-reported sexual risk behaviors in the 3

months before arrest, based on five questions from the Risk Behavioral Assessment (Wechsberg, 1998); 4) residence in a designated Appalachian county prior to incarceration; and 5) anticipated release date between 2 weeks and 3 months from screening.

Procedures

A random selection process was used at the three rural jails to recruit a sample of incarcerated, drug-using women (described in detail elsewhere; BLINDED FOR REVIEW). Briefly, randomly selected women who were eligible for participation and provided informed consent completed a baseline interview within two days of selection. Local female interviewers trained on the study protocol conducted baseline interviews at the jail. No jail staff was present for the interview process, and all data collection procedures were protected under a federal Certificate of Confidentiality and approved by the host University's Medical Institutional Review Board. A total of 400 women completed the baseline interview; however, only those with a self-reported lifetime history of injection drug use (IDU) were considered in this analysis given the robust relationship between HCV infection and IDU (see Havens *et al.*, 2013 for a similar approach). This resulted in a final sample of 277 women with a history of IDU for the present analyses.

Measures

Baseline interviews included self-reported demographic, drug-use, and health-related variables. Participants completed measures describing lifetime and recent (i.e., year before incarceration) injection drug-use practices as well as other high-risk behaviors (e.g., year before incarceration sexual activity with casual partners). Criminal justice histories included lifetime and current incarceration variables. Participants were also asked about perceived barriers to health service utilization (e.g., insurance coverage, lack of transportation).

HCV testing was conducted using OraQuick ADVANCE® Rapid HCV Antibody Test kits. Pre-test and post-test counseling followed the Centers for Disease Control protocols and all participants received their test results (Center for Disease Control and Prevention, 2013). Referrals to the appropriate agencies for continuing treatment and other health assistance, crisis intervention, and support were made.

Data Analysis

Bivariate analyses were first used to evaluate the association between an HCV reactive test and criminal justice variables, as well as other selected HCV risk factors. All bivariate analyses were adjusted for age given the inclusion of age-related predictors (e.g., ever overdosed) and the observation that older participants were more likely to test HCV reactive. Multivariable logistic models were then used to evaluate the unique relationship of criminal justice variables and other HCV risk factors with HCV reactivity. All significant variables at the bivariate level were entered and stepwise, forward elimination was used until only those variables significant at the $p < .05$ level were included (see Havens *et al.*, 2013 for a similar approach). Finally, perceived barriers to health service utilization in the community before incarceration were compared between those with and without a reactive HCV test. An exploratory analysis evaluated any differences between those aware and unaware of a reactive HCV test before entering jail (i.e., nonreactive HCV, knew had HCV before jail, and

found out had HCV while in jail). Statistical significance was set a $p < .05$ in all tests and analyses were conducted using SPSS Statistics, Version 22 (IBM Corporation, Armonk, NY).

Results

Sample Profile and HCV Testing

Women (N = 277 with a history of IDU) were an average of 31.3 (SD = 7.4) years old, mostly white (99.3%), and had approximately 11.2 years of education (SD = 2.0). At the time of the interview, 35.7% were married or living as married and 72.6% were unemployed during the six months before incarceration. Over two-thirds of the 277 participants tested reactive to the HCV antibody (69%). Only 40% of those women testing reactive had been told they had HCV before entering jail.

Risk Factors Associated with HCV

Table 1 contains comparisons of demographic, IDU, and other high-risk behaviors for those with and without positive HCV antibodies. Participants testing reactive tended to be older than those testing negative (OR = 1.04; 95% CI = 1.00, 1.08). After controlling for age, a number of lifetime IDU variables were associated with HCV reactivity. Individuals with a history of methamphetamine, heroin, and cocaine injection had a 1.95 (95% CI = 1.14, 3.33), 2.27 (95% CI = 1.30, 3.99), and 3.05 (95% CI = 1.78, 5.23) greater odds of testing reactive than those without these histories. Lifetime history of prescription opioid injection also tended to be more likely in participants testing HCV reactive (AOR = 2.20; 95% CI = 0.94, 4.35), but this relationship was not statistically significant ($p = .07$). Duration of IDU was associated with HCV reactivity, with women reporting five or more years of IDU having over a 2.5 times greater odds of testing HCV reactive (AOR = 2.66; 95% CI = 1.53, 4.61).

A majority of participants reported recent IDU (i.e., in the year before incarceration) and this did not significantly differ by HCV status (HCV Reactive = 81.6%; HCV Nonreactive = 76.7%). Risky IDU practices in the year before incarceration, including sharing dirty needles (AOR = 1.91; 95% CI = 1.12, 3.26), dirty works (AOR = 1.72; 95% CI = 1.02, 2.93), and dirty equipment with a sexual partner (AOR = 2.38; 95% CI = 1.38, 4.08), were associated with an increased odds of testing reactive to the HCV antibody. Other high-risk behaviors were also associated with HCV reactivity, including having a recent casual sexual partner (AOR = 1.74; 95% CI = 1.02, 2.95), a recent sexual partner with a history of IDU (AOR = 1.87; 95% CI = 1.04, 3.36), and ever witnessing a drug overdose (AOR = 2.17; 95% CI = 1.29, 3.65).

Three criminal justice factors were related to HCV reactivity after adjusting for age (Table 2). Participants testing reactive reported an earlier age of first arrest than those testing negative (AOR = 0.89; 95% CI = 0.83, 0.94). A longer total period of lifetime incarceration (AOR = 1.02; 95% CI = 1.00, 1.04), but not number of incarcerations (AOR = 1.00; 95% CI = 0.98, 1.02), was also significantly associated with HCV reactivity. Women with a reactive test had over twice the odds of ever being incarcerated in a prison than those nonreactive (AOR = 2.23; 95% CI = 1.02, 4.89).

The multivariable logistic regression model controlling for age included three significant variables independently associated with HCV reactivity: lifetime cocaine injection, years of IDU, and age of first arrest. Participants reporting lifetime cocaine injection had more than twice the odds of a HCV reactive test (AOR = 2.27; 95% CI = 1.25, 4.10). Years of IDU (AOR = 1.08; 95% CI = 1.00, 1.16) was positively and age of first arrest (AOR = 0.92; 95% CI = 0.86, 0.99) was negatively related to the odds of a reactive HCV test. Age was not a significant variable in this multivariable model when included as a covariate (AOR = 1.05; 95% CI = 0.99, 1.12). A sensitivity analysis was conducted with the age covariate removed and the forward selection procedure rerun. Lifetime cocaine injection (AOR = 2.18; 95% CI = 1.21, 3.94) and years of IDU (AOR = 1.07; 95% CI = 1.00, 1.15) remained significant predictors and lifetime months incarcerated (AOR = 1.03; 95% CI = 1.00, 1.05) replaced age of first arrest as a significant variable in the selected model.

Barriers to Health Services

Table 3 contains information on perceived barriers to health service utilization. The most common barriers reported were lack of insurance coverage (59.6% of all participants) and affordable medical care (56.3%). Individuals testing HCV reactive were more likely to indicate that insurance coverage (AOR = 1.69; 95% CI = 1.00, 2.84), affordable healthcare (AOR = 1.94; 95% CI = 1.15, 3.27), and service availability (AOR = 2.80; 95% CI = 1.44, 5.46) were significant barriers to health service utilization. Participants with reactive tests also tended to report limited transportation availability (AOR = 1.66; 95% CI = 0.98, 2.81) and travel distance (AOR = 1.74; 95% CI = 0.97, 3.14) as barriers, but these differences were not statistically significant (p values = .06).

An exploratory analysis of perceived barriers by HCV reactivity and awareness (i.e., nonreactive HCV, reactive HCV knew before jail, reactive HCV did not know before jail). Significance testing followed a similar pattern as the primary analysis, with a greater likelihood of insurance coverage, affordable healthcare, travel distance, and specialist availability reported as barriers in at least one of the two HCV reactive subgroups (Table 4).

Discussion

The purpose of the present study was to examine correlates of testing reactive to the HCV antibody among women who inject drugs sampled from rural jails. As expected, high-risk injection practices were significantly associated with HCV reactivity. These findings are similar to previous urban and rural research in the United States and internationally (e.g., Havens *et al.*, 2013; Lankenau *et al.*, 2015; March *et al.*, 2007; Zibbell *et al.*, 2014). For example, in another mixed-gender non-incarcerated rural sample from Appalachia, many of the same risk factors for HCV reactivity were identified, including injection cocaine use, duration of IDU, and needle sharing (Havens *et al.*, 2013). Consistent outcomes were also reported in a sample of rural injection opioid-using young adults from New York, in which sharing injection equipment was associated with increased odds of testing HCV reactive (Zibbell *et al.*, 2014). Although the present study did not identify a significant relationship with lifetime prescription opioid injection previously noted (e.g., Havens *et al.*, 2013), this might be due to a ceiling effect from the overall high rates of opioid injection (~88%). This

high prevalence of opioid injection highlights the recent phenomenon in which rural users are transitioning from oral ingestion to injecting prescription opioids and other drugs, such as heroin, when prescription opioids became more difficult to obtain (Staton-Tindall *et al.*, 2015b; Young and Havens, 2012). Collectively, these studies support several well-identified risk factors for HCV, such as dirty needle use, across geographic and demographic boundaries.

More contact with the criminal justice system was also significantly related to HCV reactive status. Specifically, an earlier age of first arrest, a longer period of lifetime incarceration, and prison incarceration were all associated with an increased odds of testing HCV reactive. Thus, rural women testing reactive were more likely to report an earlier, longer, and perhaps more extensive criminal career. When accounting for other significant factors in a multivariable model, contact with the criminal justice system remained an independent predictor of HCV reactivity. This finding is important because it suggests the relationship observed between criminality and HCV reactivity was not spurious. Similar outcomes have been described in other HCV studies conducted with incarcerated populations, including those specific to women (e.g., Barros *et al.*, 2008; Fox *et al.*, 2005; Rhodes *et al.*, 2008). A majority of the public health research in criminal justice settings has focused on state and federal prisons that detain offenders for significantly longer periods of time. However, jails may also serve as important venues to examine factors associated with HCV risk given the high turnover of inmates. For example, a previous study found female inmates in the United States (St. Louis) were three times more likely to be HCV reactive than male inmates (Wenger *et al.*, 2014). However, the HCV prevalence rate in that study was 38% for women – considerably lower than the 69% among female injectors in this rural study.

Participants endorsed a number of barriers to community health service utilization before entering jail despite a previously known or unknown need for HCV prevention and treatment medical support. In fact, a greater percentage of women testing reactive to the HCV antibody reported that insurance coverage, affordable healthcare, and specialist availability were significant barriers to community health care. Women previously aware of a HCV diagnosis still reported many of these barriers, including a limited availability of specialists. These findings are consistent with a previous study demonstrating lower rates of service utilization among rural compared to urban women in Kentucky prisons, even when service needs were consistent (Staton-Tindall *et al.*, 2007). This outcome is also concordant with a recent qualitative report evaluating perceptions of HCV service availability among incarcerated rural women that reported a perceived limited access to HCV-related services and prohibitive waiting lists and/or costs (Staton-Tindall *et al.*, 2015b). These limitations to treatment access were also accompanied by a general apathy towards the long-term consequences of HCV infection and transmission. Perceived barriers to medical services along with an indifference to long-term personal and interpersonal implications of HCV is problematic for disease progression and subsequent transmission for HCV and HIV.

Qualitative and quantitative data regarding barriers to health service utilization combined with HCV risk factors, criminal justice involvement, and rural settings point to a clear role for the criminal justice system for health services and prevention. This model could leverage the period of incarceration and community re-entry for HCV education, prevention, and

intervention. In fact, this continuum of care has been proposed and applied to the HIV epidemic with the “Seek, Test, Treat, and Retain” (STTR) model of care (Chandler *et al.*, 2015). The high proportion of HCV cases in the criminal justice system and the opportunity for following up with existing community health services during and post-release makes this approach logical (Larney *et al.*, 2014). Although implementation may prove difficult in community jails given the transitions of elected jailors, rapid turnover of inmates, and limited resources, pilot studies have successfully applied rapid HIV and HCV testing in jails and short-term correctional facilities (Beckwith *et al.*, 2012, 2016). This strategy of building on existing infrastructures may prove particularly advantageous for the rural setting, since economic distress can delay the development of new programs. By identifying unknown cases and providing information about community programs, such models applied in the criminal justice system could improve existing health care service utilization.

Several limitations of the present study must be considered. First, only rapid screening for reactivity to the HCV antibody was used rather than testing for chronic and/or active infection. Nevertheless, a reactive test indicates the presence of the HCV antibody supporting a need for treatment of current infection or prophylactic interventions designed to prevent future ones. Second, the sample was predominantly non-Hispanic white women, thereby limiting generalization to other racial or ethnic groups. Although the sample is consistent with the demographic makeup of the Appalachian region of Kentucky, future research is needed to examine if these relationships differ for other racial or ethnic minorities in other rural regions in the United States and internationally. Third, these data are cross-sectional, thereby limiting inferences about the directionality of the observed relationships. Future longitudinal studies determining factors related to seroconversion are needed.

These limitations withstanding, the present study provides important information regarding HCV risk factors, criminality justice involvement, and perceived barriers to treatment in a vulnerable population of rural women. Rural areas, such as those in the Appalachian region of the United States, have witnessed a dramatic increase in injection drug use over the past decade coupled with economic distress that places additional burden on the existing medical infrastructure. These trends and the rising rates of HCV suggest that these regions may be primed for an HIV outbreak that would further compound the public health implications (Peters *et al.*, 2016). Few studies have evaluated risk factors related to HCV in rural populations. Even fewer have focused on drug-using rural women at the nexus of the criminal justice system, for whom health risk and vulnerability remains a neglected area of study and healthcare. These issues emphasize the importance of evaluating risks related to the adverse health consequences of illicit drug use in order to recognize novel venues for intervention development and implementation. Our findings highlight this potential for criminal justice venues to identify and provide health services to promote HCV treatment and prevent future transmission.

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Table 1.

Association Between HCV Reactivity and Demographics, Injection Drug Use, and Other High-Risk Behaviors

	HCV Nonreactive (N = 86; 31%)	HCV Reactive (N = 191; 69%)	AOR (95% CI) ^a
Demographics			
Age	29.8 (7.7)	31.9 (7.1)	1.04 (1.00, 1.08) *
White	98.8%	99.5%	1.79 (0.11, 29.54)
Education (Years Completed)	11.5 (2.2)	11.0 (1.9)	0.89 (0.78, 1.01) #
Married	31.4%	37.7%	1.29 (0.74, 2.22)
Heterosexual	77.9%	74.3%	0.73 (0.39, 1.34)
Unemployed in Six Months Prior	67.4%	74.9%	1.47 (0.83, 2.57)
Perry County	23.3%	34.6%	1.62 (0.90, 2.92)
Laurel County	43.0%	33.5%	0.67 (0.40, 1.14)
Leslie County	33.7%	31.9%	0.99 (0.57, 1.72)
Lifetime Injection Risk Behaviors			
Ever Inject Prescription Opioids	83.7%	90.6%	2.02 (0.94, 4.35) #
Ever Inject Heroin	26.7%	44.5%	2.27 (1.30, 3.99) **
Ever Inject Cocaine	33.7%	61.8%	3.05 (1.78, 5.23) ***
Ever Inject Methamphetamine	55.8%	70.2%	1.95 (1.14, 3.33) *
Years Since First Injection	4.5 (4.8)	8.1 (6.6)	1.13 (1.06, 1.20) ***
5+ Years Injection Drug Use	35.3%	61.3%	2.66 (1.53, 4.61) **
Recent Injection Risk Behaviors			
Recent Injection Drug Use	76.7%	81.6%	1.50 (0.79, 2.83)
Shared Dirty Needle	52.3%	64.9%	1.91 (1.12, 3.26) *
Shared Dirty Works	51.2%	61.6%	1.72 (1.02, 2.93) *
Had Sex & Shared Injection Equipment	41.9%	58.6%	2.38 (1.38, 4.08) **
Majority of Needles from Pharmacy	15.4%	20.1%	1.30 (0.59, 2.85)
Other Recent Risk Behaviors			
Casual Sex Partner in Year Prior Jail	38.4%	49.7%	1.74 (1.02, 2.95) *
Used Drugs or Alcohol Before Sex	90.4%	90.7%	1.08 (0.44, 2.62)
Sex for Drugs/Money in Year Prior Jail	26.7%	34.6%	1.49 (0.84, 2.62)
Last Sex Partner Ever Inject Drugs	64.6%	75.6%	1.87 (1.04, 3.36) *
Last Sex Partner Ever Incarcerated	85.0%	86.2%	1.32 (0.61, 2.84)
Ever Overdosed	32.6%	41.9%	1.48 (0.87, 2.54)
Ever Witnessed Overdose	43.0%	62.8%	2.17 (1.29, 3.65) **

Note. AOR = Adjusted Odds Ratio. Recent outcomes = in the year before incarceration. Values represent %/mean (SD).

^a Adjusted for age.

 $p < .10;$

*
 $p < .05;$

**
 $p < .01;$

 $p < .001$

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Table 2.

Association Between HCV Reactivity and Criminal Justice Involvement

	HCV Nonreactive	HCV Reactive	AOR (95% CI) ^a
Criminal Justice History			
Age of First Arrest	23.3 (5.8)	21.7 (5.0)	0.89 (0.83, 0.94) ***
Arrested as a Juvenile	24.4%	15.2%	0.63 (0.33, 1.20)
Attended Juvenile Corrections ^b	61.9%	82.8%	3.29 (0.85, 12.68) [#]
Number of Incarcerations	6.5 (9.8)	6.7 (12.6)	1.00 (0.98, 1.02)
Total Months Incarcerated Lifetime	11.9 (24.9)	22.3 (29.2)	1.02 (1.00, 1.04) **
Ever Been to Prison	10.5%	23.0%	2.23 (1.02, 4.89) *
Total Days in Prison ^c	936 (983)	953 (1009)	1.00 (1.00, 1.00)
Days Current Incarceration	72.5 (105.8)	74.2 (85.6)	1.00 (1.00, 1.00)
Longer than 30 Days	53.5%	58.6%	1.26 (0.75, 2.11)

Note. AOR = Adjusted Odds Ratio.

^a Adjusted for age.^b N = 50 participants with a history of juvenile arrest.^c N = 50 participants with a history of prison incarceration.[#] $p < .10$;* $p < .05$;** $p < .01$;*** $p < .001$

Table 3.

Association Between HCV Reactivity and Perceived Barriers to Health Service Utilization

	HCV Nonreactive	HCV Reactive	AOR (95% CI) ^a
Insurance Coverage	50.0%	63.9%	1.69 (1.00, 2.84) *
Affordable Healthcare	44.2%	61.8%	1.94 (1.15, 3.27) *
Lack of Transportation	37.2%	50.8%	1.66 (0.98, 2.81) #
Travel Distance	23.3%	36.1%	1.75 (0.97, 3.15) #
Limited Availability of Specialists	15.1%	34.6%	2.82 (1.45, 5.49) **
Limited Appointments Available	19.8%	27.2%	1.46 (0.78, 2.72)

Note. AOR = Adjusted Odds Ratio with HCV Nonreactive as the reference group.

^a Adjusted for age.# $p < .10$;* $p < .05$;** $p < .01$

Perceived Barriers to Health Service Utilization by HCV Reactivity and Prior Awareness of HCV Status

Table 4.

	Insurance Coverage	Affordable Healthcare	Lack of Transportation	Travel Distance	Limited Availability of Specialists	Limited Appointments Available
HCV Nonreactive (n = 86; 31%)	50.0%	44.2%	37.2%	23.3%	15.1%	19.8%
HCV Reactive Aware (n = 77; 28%)	61.0%	59.7% [#]	53.2% [#]	44.2% [*]	39.0% ^{**}	28.6%
HCV Reactive Unaware (n = 114; 41%)	65.8% [*]	63.2% [*]	49.1%	30.7%	31.6% [*]	26.3%

Note. Comparisons with HCV Nonreactive as the reference group and adjusted for age.

[#] $p < .10$;

^{*} $p < .05$;

^{**} $p < .01$