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The Effect of Incarceration on Fathers' Health

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Abstract

Recent substantial increases in incarceration ensure that a large number of families and communities are impacted by the criminal justice system. Research across disciplines demonstrates the negative consequences of incarceration on employment, wages, family formation and more recently, health. This study uses the Fragile Families and Child Wellbeing dataset to examine the effect of incarceration on a group of urban fathers. I find improved health associated with recidivists and large increases in the odds of medication usage for physical and mental health problems among the incarcerated. A history of incarceration increases the odds by more than half that a father will require on-going medications. These mixed results suggest short term benefits of second incarceration by either providing mandated care where none might have existed or perhaps confining fathers who might have been in unhealthy or dangerous situations while free. Taken together, these analyses suggest that incarceration exerts both long and short term effects on health.

Introduction

Current trends in incarceration are striking with nearly 1.5 million people behind bars in local jails, state and federal prisons (Harrison and Beck, 2005). Holzer, Raphael and Stoll (2005) estimate that if current trends in incarceration continue, 9 percent of all men in the United States can expect to spend some time in federal or state prisons. These estimates, however, vary markedly by race and ethnicity with estimates for black men as high as 30 percent and 16 percent for Hispanic men spending some time in prison during their lifetimes. Travis (2001) estimates approximately 600,000 individuals will be released from federal and state prisons each year, the majority of those released are male, black or Hispanic, poorly educated, non-violent offenders with a history of substance abuse. Incarceration is also clearly a family affair with more than half of inmates reporting they have at least one child younger than 18, 93 percent of these incarcerated parents are fathers (From Prison to Home Conference, 2002). Since incarceration rates are disproportionately affecting disadvantaged black and Hispanic men, many of whom are parents, the impact of incarceration on these fathers' health is an important and pressing question for low-income, urban families' well-being.

Research confirms that fathers who have been incarcerated face markedly more barriers in terms of labor market opportunities, reduced earnings and family formation (Lewis, Garfinkel & Gao, 2007, Curtis, 2007, Geller, Garfinkel & Western, 2006; Western, Lopoo & McLanahan, 2004). The impact of incarceration on low-income, urban fathers' health is largely unexamined but may prove to be particularly important. Health is a vital component in family well-being often overlooked for low-income, urban fathers. Labor market opportunities, parenting tasks and familial living are all impacted

by the ability of both parents to function in their assigned roles. Fathers with poor health are more likely to have labor market difficulties, excessive expenses and may be forced to make trade-offs between medications and other goods.

Studies focusing on the physical and mental health of the prison population documents large unmet and chronic health needs within this population (Patillo, Weiman, Western, 2004; Delgado and Delgado, 2006) Rates of drug and alcohol use as well as mental or emotional conditions requiring an overnight psychiatric stay are disproportionately high (Mumola, 1999; Hammett, Roberts, Kennedy, 2001; Ditton, 1999). The prison population also has markedly higher rates of HIV and hepatitis C than the general population while time spent in prison exposes inmates to a number of highly contagious communicable diseases like HIV, tuberculosis, gonorrhea, Hepatitis B and Hepatitis C (Hammett, 2000; Maruschak, 2001; Fitzgerald et. al, 1984). Environmental researchers have also noted that prisons are often built on sites “contaminated by hazardous industrial waste” suggesting the structural prison environment may pose potential health risks as well (Taylor, p. A85, 2003).

Upon release, inmates return to their home communities and families, perhaps in poorer health than before incarceration. Communities with large numbers of returning prisoners may be at increased risk of poor health and inadequate social services to attend to prisoner re-entry (Freudenberg, et. al, 2005; 2007). On the other hand, health care for these fathers prior to incarceration may be non-existent or sporadic due to limited employer benefits or difficulty qualifying for public health benefits. Prison may be the first time a father receives mandated, consistent care. On average, inmates report more health problems and infirmity visits than the general population (Glaser, Greifinger,

1993). It is not clear whether this pattern is due to inmates' overall less healthy status or pent up demand for healthcare services unavailable prior to incarceration.

Although informative, this research does not offer direct evidence about how incarceration affects fathers' long term health status. The link between research about prisoner health and consequences of incarceration on health and mental health over time is beginning to appear in the literature (see Schnittker & John, 2007 and Massoglia, 2008). The impact of these unmet health needs in the prison population and within the context of family functioning is not clear. Much prior research on incarceration tends to focus on offenders exclusively and often lacks data linking inmates with partners and other contextual variables important in understanding health status.

The Fragile Families and Child Wellbeing (FFCWB) longitudinal study is particularly well suited to an analysis of the effects of incarceration on father's health. Self-reported incarceration history is commonly underreported in survey data (Golub et al, 2002). These data provide for a fuller measure of incarceration status using both self-reports from fathers as well as reports from the mothers' of their most recent child. This will provide a more accurate measure of incarceration status. The largest concern in estimating the impact of incarceration on fathers' health is teasing out factors that are associated with both poor health and incarceration. Since fathers with more social disadvantages (low education, inconsistent work history, substance use, pre-existing poor health and impulsivity) are more likely to experience incarceration, measuring the impact of incarceration on health may not reveal anything about incarceration and everything about selection into incarceration. Controlling very some of these important observable factors is necessary. The FFCWB data include a rich set of covariates often unobserved

in other data and certainly unavailable in studies focusing on prisoners. The ability to control for a number of observable characteristics will more fully isolate the impact of incarceration on health status. Unobservable factors associated with both poor health and incarceration is, of course, still possible. An instrumental variable estimation allows for a causal examination of the impact of incarceration on health outcomes.

Nearly half of the unwed fathers in the FFCWB data have a history of incarceration by the third year of the survey, while nearly half of these mothers report a continuing relationship with the fathers over time (Curtis, 2007). It is clear that incarceration is an undeniable element in these families' lives. It is unclear how incarceration affects fathers' health and therefore their ability to resume roles in both family and community.

Incarceration, Fragile Families and Health

A number of studies using the FFCWB data have focused on the social consequences of incarceration and detail the myriad difficulties these fathers face upon release. Findings suggest reduced earnings, higher levels of unemployment and reduced family formation (Lewis, Garfinkel & Gao, 2007, Curtis, 2007, Geller, Garfinkel & Western, 2006; Western, Lopoo & McLanahan, 2004). Public health research examining the social and health consequences of incarceration on both individuals and returning communities find marked re-entry difficulties complicated by poor health (Freudenberg, et. al, 2005; 2007). These re-entry studies are not designed to examine the existence of a causal link between incarceration and health but rather to describe the variation and unmet need among the re-entering population. Massoglia (2008) and Schnittker and John (2007), use data from the National Longitudinal Survey of Youth (NLSY) to determine

the impact of incarceration on health outcomes. Schnittker and John (2007) offer a number of different specifications, varying in stringency, to evaluate the effect of incarceration on severe health impairments. Controlling for age, schooling, intelligence, drug use, family income and marital status they find that a history of incarceration is positively associated with severe health impairments while current incarceration is negatively associated with this outcome. This incarceration “health boost” is found among the currently incarcerated who have been previously incarcerated. This result may be an effect of the prison healthcare system. Taken as a whole, however, in both random effects models and fixed effects models, incarceration is positively associated with poor health outcomes. Massoglia (2008) finds consistent patterns of positive association between incarceration (current and history) and stress related or communicable infectious diseases.

When considering the impact of incarceration on fathers’ health literature offers two distinct and opposite suggestions about outcomes. Some research suggests the prison environment (stressful, violent, environmentally degraded, communicable diseases) will diminish inmates’ health while other research suggests that mandated care and increased care seeking by inmates may offer an improvement in health for those inmates who had no access to care before incarceration. Reviewed empirical results suggest a partial affirmation of both a priori assumptions. Overall, incarceration is associated with poor long-term health outcomes and higher rates of disease while some positive health effects are noted for recidivists.

Data and Methods

The FFCWB study is a national survey that provides longitudinal information about a birth cohort of 3,712 children born to unmarried parents as well as a comparison group of 1,186 children born to married parents, in 75 hospitals in twenty U.S. cities with populations of 200,000 or more and is representative of all unwed births in large cities when weighted.¹ Parents were interviewed in the hospital shortly after their child's birth and approximately one year, three years and five years later. The next follow-up interview is planned when the child is about 7 years old. Baseline interviews took place for 13 of the cities in 2000, 5 of the cities in 1999 and 2 of the cities in 1998.² This dataset was constructed to allow researchers to understand the challenges and capacities facing a representative sample of mostly unwed urban parents. Surveys are conducted with both parents yielding important information about the lives of a group of urban, largely unwed fathers often unobserved in other data. These data are uniquely qualified to address the impact of incarceration on health in an understudied group of urban fathers.

The sample used in this analysis consists of all fathers whose incarceration history can be observed at the three year survey and whose health status can be observed at the five year survey. At the five year interview, the response rate for father interviews is 82%. Of the 3,154 fathers who can be observed at five years, 2,869 contain data on both recent incarceration and health status. The 285 dropped cases are no more likely to have ever been incarcerated and most closely resemble fathers who have been incarcerated;

¹ Austin, TX; Baltimore, MD; Boston, MA; Chicago, IL; Corpus Christi, TX; Indianapolis, IN; Jacksonville, FL; Nashville, TN; New York, NY; Norfolk, VA; Philadelphia, PA; Pittsburgh, PA; Richmond, VA; San Antonio, TX; San Jose, CA; Toledo, OH; Detroit, MI; Milwaukee, WI; Newark, NJ and Oakland, CA.

² Corpus Christi, Indianapolis, Milwaukee, New York, San Jose, Boston, Nashville, Chicago, Jacksonville, Toledo, San Antonio, Pittsburgh and Norfolk baseline interviews occurred in 2000; Baltimore, Detroit, Newark, Philadelphia and Richmond in 1999 and Oakland and Austin in 1998.

less likely to be insured, working and married with overall lower education levels. Since dropped cases are a relatively less advantaged group, analysis results may represent a lower bound of the impact of incarceration on health outcomes. Information from fathers' baseline, one-year, three-year and five-year interviews is used to construct covariates. Information from mothers' baseline, one-year, three-year and five-year interviews are used to supplement missing data on race/ethnicity, age, education and marital/cohabitation status.³

Measures

Incarceration Status

The incarceration measures available in the father surveys are self-reported and retrospective. Mothers were also asked about fathers' incarceration history offering an added measure to assist with assumed underreporting by fathers. Analyses look at incarceration in several ways, most simply, ever incarcerated. If either the father or the mother report, by the five year survey, that a father has ever served time he is considered "ever incarcerated". The first analysis explores health status and medication usage using ever incarcerated versus never incarcerated. This dichotomous incarceration variable offers a first test of the impact of incarceration status on health outcomes. The second measure of incarceration takes a different approach by measuring recent incarceration. Recent incarceration is defined as whether the father or mother report father was incarcerated at the three year survey. If incarceration creates a negative "health shock" then recent incarceration should be associated with poorer health, however, if incarceration provides health care to an otherwise uncovered group, fathers may

³ Respondents with missing data on covariates are retained in all analyses and the percent of missing are shown in Table 1. In the regressions, a dummy variable is used to signify that there is missing information on a given covariate.

experience a health boost from a recent incarceration as found by Schnittker and John (2007). Although ever incarcerated and recent incarceration or helpful, it may matter whether the recent incarceration is the first or the second of numerous incarcerations. The third measure of incarceration addresses this possibility by creating a four level variable using both mother and father reports: first incarceration at 3 year, at least second incarceration at 3 years, incarceration history but not at 3 years versus never incarcerated. This measure is constructed to capture some of the variation in the ever incarcerated sample of fathers.⁴

Health Outcomes

This analysis focuses on two health outcomes, whether father reports being in fair/poor health at the five year survey and whether he reports regularly taking prescribed medications for either physical or mental health problems. Self-reported health is a robust indicator of health status (Browning et. al, 2002, Wilson & Kaplan, 1995). Taking medication for physical or mental health problems can be conceptualized two ways; the presence of a physical or mental health problem and the treatment of the problem. Measuring the effect of incarceration on medication usage, then, requires careful consideration. Higher rates of medication usage may represent a treatment effect of prison diagnosis and treatment as well as a negative health impact caused by incarceration. This measure, then, may capture the cause, diagnosis and treatment of

⁴ Results using fathers' reports only and mothers' reports only are very similar to those presented in most cases. It is worth noting, however, that the model using fathers' reports (of ever incarcerated) exclusively have larger odds (1.73 vs. 1.43) of medication usage with a sample of 158 less fathers. In the models using fathers' report or mothers' reports (of recent incarceration) exclusively on fair/poor health, fathers' reports of reduced odds of poor health are larger than in the combined sample while mothers' reports are associated with slightly smaller odds of reduced poor health. These differences are small, .36 for the combined report, .28 for fathers' reports and .43 for mothers' reports but are interesting to note. Taken together, using the combined reports may underestimate the effects of incarceration on fathers' health.

physical and mental health problems among incarcerated fathers. More than half of fathers (57%) report taking prescribed medications for a physical health problem while about 9% report taking medications to treat anxiety, depression or Attention Deficit. A third of fathers, however, report taking prescribed medications for an unspecified physical or mental health problem.⁵

Control Variables

As noted previously, one of the most pressing concerns with analyzing the effect of incarceration on health is the issue of selection into both incarceration and poor health. Controls for both previous health status and impulse control are included to deal with selection which may jointly determine both poor health and incarceration. Previous health status is included in all models and measures whether the father reports fair/poor health at the one year survey.⁶ Inclusion of this control offers a strong test of the effect of incarceration on health since it actually measures a change in health status. If poor health at the one year or baseline survey is related to a prior incarceration then controlling for health is purging the results of that prior incarceration on health.

Impulsivity is measured using an abbreviated series of questions from Dickman's (1990) impulsivity scale asked at the five year interview.⁷ The Fragile Families survey includes six items designed to measure dysfunctional impulsivity coded on a 4-point

⁵ About 22% of fathers report taking prescribed medication for pain, 18% for high blood pressure, 9% for asthma, 6% for diabetes, 6% for anxiety, 3% for depression, 2% for seizures or epilepsy and less than 1% for Attention Deficit while the largest proportion, 33% are taking prescribed medications for an unspecified health condition.

⁶ Health at baseline is used if one year health status is missing, 94% of fathers report health at one year, 6% report health status at baseline.

⁷ Impulsivity questions were also asked at the 3 year interview but only of fathers in 18 cities. The use of this measure assumes that a tendency towards impulsivity is a constant personality trait so measuring it contemporaneously with health outcomes is not problematic since a father who is scored to have lower impulse control is likely to have had low impulse control throughout his life.

Likert scale. The items are summed and divided by four to obtain an overall impulse control measure. The following items are used to assess impulse control: “I often say and do things without considering the consequences”, “I often get into trouble because I don't think before I act”, “I do things that may cause trouble with the law”, “I lie or cheat”, “I frequently get into fights” and “I don't seem to feel guilty when I misbehave”. Lower scores indicate higher levels of dysfunctional impulsivity. Limited impulse control is associated both with violent offending and crime (Farrington, 1998, Gottfredson and Hirschi, 1990). Including this measure further helps address concerns about selection into incarceration and poor health by holding constant a personality tendency associated with risky behaviors related to criminal activity but also likely associated with poor health outcomes (e.g., injury, accident, medication non-compliance). Remaining control variables include whether the father is a heavy smoker, was recently insured and was currently working. Age is coded categorically, 26 and younger, 27 to 32, 33 to 38 and 39 or older to capture the predictable effect of declining health as fathers' age. Race/ethnicity is coded as White, non-Hispanic, Black, non-Hispanic, Hispanic and other. Fathers' education is coded as high school or less, High School diploma and some college or more. Marital and cohabitation status is also included coded to include married, cohabiting, visiting or no relationship.⁸

Analytic Strategy

Logistic regression is used to investigate the relationship between incarceration history and poor health and medication usage controlling for prior health, impulse control and socio demographic characteristics. Incarceration is defined in several ways; ever

⁸ In results not shown but available from author, substance and alcohol use were included in all models. The inclusion of these variables did not change the magnitude of the estimates for the effect of incarceration on health and are likely endogenous.

incarcerated versus never incarcerated, incarcerated at 3 year survey versus not recently incarcerated and a four category definition; first incarceration at 3 year interview, at least second incarceration at 3 year interview, incarceration history but not at 3 year interview versus never incarcerated (omitted category). The first analysis (Table 2) looks at the effects of ever incarcerated versus never incarcerated on the odds of being in poor health or using medication. The remaining analyses are all contained in Table 3 and allow for comparisons across both outcomes dependent on how incarceration is defined.

If, however, incarceration and health are jointly determined by observed or unobserved factors, standard logistic regression estimates will be biased. Thus, GMM (Generalized Method of Moments) instrumental variables analysis is used to offer a check on the logistic results. This strategy requires an instrument that is predictive of incarceration but is exogenous to the health outcomes. State arrests rates are used as an instrument for incarceration (Lewis et al., 2007). An effective instrument should directly affect incarceration but not health. That is, state level arrest rates should only affect health through their impact on incarceration. Race-specific state arrest rates are used to predict the individual probability of incarceration. The predicted probability of incarceration is then used in a second stage which provides an unbiased estimate of the effect of incarceration on health outcomes. State incarceration rates are significantly related to individual incarceration status, a necessary condition for a good instrument.

Results

Descriptive statistics on independent and dependent variables are shown in Table 1. This analysis provides a picture of fathers' health outcomes and characteristics by incarceration status. Comparing across columns brings attention to the variation among

fathers with an incarceration history while also allowing comparison with their non-incarcerated counterparts.⁹ The group of fathers reporting the poorest health are those with an incarceration history but without recent time spent behind bars with 15% reporting poor health at the five year survey versus 9% of the never incarcerated and 7% of the recently incarcerated on at least their second offense. Fathers with a recent second (or higher) incarceration report the highest percentage of medication usage for physical or mental problems at 18% compared to 14% for those with an incarceration history, 11% for the never incarcerated and 6% for those with a recent, first incarceration. A recent, multiple incarceration may offer health services and diagnoses to these fathers resulting in higher rates of medication usage. It is also possible that a recent second (or higher) incarceration contributes to poor health overtime. Overall, fathers with an incarceration history are more advantaged in terms of insurance coverage, current work and education than their more recently incarcerated counterparts while markedly less advantaged than fathers who have never been incarcerated. Recently incarcerated fathers are younger, more likely to be in better health at one year, more likely to be black, non-Hispanic and in cohabiting, visiting or no relationship than their counterparts with a history of incarceration. Never incarcerated fathers are older, more likely to be white, married or cohabiting than those with an incarceration history. Impulse control provides an interesting pattern with the higher levels of control for never incarcerated followed by those with a history of incarceration, those with a recent first incarceration and the least control reported by fathers with a recent second (or higher) incarceration.

Multivariate logistic regression results presented in Table 2 focus on the effect of a history of incarceration on the odds of poor health and medication usage at five years

⁹ Chi-square tests comparing all four columns are significantly different for all variables at $p < .05$.

controlling for impulse control, prior health, smoking, insurance, work status, age, race/ethnicity, education and relationship status. These results offer a broad test of the hypothesis that incarceration, whenever it occurs temporally, has an effect on health outcomes. Fathers who have ever been incarcerated are 43% more likely to be taking prescribed medication for either a physical or mental health condition. Poor health at one year, current insurance, being older and married all markedly increase the odds of medication usage while working markedly decreases these odds. These results suggest the idea that medication usage as an outcome tells two stories related to incarceration. Perhaps incarcerated fathers receive diagnosis and treatment while incarcerated leading to higher medication usage. Perhaps the experience of incarceration creates the physical and mental conditions requiring prescribed medication.

Poor health offers a clearer test of the impact of incarceration on a measure of self-reported general health. A priori, incarceration may be negatively related to health due to environmental stressors, contagious diseases, violence, post-release effects on earnings and family formation. A positive relationship between incarceration and health is possible given mandated prison health care. Results suggest an insignificant relationship between incarceration and poor health although the direction of the odds ratio suggests a positive relationship. Poor health at one year, being a heavy smoker and older are significantly related to poor health as one would expect while better impulse control, working and higher levels of education reduce the odds of being in poor health. For both medication usage and poor health, it is also possible, of course, that impulse control, prior health and demographic characteristics do not sufficiently control for

selection into both incarceration and poor health and the results, therefore cannot tell as much about causation.

Table 3 provides odds ratios in three separate panels. Each panel looks at the impact of incarceration, defined in several ways, on poor health and medication usage controlling for all covariates. The first panel compares the logistic results of ever incarcerated versus never incarcerated on the two outcomes with the GMM IV results. The instrumental variables results are very similar in magnitude, for both outcomes, to the logistic results. Incarceration, then, appears causally linked to increased medication usage for physical or mental problems among these fathers. Poor health, however, remains insignificantly related to incarceration although the direction suggests increased odds of poor health. The second panel provides odds ratios of the effect of a recent incarceration versus not recently being incarcerated on both outcomes. Defining incarceration in this manner offers a test of the impact of recent incarceration. Is there a health shock (positive or negative) to incarceration? If so, this analysis strictly tests that question since the omitted group will include both never incarcerated and those with a history of incarceration. Controlling for all covariates, fathers with a recent incarceration are 64% less likely to be in poor health than fathers without a recent incarceration or who have never been incarcerated and 63% more likely to be using prescribed medication. By collapsing both fathers with an incarceration history and those who have never been incarcerated into the omitted group this analysis may be obscuring important health outcomes among never incarcerated, recently incarcerated and those with an incarceration history. The final panel of results defines incarceration both temporally and cumulatively with never incarcerated as the omitted category. A first, recent

incarceration is not significantly related to either health outcomes although the odds ratios suggest a reduced likelihood of poor health or medication usage controlling for all other factors. A second or higher recent incarceration is associated with a 63% reduction on the odds of being in poor health and a 128% increase in the odds of medication usage. Finally, fathers with an incarceration history are 53% more likely to be taking medication for a physical or mental condition than their non-incarcerated counterparts. Taken as a whole, the pattern of results suggests that incarceration does indeed matter and ever being incarcerated is casually linked to increased medication usage for physical or mental conditions. Variation among the incarcerated may, however, also prove important. Although not definitively causal, recent, multiple incarcerations are associated with both better health and increased medication usage while a history of incarceration is associated with increased medication usage.

Conclusion and Discussion

Recent substantial increases in incarceration ensure that a large number of families and communities are impacted by the criminal justice system. Research across disciplines demonstrates the negative consequences of incarceration on employment, wages, family formation and more recently, health outcomes. The few studies that focus on the impact of incarceration on health among a mixed sample of offenders and non-offenders finds negative effects in the long run as well as some short term positive effects for recidivists. This study focuses on the effect of incarceration on a group of urban fathers. The Fragile Families and Child Wellbeing dataset offer an opportunity to look at incarceration effects on fathers' health while controlling for prior health and impulsivity. Similar to Schnittker et al. (2007) I find improved health associated with recidivists and

large increases in the odds of medication usage for physical and mental health problems among the incarcerated. A history of incarceration increases the odds by more than half that a father will require on-going medications. These mixed results suggest short term benefits of second incarceration by either providing mandated care where none might have existed or perhaps confining fathers who might have been in unhealthy or dangerous situations while free. Taken together, these analyses suggest that incarceration exerts both long and short term effects on health. This analysis is limited in that the only causal model focuses on incarceration history so it is not clear that the short-term positive health effects found for recidivist may not be due to selection.

Clearly, fathers with an incarceration history are more likely to rely on prescribed medications to treat physical and/or mental health conditions. This expense may represent a significant cost to the uninsured. These fathers are also much less likely to be married or cohabiting suggesting their role with their children and in their communities may be more marginal. Incarceration impacts health outcomes for these fathers but it is not clear how medication usage; the costs, the underlying condition or the impact on functioning is related to family outcomes. Although not the focus of this research, future analysis examining the full impact of fathers' compromised health on family functioning is needed and important. Contending with a criminal record in the labor market and a health or mental health condition in the family and community represents significant challenges for these fathers and, by extension, their children.

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Table 1: Incarceration, health and characteristics of fathers at 5 year survey

	Ever Incarcerated N=923			Never Incarcerated N=1946
	Recent first incarceration	Recent second or > incarceration	History of incarceration	
	%	%	%	%
Health*				
Fair/Poor Health	9	7	15	9
Meds for physical/mental condition	6	18	14	11
Control Variables				
Impulse Control -- mean(sd)	4.60 (.73)	4.31 (.87)	4.81 (.86)	5.16 (.74)
Fair/Poor health at one year*	3	8	11	9
Missing information	9	16	5	3
Heavy Smoker*	20	16	20	10
Insured*	31	18	48	67
Missing information	9	1	1	1
Worked last week*	63	36	63	80
Missing information	11	33	24	15
Age*				
26 and younger	31	35	20	16
27-32	40	39	38	30
33-38	14	13	20	26
39 or more	14	5	17	24
Missing information	-	7	5	5
Race/Ethnicity*				
White non-Hispanic	3	4	15	27
Black non-Hispanic	77	76	58	42
Hispanic	11	13	19	22
Other	9	7	8	8
Education*				
< High School	54	54	39	24
High School Diploma	31	32	41	34
Some College or more	-	-	2	18
Missing information	-	2	1	1
Marital/Cohabitation Status*				
Married	3	4	22	49
Cohabiting	29	23	40	23
Visiting	38	33	22	12
No relationship	29	39	16	16

*p<.05

Note: Chi-square tests compare all four columns

Table 2: Odds Ratios of the Effects of Ever Incarcerated on Poor Health and Medication Usage

	Poor Health	On Meds
Ever Incarcerated	1.11 (0.71)	1.43* (2.46)
Never Incarcerated	<i>(omitted)</i>	
Impulse Control	0.76** (3.17)	0.95 (0.63)
Fair/Poor health at one year	5.77** (11.22)	3.02** (6.61)
Heavy Smoker	1.50* (2.27)	- -
Insured	1.07 (0.45)	1.60** (3.23)
Worked last week	0.42** (4.47)	0.27** (7.19)
26 or younger	0.72 (1.63)	0.91 (0.44)
33-38 years old	1.30 (1.35)	1.47* (2.21)
39 or more years old	2.17** (4.22)	2.58** (5.68)
27-32 years old	<i>(omitted)</i>	
White, non-Hispanic	0.84 (0.84)	1.12 (0.69)
Hispanic	1.12 (0.61)	0.74 (1.65)
Other	1.55 (1.88)	0.93 (0.29)
Black, non-Hispanic	<i>(omitted)</i>	
< High School	1.17 (1.03)	0.91 (0.56)
Some College or more	0.62* (2.49)	1.21 (1.24)
High School Diploma	<i>(omitted)</i>	
Married	0.73 (1.44)	1.50* (1.98)
Cohabiting	0.85 (0.83)	0.84 (0.86)
Visiting	0.74 (1.40)	1.01 (0.05)
No relationship	<i>(omitted)</i>	
Observations	2865	

Absolute value of z statistics in parentheses

* significant at 5%; ** significant at 1%

Table 3: Comparative Odds Ratios of Ever, Recent and Multiple Incarceration on Poor Health and Medication Usage

	Odds Ratios	IV Results	Odds Ratios	IV Results
	Poor Health		On Meds	
Ever Incarcerated	1.11 (0.71)	1.35 (1.67)	1.43* (2.46)	1.50* (2.17)
Never Incarcerated		<i>(omitted)</i>		
Incarcerated at 3 year survey	0.36** (3.23)	-	1.63* (2.07)	-
Not recently incarcerated		<i>(omitted)</i>		
First Incarceration at 3 year	0.59 (0.77)	-	0.77 (0.34)	-
At least Second Incarceration at 3 years	0.37** (2.83)	-	2.28** (3.20)	-
Incarceration history, not at 3 years	1.21 (1.25)	-	1.53** (2.89)	-
Never Incarcerated		<i>(omitted)</i>		
Observations	2865			

Absolute value of z statistics in parentheses

* significant at 5%; ** significant at 1%

Note: all regressions include controls for: impulse control, poor health at one year, heavy smoker, insured, working, age, race/ethnicity, education and relationship status