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Correlates of Preincarceration Health Care Use Among Women and Men in Jail

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Abstract

Although women and men in jails bear a burden of health problems, little is known about factors associated with their health care use. We conducted a cross-sectional survey of preincarceration health care use with 596 jail inmates. Descriptive statistics and correlates of participants' health care use were assessed. A year before incarceration, 54% of participants used an emergency room, 24% were hospitalized, and 39% used primary care. Correlates of health care use included gender, health insurance status, and drug dependence. For participants without mental health problems, use was associated with living in neighborhoods where a higher percentage of residents did not complete high school. Findings suggest individual and community factors that can be targeted by reentry programs to improve health care use after jail.

Keywords

health care use; jail inmates; neighborhood disadvantage

Each year 13 million Americans pass through the criminal justice system, many of whom experience a disproportionate burden of infectious diseases, chronic conditions, psychological disorders, and poorer health outcomes in comparison to the general population (Binswanger, Krueger, & Steiner, 2009; Fickenscher, Lapidus, Silk-Walker, &

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Becker, 2001; Freudenberg, Moseley, Labriola, Daniels, & Murrill, 2007; Kelly, Peralez-Dieckmann, Cheng, & Collins, 2010; Lindquist & Lindquist, 1999; Teplin, Abram, & McClelland, 1996). The majority of those under correctional supervision in the United States are poor, undereducated, from racial/ethnic minority groups, and from disadvantaged urban neighborhoods, all of which are associated with poor health outcomes (James, 2004). These health vulnerabilities are exacerbated during incarceration and the transition from jail to community, since most jails provide only acute care and rarely coordinate with services provided preincarceration or at reentry (Binswanger et al., 2011). To better understand the health vulnerabilities of women and men with criminal justice involvement, our goal was to analyze patterns and correlates of health care use prior to incarceration, with a specific focus on both individual and community factors associated with use.

Ninety-five percent of incarcerated people leave criminal justice facilities after varying lengths of stay. The length of stay in local jails, which hold people awaiting trial or sentencing and those with sentences under a year, could be as little as 48 hours; many women and men serve brief sentences of days, weeks, or months (James, 2004). It is estimated that half of people leaving jails will return to jail within 1 year (Freudenberg, Daniels, Crum, Perkins, & Richie, 2008). Especially for the population of repeat offenders, jails serve as a continuum-of-service interruption that makes it difficult for people to successfully address health conditions. For example, jails, as opposed to prisons, may provide a brief opportunity for acute care, but is rarely preventive or coordinated with community-based care. Given the cycling between jails and communities without continuity of care or ongoing prevention, individuals face limited opportunities for health stability, social capital, and health equity in the high-need and disadvantaged communities from which many with criminal justice involvement come.

Health Care Use Among Prisoners

Health care use can be divided into three types of services: emergency department use, hospitalizations, and primary care visits. Emergency department visits may be an indication of lack of continuous care, and hospital-based care is costly and usually used to address serious medical conditions. Primary care visits, however, generally indicate continuity of care and the potential availability of a medical home. The literature has shown that predictors of emergency department use among women and men both after release from prison and in their lifetimes included older age, being White, being married, and having poor health status (Leukefeld et al., 2006; Webster et al., 2005). The same factors have been associated with hospitalizations (Leukefeld et al., 2006; Webster et al., 2005), with one researcher finding that rural prisoners had more hospital admissions preincarceration compared to urban prisoners (Staton-Tindall, Duvall, Leukefeld, & Oser, 2007). Predictors of primary care use after incarceration in one sample of HIV-positive prisoners included taking medications, no alcohol use, and stable housing situations (Harzke, Ross, & Scott, 2006).

Although these studies give us a picture of health care use among people with criminal justice involvement, they do not flesh out the interrelationships between individual and community factors in determining health care use for this vulnerable population with

frequent transitions between jail and community. Our goal in this study was to test the hypothesis that net of individual factors, community factors preincarceration would be associated with patterns of health care use. Previous studies have found significant associations between community factors and health status (Brouillette, Horwood, Constantin, Brown, & Ross, 2011; Fish, Ettner, Ang, & Brown, 2010; Freedman, Grafova, & Rogowski, 2011) and demonstrate that among people without criminal justice involvement, community factors such as residential instability and social capital may be related to health care access (Derose & Varda, 2009; Kirby & Kaneda, 2005). One study found that among women with criminal justice involvement, fear of being a victim of neighborhood violence is associated with use of primary care services for reproductive health screening (Ramaswamy, Kelly, Koblitz, Kimminau, & Engelman, 2011).

To develop the area of study that links individual- and community-level factors associated with health care use patterns of jail inmates (a group with frequent transitions between jail and community), we used Andersen's Behavioral Model of Health Services Use in one of its most recent iterations (Andersen, 1995) to theorize and test the relationships among variables associated with health care use. The model was originally designed as a conceptual model to illustrate the factors related to health services use, with an emphasis on predisposing factors (e.g., age and gender), enabling factors, and need (e.g., health status). The latest iteration of the model included environmental and population characteristics that Andersen argued also influence use of health services. This theoretical framework enabled us to focus on population characteristics, that is, the individual-level factors such as drug use, mental health problems, and extent of criminal justice involvement, which are problems that disproportionately burden this group. Use of this model also enabled us to consider the specific effect of community—with a focus on social environment and neighborhood disadvantage—since much of our sample's experience is about the poor communities through which jailed women and men cycle. Ultimately, use of this model would point to areas for interventions that connect women and men with criminal justice involvement to coordinated and continuous health services.

Thus, the objective of this study was to examine the patterns of preincarceration health care use in a sample of women and men in county jails, with a focus on the contribution of both individual and community factors associated with this use.

Methods

Over a 6-month study period in 2010, we conducted a cross-sectional survey of health care use with a sample of 596 volunteers from three urban jails in the greater Kansas City metropolitan area (with one facility on the Missouri side of the state line and two on the Kansas side). Since only 10% of the average daily population was female, we oversampled females so that we would have roughly equal numbers of women ($n = 290$, 49%) and men ($n = 306$, 51%).

Procedures

Participants were recruited with fliers posted at the facilities and through word-of-mouth recruitment in each housing unit by the special programs coordinators. On any given day,

about 1,900 women and men, total, were housed in the three facilities. All women and men in the facilities were eligible and invited to participate, although only those who volunteered were included as potential participants. Recruitment of the sample occurred on an ongoing basis over a 6-month data collection period, depending on the number of women and men willing and able (e.g., not making a court appearance) to participate and on the interviewers' schedules (we completed between 5 and 25 interviews on any given day). Given the turnover of inmates at the jails and interviewers' limited recruitment schedules, it was not possible to ascertain the number of potentially eligible participants on any given day. Although we do not know how volunteers differed from those who did not volunteer, the distributions of age, race, and ethnic characteristics of the study sample were similar to those of women and men in the three jails.

Interviewers read a standardized recruitment script and consent form to each potential participant in English. After the participants signed the informed consent document and agreed to participate in the study, an interviewer conducted a face-to-face survey in English. All interviews were conducted in semiprivate spaces at the jail, with interviewer and participant on either side of a table. A correctional officer or the special programs coordinator stood about 20 feet away during the interviews. Each participant was given a \$5 credit or gift basket with snacks and hygiene products of equivalent value to his or her commissary account in the facility as compensation for participation. The protocol for this study was approved by the University of Kansas City–Missouri Institutional Review Board with a memorandum of agreement from the University of Kansas Medical Center's Institutional Review Board.

Variables

We looked at the relative contribution of individual and community characteristics to health care use prior to incarceration. Primary outcomes of interest were emergency room (ER) use in the 1 year prior to incarceration, hospitalization overnight or longer in the year prior to incarceration, and primary care use, which we defined as having been to any sort of clinic for a checkup, medical problem, or an injury, not counting ER visits, in the year prior to incarceration. We did not assess use of urgent care clinics specifically.

Independent variable selection was guided by Andersen's Behavioral Model of Health Services Use (Andersen, 1995), with the following categories and variables. Predisposing characteristics were gender; race; high school education or GED; and criminal justice history, which we defined as lifetime number of arrests and lifetime number of months spent in jail or prison. Enabling characteristics were employment full-time, part-time, or on and off; having health insurance, including private health insurance, Medicaid, Medicare, or some other type of health insurance coverage; having a primary care provider, which we defined as having a personal doctor or nurse who knows you best. Need was defined as drug dependence, which we assessed using *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (Compton, Grant, Colliver, Glantz, & Stinson, 2004) criteria. For example, participants were asked six questions about drug use in the year before incarceration, such as "Did you need to use more drugs to get the same high as when you first started using?" If participants answered "yes" to three of the six criteria, they were

classified as “drug-dependent.” Mental health diagnosis, our second variable measuring need, was defined as ever having been told by a clinician that the participant had depression, anxiety, schizophrenia, or bipolar disease. Environmental or community characteristics included perceived social capital, which we assessed with a 10-item measure that had questions about participants’ level of trust in neighbors, the feeling that neighbors would help them, that the neighborhood had prospered, and an overall assessment of neighborhood safety (Hjollund & Svendsen, 2000). Responses were reported on a 4-point Likert-type scale of *strongly disagree*, *disagree*, *agree*, or *strongly agree*. Higher mean scale scores indicated greater social capital within a neighborhood. We assessed trust in institutions by asking participants how much confidence they had in the legal system, the police, and the government, with possible responses on a 4-point Likert-type scale of *no confidence at all*, *not very much*, *quite a lot*, or *a great deal* (Hjollund & Svendsen, 2000; Inglehart, Basanez, & Moreno, 1998). Higher mean scale scores indicated greater trust in institutions. We assessed fear of neighborhood with the question, “In the neighborhood where you lived before being incarcerated, were you afraid you would be hurt by violence?” (Wright et al., 2004). Participants reported whether they were afraid all of the time, most of the time, a little bit of the time, or none of the time. Higher scores indicated less fear of neighborhood violence. We assessed perception of level of neighborhood violence by asking whether participants had heard about a fight in which a weapon was used, a violent argument between neighbors or friends, a gang fight, a robbery or mugging, or a murder in the 6 months prior to each person’s incarceration (Sampson, Raudenbush, & Earls, 1997; Wright et al., 2004). We computed a summary score across types of violence, where higher scores indicated a greater perceived level of neighborhood violence. Finally, we assessed victimization by neighborhood violence with the question, “In the neighborhood where you lived before being incarcerated, did anyone ever use violence, such as a fight (hitting, pushing, and shoving), against you or any member of your family?”

In addition to these individual-level measures of perception of community, we included an assessment of zip code–level community characteristics, with an emphasis on indicators of disadvantage. We asked each respondent to report the last zip code in which they lived prior to incarceration. For each zip code reported, we used the American FactFinder tool from the Census Bureau’s 2000 data to collect the following as indicators of disadvantage: percentage of persons with unemployment in each zip code, percentage of residents living below poverty, percentage of residents over 25 years of age with less than a high school diploma or GED, percentage of residents reporting moving within the past 5 years, percentage of non-Hispanic White residents, and percentage of single mothers (American Fact Finder, 2000). At the time of data collection, detailed population characteristics from 2010 (e.g., unemployment, poverty, high school attainment) were not available for analysis.

Data Analysis

Stepwise selection procedures were implemented in order to build logistic regression models of ER use 1 year prior to incarceration, hospitalization 1 year prior to incarceration, and primary care use 1 year prior to incarceration. The independent variables that were initially included in models were having health insurance, having a primary care provider, gender, race, high school education, drug dependence, having a mental health diagnosis, perceived

social capital, trust in institutions, fear of neighborhood, perception of level of neighborhood violence, victimization by neighborhood violence, number of arrests, and number of months spent in jail or prison. The following community/zip code-level variables were also explored: the percentage of unemployed people in the zip code, percentage of population below the poverty level in the zip code, percentage of population not completing high school nor GED in the zip code, percentage of population moving into the zip code during 1995 to 2000, percentage of non-Hispanic White residents in the zip code, and percentage of single mothers in the zip code.

The reported logistic regression models were fitted using Proc SurveyLogistic of SAS 9.2 (SAS Institute Inc., Cary, NC), which computed standard errors according to the gender-stratified sampling scheme used to recruit participants.

Results

The mean age of the sample was 34.7 ($SD = 10.8$). Participants were mostly White, non-Hispanic (41%) or Black, non-Hispanic (42%). Sample characteristics are described fully in Table 1.

Emergency Room Use in the Year Prior to Incarceration

Fifty-four percent of the sample reported a visit to the ER in the year prior to incarceration (females, 65.0%; males, 42.7%; Table 1). The final logistic regression model of ER use is in Table 2. In the final logistic regression model, having a mental health problem diagnosis and the percentage of people who did not complete high school in the respondent's community/zip code were significantly associated with ER use. There was a significant interaction between the individual-level variable of mental health problem diagnosis and community/zip code high school noncompletion ($p = .04$, Table 2). To clarify the meaning of this interaction, odds ratios (OR) measuring the association between high school noncompletion and ER use were separately reported for participants who had and participants who did not have a mental health problem diagnosis. Among participants with no mental health diagnosis, higher rates of high school noncompletion in their zip code were associated with higher odds of using the ER in the year prior to incarceration. For these participants, a 1% increase in the number of people with less than high school education in a particular community/zip code was associated with a 7% increase in the odds of reporting using the ER in the year prior to incarceration ($OR = 1.07$, 95% confidence interval, CI [1.01, 1.1]). In contrast, among people who reported a mental health diagnosis, the odds of using the ER in the year prior to incarceration was not significantly affected by the education level in their zip code (95% CI [0.93, 1.04]; Table 2). Females were also more likely to use the ER in the year prior to incarceration ($OR = 1.97$, 95% CI [1.3, 3.0], $p = .002$).

Hospitalizations in the Year Prior to Incarceration

Twenty-four percent of the sample reported a hospitalization overnight or longer in the year prior to incarceration (females, 31.4%; males, 17.5%; Table 1). The final logistic regression model of hospitalization included the following significant independent variables: having

health insurance, gender, having a mental health problem diagnosis, and the percentage of people who did not complete high school in the respondent zip code (Table 3). Similar to the model for ER use, there was a significant interaction between having a mental health problem diagnosis and the percentage of people who did not complete high school in the respondent zip code ($p = .03$). Among people who did not report having a mental health problem diagnosis, higher rates of not having a high school education in their zip code were associated with higher odds of being hospitalized in the year before incarceration. A 1% increase in the number of people with less than a high school education in a particular zip code was associated with a 9% increase in the odds of reporting a hospitalization in the year prior to incarceration ($OR = 1.09$, 95% CI [1.02, 1.2]). In contrast, the odds of being hospitalized among people who reported having a mental health diagnosis were not significantly affected by the education level in their zip code (95% CI [0.91, 1.04]). Females were more likely to be hospitalized in the year prior to incarceration ($OR = 1.7$, 95% CI [1.002, 2.9], $p = .049$). The odds of having been hospitalized in the year prior to incarceration were two times higher in people who had health insurance ($OR = 2.0$, 95% CI [1.04, 3.8], $p = .04$).

Primary Care Use in the Year Prior to Incarceration

Thirty-nine percent of the sample reported seeing a primary care provider in the year prior to incarceration (females, 42.4%; males, 35.0%; Table 1). The final logistic regression model of primary care use included having health insurance, drug dependence, and having a mental health problem diagnosis as significant independent variables (Table 4). Participants who indicated they had health insurance were more likely to use primary care ($OR = 2.0$, 95% CI [1.2, 3.5]). The odds of using primary care among those with drug dependence were 44% lower compared to those who were not drug dependent ($OR = 0.56$, 95% CI [0.31, 0.99]). A self-report of a mental health problem diagnosis was associated with a 90% increase in primary care use compared to those who did not report a mental health diagnosis ($OR = 1.9$, 95% CI [1.1, 3.3]).

Discussion

Our analysis found that at the individual level, factors such as gender and having health insurance were associated with hospital-based health care use, that is, ER visits and hospitalization. The one community-level variable that was significantly associated with both of these uses of health care was the percentage of residents with low educational status in a zip code. There was an interesting interaction between individual- and community-level variables, however, which was that ER use and hospitalizations were significant only for the group of participants without a mental health diagnosis and living in a neighborhood with low educational status. Factors associated with primary care use included having health insurance, not reporting drug dependence, and having a mental health diagnosis. Thus, we found that although community-level factors may have a role in health care use patterns, individual-level factors such as gender, health insurance status, drug dependence, and mental health diagnosis history were important correlates of preincarceration health care use for our sample.

Our findings support Andersen's Behavioral Model of Health Services Use, as well as the literature on health care use patterns among people with criminal justice involvement (Andersen, 1995; Harzke et al., 2006; Leukefeld et al., 2006; Webster et al., 2005), that is, predisposing characteristics such as gender, enabling resources such as having health insurance, and need (in this study's case, mental health and drug problem histories, which suggest the need for specific kinds of treatments) are associated with several types of preincarceration health care use among women and men in jail. Andersen's goal in developing a model of health care use was to provide a framework through which researchers could empirically assess the multiple levels of influence on patterns of health service use. Such an explanation might lead ultimately to intervention on the most mutable and modifiable components of the model.

The model, however, fails to explain our finding that low educational status at the community level is associated with health care that is used for emergency and more serious conditions, but only for those without mental health problems. Low educational status at the community level could be a proxy for community-level social capital (Bourdieu, 1986), which has been associated with both health outcomes and health care access (Chuang, Ennett, Bauman, & Foshee, 2005; Kirby & Kaneda, 2005). It could also signal lack of investment by the health care sector in poor, disadvantaged communities where the economic capital of residents is compromised by their collective educational status. It is interesting, however, that other potential associations with social capital variables were not significant and suggest the need to repeat this study with other populations. Our finding that community matters only for those without mental health problems can perhaps be explained by the magnitude of the mental health burden on inmates. Mental health as an indicator of health need may determine the relative impact of community on health care use for this group of women and men. Given that one national study found that 64% of people in the jails had a mental health problem (James & Glaze, 2006), the burden unique to this population is significant and perhaps more significant than any community-level factors.

We found that our sample of jailed women and men use costly health care services in the community at higher rates than the general population, reflecting their health need and lack of access to appropriate types of care. In the general population, 21% of adults used an emergency department for care in 2009, 7% had a hospital stay, and 55.9% had a visit to an internal medicine or family practice physician (National Center for Health Statistics, 2012). Our rates of ER use and hospitalization were about twice that of the general population, whereas use of primary care services was only half that of the general population, a finding reflected in another study of people with criminal justice involvement (Hawkins, O'Keefe, & James, 2010).

One of the primary limitations of this study is the relatively small sample size from which we might generalize our results. Second, we recruited only volunteers for this study. Due to this selection bias, our volunteers may have been better connected to programming and/or staff at the jail, more comfortable with medical researchers, and thus more connected to health care services in the community, compared to those that didn't volunteer for the study. Third, the data collected in this study were from 2010, but complete Census data for 2010 were not yet available at the time of data collection and analysis. So our study tests

associations between 2000 zip code–based data and 2010 participant data. Finally, our study was not longitudinal in design and so could only demonstrate associations between participant characteristics and health care use patterns.

The implications of this study at the individual level include more focused efforts to reconnect people to health insurance and gender-specific health care (mental health and substance abuse in particular) upon release from jail. Many jurisdictions terminate rather than suspend Medicaid benefits (National GAINS Center, 2002), a consequence of which included higher rates of rearrest in one study (Lee, Vlahov, & Freudenberg, 2006), let alone discontinuation of important medical care. Reconnecting to these services upon release from jail can often take months, prohibiting people from making planned health care visits that are covered by insurance. Indeed, Andersen argued that interventions would do well to target mutable factors in health care use, with enabling factors, such as health insurance, being highly mutable in theory (Andersen, 1995).

Interventions that connect women with criminal justice histories to health care services might address the gender-specific and unique needs of this population of women, such as providing child-care, addressing sexual violence and victimization histories, and providing treatment for depression and other mental health problems, which can improve overall treatment (Bloom, Owen, & Covington, 2003; Hanke & Faupel, 1993; Marsh & Miller, 1985; Wells & Bright, 2005). Such interventions would also address the relationship between mental health and substance abuse problems with health care use.

At the community level, structural interventions might be designed to build community infrastructure, especially in those already disadvantaged communities where many incarcerated people return. In Kansas City, half of our participants cluster in 13 of the poorest neighborhoods. Having large numbers of community members moving in and out of jails and prisons means that many of the already disadvantaged neighborhoods people return to bear the burden of incarceration and its unintended consequences (James & Glaze, 2006), including the undermining of positive social norms and values, the facilitation of disorganization, disruption of family and social networks, and reduced social cohesion (Taxman, Byrne, & Pattavina, 2005). Working to improve the infrastructure of these communities at the level of health care, employment, education, and housing, for example, makes sense as a targeted approach to community intervention for the neighborhoods to which incarcerated people return (Draine, McTighe, & Bourgois, 2011). At the individual level, helping people with criminal justice involvement better navigate their communities may have implications for health service use as well as other social outcomes. These interventions, though, would have to address the unique needs of people with criminal justice histories, notably their significant mental health problems and the burden of long drug use histories.

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Table 1

Characteristics of the Sample.

Variable	Males, <i>n</i> = 254 ^a	Females, <i>n</i> = 244 ^a
ER use, %	42.7 (108/253)	65.0 (158/243)
Hospitalization, %	17.5 (44/252)	31.4 (76/242)
Primary care use, %	35.0 (89/254)	42.4 (103/243)
Gender, %	51.0	49.0
Race, %		
White, non-Hispanic	38.6 (96/249)	41.5 (100/241)
Black, non-Hispanic	46.6 (116/249)	43.2 (104/241)
Hispanic	9.24 (23/249)	7.5 (18/241)
Other	5.6 (14/249)	7.9 (19/241)
High school education, %	72.3 (183/253)	68.4 (167/244)
Lifetime arrests, mean (<i>SD</i> , <i>n</i>)	12.6 (16.0, <i>n</i> = 236)	8.63 (12.4, <i>n</i> = 206)
Lifetime month in jail/prison, mean (<i>SD</i> , <i>n</i>)	43.3 (56.9, <i>n</i> = 244)	17.3 (30.5, <i>n</i> = 219)
Employment, %	64.4 (161/250)	37.9 (91/240)
Health insurance, %	40.2 (101/251)	44.3 (104/241)
Primary care provider, %	29.9 (76/254)	44.3 (108/244)
Drug dependence, %	45.1 (87/193)	56.1 (110/196)
Mental health diagnosis, %	33.1 (83/251)	62.3 (152/244)
Perceived social capital, mean (<i>SD</i> , <i>n</i>)	2.6 (0.44, <i>n</i> = 252)	2.53 (0.48, <i>n</i> = 241)
Trust in institutions, mean (<i>SD</i> , <i>n</i>)	2.04 (0.77, <i>n</i> = 240)	2.08 (0.81, <i>n</i> = 227)
Fear of neighborhood violence, mean (<i>SD</i> , <i>n</i>)	3.58 (0.86, <i>n</i> = 253)	3.52 (0.88, <i>n</i> = 213)
Perception of level of neighborhood violence, mean (<i>SD</i> , <i>n</i>)	1.31 (1.61, <i>n</i> = 249)	1.25 (1.52, <i>n</i> = 240)
Victimization by neighborhood violence, %	24.9 (53/249)	22.4 (53/237)
Unemployment, ^b mean (<i>SD</i>)	3.6 (1.9)	3.9 (1.8)
Poverty, ^b mean (<i>SD</i>)	15.3 (11.0)	17.7 (11.4)
High school attainment, ^b mean (<i>SD</i>)	13.2 (7.0)	15.0 (6.8)
Residential stability, ^b mean (<i>SD</i>)	19.2 (4.5)	19.5 (5.2)
Racial/ethnic heterogeneity, ^b mean (<i>SD</i>)	53.9 (29.6)	48.3 (29.2)
Single parent households, ^b mean (<i>SD</i>)	6.0 (12.5)	6.7 (13.6)

^aSome questions were not answered by all participants. Thus, the denominators used to compute percentages may not be equal to the total sample size.

^bThese rates correspond to the zip code (data from Census 2000) where the person lived before incarceration and an average across participants is reported.

Table 2Logistic Regression Model of Emergency Room Use in the Year Prior to Incarceration.^a

Variable	Odds Ratio	95% Confidence Interval	p Value
Female	1.97	[1.3, 3.0]	.002
Mental health diagnosis			.001
Zip code high school noncompletion ^b			.02
No mental health problem diagnosis	1.07 ^c	[1.01, 1.1]	
Mental health problem diagnosis	0.98 ^d	[0.93, 1.04]	
Interaction of mental health diagnosis and zip code high school noncompletion			.04

^aHosmer-Lemeshow goodness-of-fit test, $p = .4$.

^bPercentage of people who did not complete high school in respondent zip code.

^cOdds ratio measuring the effect of zip code high school noncompletion on ER use for participants without a mental health diagnosis.

^dOdds ratio measuring the effect of zip code high school noncompletion on ER use for participants with a mental health diagnosis.

Table 3Logistic Regression Model of Hospitalization in the Year Prior to Incarceration.^a

Variable	Odds Ratio	95% Confidence Interval	p Value
Subject has health insurance	2.0	[1.04, 3.8]	.04
Female	1.7	[1.002, 2.9]	.049
Mental health diagnosis			.006
Zip code high school noncompletion ^b			.02
No mental health problem diagnosis	1.09 ^c	[1.02, 1.2]	
Mental health problem diagnosis	0.98 ^d	[0.91, 1.04]	
Interaction of mental health diagnosis and zip code high school noncompletion			.03

^aHosmer-Lemeshow goodness-of-fit test, $p = .3$.

^bPercentage of people who did not complete high school in respondent zip code.

^cOdds ratio measuring the effect of zip code high school noncompletion on ER use for participants without a mental health diagnosis.

^dOdds ratio measuring the effect of zip code high school noncompletion on ER use for participants with a mental health diagnosis.

Table 4Logistic Regression Model of Primary Care Use in the Year Prior to Incarceration.^a

Variable	Odds Ratio	95% Confidence Interval	p Value
Subject has health insurance	2.0	[1.2, 3.5]	.01
Subject indicated drug dependence	0.56	[0.31, 0.99]	.047
Mental health problem diagnosis	1.9	[1.1, 3.3]	.03

^aHosmer-Lemeshow goodness-of-fit test, $p = .96$.

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