As Fathers and Felons: Explaining the Effects of Current and Recent Incarceration on Major Depression *

Running head: Effects of Incarceration on Major Depression

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ABSTRACT

Dramatic increases in the American imprisonment rate since the mid-1970s have important implications for the life chances of marginal men, including for their health. Although a large literature has considered the collateral consequences of incarceration on a variety of outcomes, studies concerned with health in particular have several limitations: most focus exclusively on physical health; those concerned with mental health usually only consider the effects of current incarceration or previous incarceration, but rarely both; many fail to consider mechanisms; and virtually all neglect the role of family processes, thereby neglecting the social roles current and former prisoners inhabit. In this article, we extend this research by considering the effects of incarceration on the risk of major depression using data from the Fragile Families and Child Wellbeing Study (N = 3,107). Results show substantial effects of current and recent incarceration on the risk of major depression across a variety of modeling strategies, suggesting both immediate and short-term implications. In addition, the results show the well-known effects of incarceration on socioeconomic status and family functioning partly explain these effects, suggesting the link between incarceration and mental health depends heavily on the effects of incarceration on economic and social reintegration, not only the direct psychological effects of confinement per se.

As Fathers and Felons: Explaining the Effects

of Current and Recent Incarceration on Major Depression

As the American imprisonment rate has soared from approximately 100 per 100,000 in the mid-1970s to approximately 500 per 100,000 by the mid-2000s (Wakefield and Uggen 2010), so too has the lifetime risk of imprisonment for men (Pettit and Western 2004). Incarceration has broad implications for inequality. A burgeoning literature considers the consequences of incarceration for the employment, family life, and civic engagement of formerly imprisoned men, almost always documenting negative consequences (Wakefield and Uggen 2010). In particular, incarceration compromises labor market prospects (Pager 2003; Western 2006), destabilizes and diminishes the quality of romantic relationships (Braman 2004; Nurse 2002; Western 2006), and undermines participation in the political process (Manza and Uggen 2006; Weaver and Lerman 2010). Recently, research has turned to the health consequences of incarceration, demonstrating associations between earlier incarceration and hypertension (Wang et al. 2009), functional limitations (Schnittker and John 2007), infectious and stress-related diseases (Massoglia 2008a), and poor self-rated health (Massoglia 2008b).

It is possible the effects of incarceration are even stronger and immediate for mental health than they are for physical health, stemming from the "pains of imprisonment," the psychological stresses associated with confinement (Haney 2006; Sykes 2007 [1958]). Life in the total institution of the prison is thought to have lasting implications for psychological well-being, setting in motion chronic stress and a diminished coping capacity. Furthermore, the consequences of incarceration for mental health are important for many reasons, not least of which is the role of poor mental health in diminishing the capacity of former inmates to be good

fathers (Bronte-Tinkew et al. 2007). Major depression, for example, has a particularly strong relationship with disability, exceeding that of physical illness in most instances (Merikangas et al. 2007), and socioeconomic status (Heflin and Iceland 2009). Major depression also affects family life, by increasing the likelihood of divorce and separation (Kessler, Walters, and Forthofer 1998).

Yet the effects of incarceration on major depression may be different from those on physical health. For example, the immediate and short-term effects of incarceration may be more aligned in the case of mental illness than physical illness. In the case of physical illness, there is some evidence that incarceration improves health while in prison, owing to some combination of better healthcare and a safer environment (Curtis forthcoming; Mumola 2007; Patterson 2010). However, these apparent benefits are reversed sharply after release, increasing the risk of suicide and severe functional imitations (Binswanger et al. 2007; Schnittker and John 2007). Although formal mental health care may also improve in prison (Wilper et al. 2009), better psychiatric treatment may not be sufficient to offset the conditions of confinement, separation, and regimentation. Indeed, relative to the effects of incarceration on physical health, the effects on mental health may be driven to a much larger degree by prison conditions, rather than the social consequences of a prison sentence. In the case of physical illness, much evidence focuses on disadvantages that emerge after release, suggesting the negative effects of incarceration on health reflect the effects of economic hardship, family instability, and discrimination. Although the same may be true of mental health, much of the incarceration literature focuses on confinement itself, following the early lead set by Goffman (1961) and Sykes (2007 [1958]).[1]

Given the chain of events linking incarceration to depression, those concerned with effects of incarceration must also be concerned with threats to causality. These threats are no less

important for mental illness than physical illness. Indeed, the forces of selection may be stronger for mental illness insofar as many psychiatric disorders (e.g., drug abuse) are both criminalized and comorbid with major depression (see Kessler et al. 2005 on patterns of comorbidity). Furthermore, in contrast to many physical disorders, the onset of many psychiatric disorders occurs in late childhood or early adulthood, suggesting depression may precede incarceration (Kessler et al. 2003). In light of all these reasons to expect an incarceration-depression *association* even absent an effect, any examination of this relationship must adjust for a variety of potential confounders and be sensitive to time-ordering.

In this article, we extend this research by considering how current and recent incarceration is associated with the risk of major depression among fathers using data from the Fragile Families and Child Wellbeing Study. Results show currently or recently incarcerated fathers experience a greater risk of major depression than their counterparts, and these effects are robust across modeling strategies. In addition, we show the psychological consequences of both current and recent incarceration are driven partly by the social consequences of incarceration, including effects on socioeconomic status, romantic relationships, and parenting, rather than confinement per se. Although depression is common among those entering prison, incarceration itself increases the risk of depression and does so largely by separating men from their social roles, including those as employees, partners, and fathers. The social consequences of incarceration, thus, lie at the center of the pains of imprisonment and those concerned with reducing the psychological consequences of incarceration must focus on the social lives of current and former inmates as much as improve the conditions of their confinement.

BACKGROUND

Major depression is an important addition to research on the consequences of incarceration. Although neither strongly related to mortality like many infectious diseases nor a major concern of the criminal justice system like substance abuse, major depression is consequential in ways that ought to concern those interested in current and former inmates. Major depression is among the most common and severe psychiatric disorders in the United States (Kessler et al. 2003). Furthermore, major depression is chronic. Its symptoms cycle over time and occasionally disappear completely, but the initial onset of depression increases the risk of future episodes (Kendler, Thornton, and Gardner 2000). Depression is fundamentally psychological and somatic, but it has strong behavioral consequences. Indeed, major depression is a leading cause of disability and its influence on role impairment often exceeds that of common physical illnesses (Merikangas et al. 2007). Virtually all those suffering from major depression experience some resulting impairment and the mean number of days per year they report being totally unable to carry out their normal activities exceeds one month (Kessler et al. 2003). When not completely incapacitated, those with depression may still perform poorly. Depressed fathers, for example, are more likely to harshly discipline their children (Bronte-Tinkew et al. 2007), and the children of depressed fathers may show more problem behaviors as a result (Meadows, McLanahan, and Brooks-Gunn 2007).

To the extent that incarceration increases the risk of major depression, it could leave a lasting emotional imprint with important consequences for the life chances of former inmates and their children. At least descriptively, the prevalence of major depression among current inmates is elevated relative to the non-incarcerated population (Steadman et al. 2009), but we know little about major depression among former inmates, reflecting a split between studies concerned with the health of current inmates and studies concerned with the health of former

inmates. Whereas the former studies often focus on the prison experience and the resulting psychological dysfunction, the latter focus on the diminished socioeconomic opportunities resulting from discrimination and the stigma of a prison record. Both processes are relevant for major depression among current and former inmates, but it is important to consider empirically how the processes elevating depression among current inmates and those elevating depression among former inmates do or do not overlap. By eliding the distinction between current and former inmates, previous research has largely neglected this question.

How Incarceration Increases the Risk of Major Depression

The starting point of any discussion of the effects of incarceration on depression is the experience of incarceration itself. A long line of research explores the psychological consequences of incarceration, often under the more general concept of *prisonization* (Clemmer 1940; Goffman 1961; Sykes 2007 [1958]). Although prisonization refers to how current inmates *cope* with their environments and highlights how most inmates do not develop psychiatric disorders (see Bonta and Gendreau 1990 for a skeptical view of the pains of imprisonment), there are adverse consequences to even the most effective coping strategies, meaning prisonization is ultimately dysfunctional (Sykes 2007 [1958]; Zamble and Porpino 1988). Some argue the stress of incarceration emerges from the loss of liberty or from the isolation, confinement, and danger of prison (Sykes 2007 [1958]). Under these circumstances, the most effective strategies for adjusting in the short term may be counterproductive in the long term, especially insofar as they undermine the conditions of ordinary social interaction (Haney 2006). For example, many inmates adopt a "prison mask," which involves suppressing weakness and emotional vulnerability in favor of an impassive, strong appearance (Toch and Adams 2002). Similarly, many inmates view others with distrust and suspicion, remaining vigilant to potential safety

threats. These orientations certainly allow inmates to adjust to prison life, where vulnerability is exploited and predation is common, but outside prison, where social reintegration is essential, they are also related to poor mental health. Likewise, a strong correlate of mental health is a sense of personal control over one's destiny, which is naturally diminished among inmates, even among those who have adjusted well to the prison environment (Pearlin and Schooler 1978; Toch and Adams 2002).

The difficulties of incarceration do not diminish upon release, of course, and even if former inmates adjust their social responses while in prison, incarceration may exert a lingering impact on their social lives after release. It is critically important to think of the formerly incarcerated not only as inmates, but also as employees, romantic partners, and fathers. In this light, recent research reveals the multidimensional stress associated with incarceration, beginning with research on employment opportunities. On the most basic level, a prison record harms the labor market prospects of former inmates. Men with a criminal record are less likely to receive a callback for a job compared to their counterparts (Pager 2003) and earn less when employed (Western 2006). For former inmates, then, the effects of incarceration on depression likely reflect at least two simultaneous influences: the effects of discrimination and the effects of job loss. Although partially attributable to former prisoners' poor labor market prospects, incarceration also exerts an independent effect on the risk of homelessness (Geller and Curtis 2011; Lee, Tyler, and Wright 2010). Given the pronounced effects of job loss on depression (Burgard, Brand, and House 2007), as well as the effects of discrimination (Kessler, Mickelson, and Williams 1999) and homelessness (Lee et al. 2010), the effects of incarceration on socioeconomic status likely plays an important role in the incarceration-depression relationship.

But it is probably not the only influence. Former inmates have other social roles, and the impact of incarceration on their capacity to be good romantic partners and fathers may be as strong as its impact on their likelihood of being well-paid employees. Although often overlooked on a descriptive level, most inmates are fathers and involved in romantic relationships at the time of their incarceration (Mumola 2000). It is well established that incarceration substantially increases the risk of divorce and separation (Western 2006), which has been linked to poor mental health (Williams 2003), but the effects of incarceration may be even deeper than those implied by mere separation. Ethnographic research suggests incarceration often diminishes relationship quality with current and former romantic partners (Braman 2004; Nurse 2002; but see Comfort 2008). These relationships with former partners take on an acrid flavor when either person re-partners, meaning that even those former inmates who establish new social connections continue to suffer in other ways (Nurse 2002).

The effects of incarceration on romantic relationships are also vital for the psychological wellbeing of these men because they influence interactions with their children. Although some former inmates may be poor parents, there is also evidence that inmates are concerned about their children and try to provide support. During their prison sentence, for example, many incarcerated fathers see a reunion with their children as something to look forward to (Nurse 2002) and, upon release, many interpret their prison sentence as an opportunity to become a better father (Edin, Nelson, and Paranal 2004). But, on average, the strength of their good intentions is overwhelmed by numerous reintegration barriers, as incarceration diminishes the amount of time fathers spend with children (Swisher and Waller 2008) and the quality of father-child interaction (Nurse 2002). This research also provides insight into the situation of *current* inmates in the sense that it highlights inmates' psychological investments in their children and

families and the loss that comes with imprisonment, suggesting that the pains of imprisonment may stem from the social consequences of incarceration as much as the conditions of confinement. For instance, current inmates are unable to work in jobs that provide a livable wage or the self-worth that comes with receiving a steady paycheck (Western 2006). Similarly, although some romantic relationships flourish while men are incarcerated (Comfort 2008), the highest risks of divorce for ever-incarcerated men come not following their incarceration but during (Western 2006). Furthermore, even under the most generous visitation policies, incarcerated men have little opportunity to interact with their children (Braman 2004; Nurse 2002). A serious question remains about what — if anything — makes incarceration unique. Life in prison is unusually stressful for many reasons, but it is possible the stress of imprisonment reflects the loss of social roles as much as the conditions of confinement, and, thus, that current and former inmates suffer in much the same way as might those who simultaneously lose a job, a relationship, and a valuable role.

Addressing the Effects of Incarceration

Questions about the added stress of incarceration beg a larger question: To what degree is the relationship between incarceration and depression causal and to what degree does it, instead, reflect processes operating long before a prison sentence? Are former inmates more depressed because of prison or because of factors that put them at risk for incarceration? Addressing these concerns necessitates repeated measures of incarceration and depression, a large sample of men who have been incarcerated, and a serious consideration of mechanisms. If the effects of incarceration are causal, the literature reviewed above points to at least two classes of explanatory factors: the direct psychological effects of confinement and the indirect social effects of incarceration, related to the labor market, romantic relationships, and parenting.

DATA AND METHODS

Data

We use data from the Fragile Families and Child Wellbeing Study, a longitudinal survey of 4,898 mostly unmarried parents of children born in urban areas between 1998 and 2000 (Reichman et al. 2001). The sampling frame included hospitals in 20 U.S. cities with populations greater than 200,000 that were stratified by labor market conditions, welfare generosity, and child support policies. Initial interviews were conducted with mothers in hospitals shortly after the birth and with fathers in hospitals or as soon as possible after the birth. Parents were interviewed by telephone about one, three, and five years after the birth. About 78% of fathers participated in the baseline interview and, of these, about 69%, 67%, and 64% completed the one-, three-, and five-year surveys, respectively (Bendheim-Thoman Center for Research on Child Wellbeing 2008).[2]

These data provide a unique opportunity to understand the relationship between incarceration and depression. First, and perhaps most importantly, they include a large number of ever-incarcerated men. Because the sample over-represents unmarried parents, many men in the sample are minorities, do not have education beyond high school, and reside in areas of concentrated disadvantage, all of which are correlated with incarceration (Wakefield and Uggen 2010). Additionally, unlike the National Longitudinal Survey of Youth (NLSY79), the data commonly used to consider incarceration's health effects (Massoglia 2008a, 2008b), these data allow us to examine immediate and short-term effects of incarceration on depression. The NLSY does not solicit information about most health measures until respondents were approximately 40 years old, which may be long after individuals were incarcerated. Finally, the Fragile Families data include a wealth of information about fathers, making it possible to adjust for pre-existing

differences between fathers who have and have not experienced incarceration and to examine the mechanisms through which incarceration may lead to depression.

Our analytic sample comprises 3,107 fathers. We made efforts to preserve as many respondents as possible. We first dropped the 1,752 observations in which the father is missing information on depression at the five-year survey (most of which were lost to follow-up and not item non-response). We also dropped the 39 observations missing data on incarceration. Few observations were missing data on covariates, and we used multiple imputation to preserve these observations, producing 20 data sets with the *ice* procedure in Stata (Royston 2007). There are some differences between the full and analytic samples, with fathers in the analytic sample less likely to be racial minorities, more likely to have education beyond high school, and more likely to be married to the focal child's mother at baseline.

Measures

Depression. Our main dependent variable, major depression at the five-year survey, comes from fathers' responses to the Composite International Diagnostic Interview Short Form (CIDI-SF) Version 1.0 (Kessler et al. 1998; see also Kessler and Ustun 2004). Fathers were asked if, at some time during the past year, they had feelings of depression or were unable to enjoy normally pleasurable things. Those who experienced at least one of these conditions most of the day, every day, for a two-week period were asked additional questions about the same period (about losing interest in things, feeling tired, experiencing a weight change of at least 10 pounds, having trouble sleeping, having trouble concentrating, feeling worthless, or thinking about death), and those who answered affirmatively to three or more of these additional questions are considered depressed. Although there are limitations to the CIDI-SF, stemming mostly from its abbreviated format (Link 2002), it provides a reliable indicator of major

depression for use in general surveys. In some multivariate models, we adjust for depression at the three-year survey to account for selection into incarceration.

Incarceration. Our key explanatory variables are current incarceration and recent incarceration. Each variable provides useful information on its own, especially in tandem with our control variables, but the distinction between them allows us to address causality. Fathers experienced *current incarceration* if they were in prison or jail at the five-year interview. Fathers experienced *recent incarceration* if they were incarcerated at the three-year survey or between the three- and five-year surveys. In addition to these explanatory variables, we control for *prior incarceration,* an indicator that the father was ever incarcerated before the three-year survey (including prior to the birth of the focal child) and one that helps adjust for selection into incarceration.[3] For recent and prior incarceration, we rely on both maternal and paternal reports of incarceration, and assume the father was incarcerated if at least one report is affirmative.[4] We rely only on paternal reports of current incarceration, as time differences between the mother's and father's interviews could result in conflicting yet accurate reports (i.e., the father was incarcerated when the mother was interviewed but not when he was interviewed). Importantly, these three measures of incarceration are distinct but not mutually exclusive, and are consistent with recent research using these data (Geller et al. forthcoming ; Wildeman, Schnittker, and Turney forthcoming). Indeed, of the fathers who experienced prior incarceration, 10% were also currently incarcerated and 29% were also recently incarcerated.

***Controls*.** The multivariate analyses control for characteristics associated with both incarceration and depression. The following paternal characteristics are measured at baseline: race (white (reference category), Black, Hispanic, and other race), immigrant status, age, education (less than high school diploma (reference category), high school diploma or GED,

some college, and college), number of children in the household, and history of major depression in the family (i.e., if one of the father's biological parents experienced a two-week period of feeling depressed, down in the dumps, or blue).

We also control extensively for socioeconomic status and family functioning by adjusting for the following (measured at the three-year survey): employment, income-to-poverty ratio, homelessness, relationship status and quality with the child's mother, shared responsibility in parenting, and perceptions of self as a father. A dummy variable indicates whether the father worked in the prior week. Income-to-poverty ratio is the ratio of total household income to official poverty threshold established by the U.S. Census Bureau. Poverty thresholds correspond to the year before the interview, and are based on household size and composition. Fathers are considered homeless if one of the following conditions are met: they reported living in temporary housing, a group shelter, or on the street at the time of the interview; they reported staying somewhere not intended for regular housing (i.e., car or abandoned building) for at least one night in the past year; or they reported living with friends or family without paying rent at the time of the interview (Lee et al. 2010). Relationship status with the child's mother is as follows: married (reference), cohabiting, in a non-residential romantic relationship, and not romantically involved. Relationship quality is based on reports of his relationship with the mother (1 = *poor* to 5 = *excellent*). Shared responsibility in parenting comprises the average of mothers' responses about how often the father assisted with things such as looking after the child and running errands (1 = *never* to 4 = *often*). Finally, fathers were asked to rate how they feel about themselves as a father (1 = *not a very good father* to 4 = *an excellent father*).

In addition, we control for three paternal characteristics that may account for selection into incarceration, all measured after the baseline survey: impulsivity, domestic violence, and

drug or alcohol use. Impulsivity is measured with an abbreviated version of Dickman's (1990) impulsivity scale. We average fathers' responses to the following questions at the one-year survey (1 = *strongly disagree* to 4 = *strongly agree*): often, I don't spend enough time thinking over a situation before I act; I often say and do things without considering the consequences; I often get into trouble because I don't think before I act; many times, the plans I make don't work out because I haven't gone over them carefully enough in advance; and I often make up my mind without taking the time to consider the situation from all angles ($\alpha = .840$). We consider fathers to have engaged in domestic violence if the mother reported he hit, slapped, or kicked her at any point up to and including the three-year survey. Fathers are considered to have a drug or alcohol problem if he or the mother reported, at any point up to and including the three-year survey, that drugs or alcohol interfered with the father's work or made it difficult to get a job or get along with friends or family.

Mechanisms. We examine two sets of mechanisms: socioeconomic status and family functioning. Socioeconomic status is represented by the change in employment, change in income-to-poverty ratio, and change in homelessness between the three- and five-year surveys. Family functioning is measured with a dummy variable indicating whether the father separated from the child's mother between the three- and five-year surveys, as well as by change in relationship quality with the child's mother, change in shared responsibility in parenting, and change in perceptions of self as a father between the three- and five-year surveys. Although many of these mechanisms are correlated with each other, they are far from perfectly correlated and multicollinearity tests found no evidence the coefficients were estimated imprecisely when including the simultaneously.

Analytic Strategy

Logistic regression models. The multivariate analyses proceed in three parts. In the first stage, presented in Table 3, we use logistic regression models to estimate depression as a function of incarceration.[5] We include current, recent, and prior incarceration in the first and subsequent models. The second model adjusts for a limited set of variables that precede current and recent incarceration: race, immigrant status, age, education, number of children in the household, depression in a parent, and a lagged indicator of depression (measured at the three-year survey). Model 3 includes all variables from Model 2 and a host of additional variables, most measured at the three-year survey: employment, income-to-poverty ratio, homelessness, relationship status with child's mother, relationship quality with child's mother, shared responsibility in parenting, perceptions of self as a father, impulsivity, domestic violence, and drug or alcohol abuse. We then consider this full model for a subsample of fathers at risk of incarceration (i.e., those who have experienced prior incarceration) to diminish unobserved heterogeneity and increase confidence in our estimates (LaLonde 1986; Leamer 1983). Although it is critical to reduce the threat of unobserved heterogeneity when exploring the effect of incarceration, there are trade-offs to limiting the sample entirely to men who have been incarcerated before. Estimation within this sample may reduce the upward bias associated with unobserved heterogeneity, but it may also reduce the downward influence associated with coping or adaptation. In effect, by limiting the sample to previously incarcerated men, we are estimating the effect of an *additional incarceration* on depression, which may be sharply diminished from the effect of first incarceration. As little research examines the effect of incarceration on depression, there is little to adjudicate the relative magnitude of these influences, but readers should recognize that this model is not necessarily a better approximation of the average effect of

incarceration and, indeed, there are reasons to expect that it is a lower bound, given the more general literature on coping.

Propensity score models. In the second stage of analysis, presented in Table 4, we use propensity score matching to estimate the effect of current and recent incarceration on depression.[6] Propensity score matching is another way to diminish concerns about pre-existing differences between currently or recently incarcerated fathers and those who have never been incarcerated (Rosenbaum and Rubin 1983). Based on the logic of the counterfactual framework, propensity score matching approximates an experimental design by using observed variables to generate a treatment group (e.g., the currently incarcerated) and a control group (e.g., the not currently incarcerated). Matching makes the treatment and control groups as similar as possible, though does not eliminate bias due to unobserved variables. Thus, though it reduces bias traditionally associated with logistic regression models, these findings should not be taken as definitive causal conclusions.[7] They should, instead, be seen as adjuncts to our regression models.

We estimate two sets of propensity score models in Stata: one comparing currently incarcerated fathers to those not currently incarcerated, and one comparing recently incarcerated fathers to those not recently incarcerated (Becker and Ichino 2002). The propensity score matching occurs in two stages. In the first, we use logistic regression models to generate a propensity score for each observation that estimates the probability of current or recent incarceration. We include the following variables in the logistic regression model (measured at the same time periods as those included in Table 3): race, age, age squared, age cubed, immigrant status, education, number of children in household, depression in a parent, employment, income-to-poverty ratio, homelessness, relationship status with child's mother,

relationship quality with child's mother, shared responsibility in parenting, perceptions of self as a father, impulsivity, impulsivity squared, impulsivity cubed, domestic violence, drug use, and prior incarceration. Next, we match observations on the probability of experiencing current and recent incarceration, and check the balance of the covariates to ensure the treatment and control groups have similar values (Morgan and Harding 2006).

We estimate the effect of current and recent incarceration on depression. We restrict the analysis to regions of common support and use three types of matching procedures: nearest neighbor, radius, and kernel. Nearest neighbor matching estimates effects on depression by comparing each treatment observation to a control observation with the closest propensity score. We use matching with replacement, meaning each control observation can be a match for more than one treatment observation (caliper = .005). Radius matching compares each treatment observation with control observations within a specific radius (radius = .005). Kernel matching compares each treatment observation with all control observations, but weights the control observations according to their distance from treated cases (bandwidth = .06; kernel = Gaussian).

Logistic regression models, with mechanisms. In the final stage of analysis, presented in Table 5, we use logistic regression models to examine the mechanisms linking incarceration and depression. In these analyses, we extend Model 3 from Table 3. In Table 5, Model 1 includes changes in socioeconomic status, Model 2 includes changes in family functioning, and Model 3 includes both. In Model 4, we again restrict the sample to fathers who experienced prior incarceration. Because observations were drawn from 20 cities, we use clustered standard errors and include city fixed-effects in all logistic regression models.

Sample Description

Table 1 presents descriptive statistics of all variables. Both depression and incarceration are common among fathers. About 15% of fathers at the three-year survey and 12% of fathers at the five-year survey reported depression. Fully 41% of fathers were ever incarcerated, with about 6% of fathers experiencing current incarceration, 13% experiencing recent incarceration, and 38% experiencing prior incarceration. In terms of demographic characteristics, nearly half of fathers (49%) are Black and more than one-fourth (26%) are Hispanic. About 16% of fathers were born outside the United States. Fathers are, on average, 28 years old when their children are born. At baseline, nearly one-third (31%) of fathers have less than a high school education.

[Table 1.]

These descriptive statistics also demonstrate substantial differences among ever- and never-incarcerated fathers. Importantly, ever-incarcerated fathers report more depression at the five-year survey (16%, compared to 8%). Ever-incarcerated fathers are more likely to be Black and less likely to be white, Hispanic, or foreign-born. They are younger and have lower educational attainment. At the three-year survey, ever-incarcerated fathers have lower economic wellbeing (measured by employment status, income-to-poverty ratio, and homelessness), are less likely to be married to the child's mother, have lower quality relationships with the child's mother, and have lower shared responsibility in parenting.

In Table 2, we present selected descriptive statistics for depression and our potential mechanisms, by paternal incarceration status (currently incarcerated and recently incarcerated fathers, each compared to fathers who experienced neither current nor recent incarceration). About 25% of currently incarcerated fathers and 21% of recently incarcerated fathers report depression at the five-year survey, compared to only 9% of fathers with neither current nor recent incarceration. Not surprisingly, currently incarcerated fathers are more likely to report a

change in employment status. Similarly, currently and recently incarcerated fathers, compared to their counterparts, are more likely to report a new separation from the child's mother and a change in relationship quality.

[Table 2.]

RESULTS

Estimating the Association between Paternal Incarceration and Depression

Logistic regression models. We turn first to logistic regression models that estimate paternal depression as a function of incarceration. According to Model 1 of Table 3, fathers who experience current or recent incarceration, controlling only for prior incarceration, are more likely to report depression than those who did not experience current or recent incarceration. The magnitudes of these associations are considerable. Currently incarcerated fathers have about 2.01 ($e^{.697}$) times the odds of reporting depression than their non-incarcerated counterparts, adjusting for prior incarceration ($p < .001$), an effect similar in magnitude to the general effects of discrimination and stress on major depression (Kessler et al. 1999). Recently incarcerated fathers have 1.84 times the odds of reporting depression ($p < .001$). Fathers with a prior history of incarceration are also more likely to report depression, although the magnitude and statistical significance of the coefficient is smaller than that of current or recent incarceration (OR = 1.38, $p < .01$).

[Table 3.]

Both current and recent incarceration remain strong predictors of depression after adjusting for individual-level characteristics. Adjusting for paternal demographic characteristics, family history of depression, and prior paternal depression attenuates the coefficients of current and recent incarceration (Model 2). These coefficients are further attenuated after adjusting for

socioeconomic status, family functioning, and additional characteristics that may account for selection into incarceration (Model 3). This final model shows currently incarcerated fathers have 1.65 times the odds of reporting depression than their non-incarcerated counterparts ($p < .05$). Prior incarceration is not significantly associated with depression.[8]

Analyses to this point have considered all fathers. In Model 4, we limit the sample to fathers who experienced prior incarceration. The effect of current incarceration estimated in this model is similar to the effect estimated using the full sample. Net of a wide array of individual-level characteristics, currently incarcerated fathers have 1.65 times the odds of reporting depression as their counterparts ($p < .05$). Recently incarcerated fathers are not more likely to report depression, providing some evidence that first-time incarcerations have especially strong relationships with depression.

The covariates in Table 3 show incarceration is one of few factors independently linked to depression. The final model for the full sample shows that fathers with a family history of depression have 2.05 times the odds of reporting depression ($p < .001$), and that there is a strong, positive association between depression at the three- and five-year surveys (OR = 3.14, $p < .001$). By controlling for both family and personal history of depression, two established predictors of current depression, we risk rendering other meaningful correlates statistically insignificant. But given the literature on the collateral consequences of incarceration demands rigorous tests, we include these covariates to increase confidence in our point estimates of current and recent incarceration.

Propensity score models. In Table 4, we present results from propensity score models estimating effects of incarceration on depression. The first panel shows results estimating the effect of current incarceration, and all three matching strategies suggest currently incarcerated

fathers are more likely to report depression than their counterparts. Currently incarcerated fathers have between an 8 (nearest neighbor matching) and 10 (kernel matching) percentage point increase in the prevalence of depression. Given that the prevalence of depression is 15% across the entire sample, and incarcerated fathers have between a 23% and 25% prevalence, these effects are considerable. The point estimates from the propensity score models are comparable in magnitude to the point estimates from the final logistic regression model.

[Table 4.]

The next panel shows models estimating the effect of recent incarceration, and these findings are also consistent with results from Table 3. The three matching strategies show recently incarcerated fathers, compared to their counterparts, have between a 5 (radius and kernel matching) to 6 (nearest neighbor matching) percentage point increase in the prevalence of depression. Similar to the point estimates for current incarceration, the point estimates from the propensity score models are comparable to those from the final logistic regression model.[9]

Explaining the Association between Paternal Incarceration and Depression

Both the logistic regression and propensity score models establish that current and recent incarceration are statistically significant predictors of depression among fathers. These analyses, however, have not considered the mechanisms that underlie the association between incarceration and depression, which we consider in Table 5. Adjusting for changes in socioeconomic status between the three- and five-year surveys in Model 1 reduces the magnitude and statistical significance of current incarceration, suggesting economic hardship may be one pathway through which incarceration leads to depression. We include all three indicators of socioeconomic status simultaneously in the model, as a chi-square test revealed joint significance ($F=17.08$, $p < .001$). Taking into account socioeconomic status reduces the coefficient of current

incarceration by 37% (from Model 3 in Table 3) and to statistical insignificance. Among the socioeconomic variables, change in employment status (a job loss for all currently incarcerated fathers working prior to incarceration), not income-to-poverty ratio or homelessness, most strongly attenuates the current incarceration effect. In many ways, these results reflect the realities of being incarcerated, as these fathers often lose their jobs but not (of course) a place to sleep. Though economic factors can explain the current incarceration effect, these factors explain only 5% of the recent incarceration effect, suggesting other factors may be at play.

Thus, in Model 2, we adjust for four indicators of family functioning. As in the prior model, we test the joint significance of these variables ($F=53.17$, $p < .001$). The current incarceration coefficient is reduced by 19%, and the recent incarceration coefficient is reduced by 23% and to statistical insignificance. Experiencing a recent separation from the child's mother independently explains 18% of the recent incarceration effect, though relationship quality and shared responsibility in parenting also explain a large portion of this effect (13% and 16%, respectively).[10]

Model 3 considers the contributions of socioeconomic status and family functioning, and shows that the effects of current and recent incarceration are reduced by 46% and 29%, respectively, both to statistical insignificance. Thus, after adjusting for socioeconomic status and family functioning, currently and recently incarcerated fathers are not significantly more likely than their counterparts to report depression. Similar to Table 3, we also present results for the sample of previously incarcerated fathers. Similar to results for the full sample, adjusting for socioeconomic status and family functioning renders the association between current incarceration and depression statistically insignificant.

[Table 5.]

DISCUSSION

In this paper, we use data from the Fragile Families and Child Wellbeing study, a rich data source that includes a relatively large number of ever-incarcerated men, and find that incarceration has both immediate and enduring consequences for major depression among fathers. These associations persist when we restrict the sample to previously incarcerated fathers and in both logistic regression and propensity score models. These findings complement a burgeoning body of literature suggesting detrimental effects of incarceration on physical health outcomes such as hypertension (Wang et al. 2009), functional limitations (Schnittker and John 2007), infectious and stress-related diseases (Massoglia 2008a), and poor self-rated health (Massoglia 2008b). But we extend this literature by showing that the deleterious consequences extend to mental health as well. Unlike research on physical health, which often suggests inmates experience some health benefits (Mumola 2007; Patterson 2010), we find no mental health benefit of current incarceration and instead find both current and recent incarceration render fathers vulnerable to mental health problems. Situated in the broader literature on the effects of incarceration on health, our findings highlight the importance of considering multiple indicators of both physical and mental health when documenting the collateral consequences of incarceration.

There are many reasons to anticipate an effect of incarceration on depression among fathers. It is possible that the conditions of incarceration itself – including confinement and regimentation – have a direct effect on depression (Sykes 2007 [1958]). But for many men, incarceration represents a more fundamental shift in the life course, leading to economic insecurity and labor market detachment (Pager 2003; Western 2006), disruptions and tensions in romantic relationships (Western 2006), and strained relationships with children (Swisher and

Waller 2008), both when behind bars and after release. Our results highlight the importance of the life course and the centrality of these social effects for understanding the effects of both current and recent incarceration. Our results also highlight important distinctions among the social consequences of incarceration. Socioeconomic factors explain a large fraction of the effects of current incarceration, which is consistent with research highlighting the centrality of incarceration's effects on economic wellbeing (Western 2006), but inconsistent with research emphasizing the stress of confinement as the principle reason for an effect. At least with respect to depression, the role impairments associated with incarceration may be as relevant as the stress of imprisonment itself. Socioeconomic status, however, does little to explain the effects of recent incarceration, which is explained better by romantic relationships and parenting. In both cases, our results highlight the importance of social roles for understanding the stress of incarceration. Inmates and former inmates are embedded in social relationships with their current romantic partners, mothers of their children, and their children, and these relationships are critical to understanding the effects of incarceration. Incarceration has strong effects on major depression, but they stem from role-related stressors (e.g., job loss, inability to perform parenting responsibilities) that can affect anyone.

Limitations

There are several limitations to keep in mind when interpreting these findings. First, though the Fragile Families data provide repeated measures of incarceration and depression and include a large sample of ever-incarcerated men, the sample is limited to fathers with young children. The consequences of incarceration for depression may differ for men without young children. However, given that many prisoners have young children (Mumola 2000), understanding the collateral consequences of incarceration for fathers will closely approximate

those for the average inmate. Nevertheless, future research should consider if incarceration differentially affects the mental health of men with and without children. The effects of incarceration on childless men may be smaller insofar as incarceration does not immediately compromise their ability to be good fathers (although it certainly compromises their other roles). Future research should also consider the health effects of incarceration among women, an important topic we are unable to address with these data due to small numbers. There is little to suggest, however, that incarcerated women would experience less depression than would men as a result of their impaired ability to be good mothers.

Additionally, although we distinguish between current, recent, and prior incarceration, incarceration experiences are sufficiently complex that we cannot disentangle them all. We do not, for example, have good measures of the timing of prior incarceration and therefore can only speculate about how long the effects of incarceration last. We also do not have reliable measures of the duration of incarceration, though it may be possible that shorter stints in prison or jail may have less of an effect on mental health than longer stints. Other features of the context surrounding incarceration were not observed, but presumably matter as well. We do not have information regarding, for example, experiences surrounding the arrest, other interactions with the criminal justice system, interactions with other inmates, and visitation from family members.[11] Using indicators of current and recent incarceration, we have established that incarceration has negative effects on mental health, but in order to address these effects it is necessary to discern the best targets for intervention or policy, regarding, for example, prosecution, prison administration, or reintegration services.

Conclusions

It has become increasingly clear that incarceration has broad collateral consequences for former inmates, and, to this growing list, our study adds the effects of incarceration on major depression. But our study also highlights connections among these consequences, revealing that the psychological pains of incarceration—as severe as they are—are fundamentally a reflection of how incarceration undermines employment, wages, and families, that is, the social life of current and former inmates. For those interested in the wellbeing of current and former inmates, it is important to think of them not only as felons or prisoners, but as fathers, as employees, and as family members. By the same token, it is important not only to think of how inmates adjust to prison life, but how these adjustments relate to their lives outside the prison walls. For those serving time, the effects of incarceration depend heavily on the challenges awaiting them upon release.

ENDNOTES

[1] This is not to say these studies focus exclusively on the conditions of confinement. But when discussing the effects of incarceration on mental health, they focus on the psychological consequences of being denied heterosexual sexual intercourse rather than family life more broadly (Sykes 2007:70-72 [1958]).

[2] Because these data include an oversample of parents unmarried at their child's birth, our sample is over-representative of racial/ethnic minorities, men with low levels of education, and men with incarceration histories. Given that married fathers are more advantaged, on average, than their unmarried counterparts, we restricted the sample to fathers unmarried at baseline in supplemental analyses. Results are robust to this sampling restriction.

[3] We cannot easily examine the long-term effects of incarceration, as these data have limited information about the timing of incarceration prior to baseline. Additionally, for fathers incarcerated prior to baseline, incarceration is endogenous to the baseline covariates.

[4] Given that incarceration is under-reported (e.g., Geller, Garfinkel, and Western 2011), we believe relying on maternal and paternal reports of incarceration provides the most accurate representation. Robustness checks in which paternal incarceration is coded differently provides substantively similar results.

[5] Because it is inadvisable to compare coefficients across nested logistic regression models (Winship and Mare 1984), we also used linear probability models. The linear probability models produced results nearly identical to the logistic regression models, highlighting the robustness of our findings.

[6] The *micombine* command used for multiply-imputed data only computes estimated effects for the groups off support; thus, the propensity score models only use data from the first imputation. However, given that the logistic regression models are robust to using fewer imputed data sets and that the propensity score models are robust to using different single data sets, there is no reason to suggest this would lead to biased estimates.

[7] Fixed-effects models would provide an additional opportunity to examine the robustness of our findings. However, this is not the most appropriate modeling strategy given the dichotomous nature of our outcome variable, our interest in time-invariant covariates, our inability to accurately measure timing of incarceration before the three-year survey, and the relatively few number of fathers who report changes in current and recent incarceration and changes in depression between the three- and five-year surveys.

[8] There are reasons to believe the association between incarceration and depression may vary by race/ethnicity, as Black men are more likely than white men to experience incarceration (Wakefield and Uggen 2010) and because of racial variation in the stigma associated with imprisonment (Braman 2004). However, we find that the association between current or recent incarceration and depression does not vary by race/ethnicity.

[9] We cannot rule out unobserved heterogeneity. One way to quantify how much unobserved heterogeneity may matter is to estimate Mantel-Haenszel bounds using Stata-compatible software designed by Becker and Caliendo (2007). Mantel-Haenszel bounds quantify how large unobserved factors would have to be to render the relationship between paternal incarceration and depression statistically insignificant. Results (not presented but available upon request) suggest that selection forces would have to increase the odds of receiving the "treatment" of current incarceration between 30% (nearest neighbor matching) and 130% (kernel matching). Selection forces would have to increase the odds of receiving the "treatment" of recent incarceration between 50% (nearest neighbor matching) and 100% (radius and kernel matching). Thus, unobserved selection forces would need to be substantial to render these results statistically insignificant.

[10] These results about the relative importance of socioeconomic status and family functioning as mechanisms underlying the association between incarceration and depression are corroborated by results from a more formal decomposition of direction and indirect effects for logistic regression models (Buis 2010). These results (not presented) show that the indirect effect of socioeconomic status is 25% of the total current incarceration effect and 5% of the recent incarceration effect. The indirect effect of family functioning is 20% of the current incarceration effect and 27% of the recent incarceration effect.

[11] Though our multivariate analyses control for a wide array of covariates, including factors that may account for selection into incarceration, unobserved heterogeneity is still possible. In supplemental analyses, we controlled for additional factors that may be related to depression: taking medication for depression, receiving therapy or counseling for depression, social support, health insurance, and multipartnered fertility. Including these controls did not alter the magnitude or statistical significance of the incarceration coefficients or improve model fit, and none of these controls were independently associated with depression.

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Table 1. Means and Standard Deviations of Variables Used in Analyses

	Full sample		Ever incarcerated		Never incarcerated		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	
Mental health							
Depression (y3)	.15		.21		.11		***
Depression (y5)	.12		.16		.08		***
Incarceration[a]							
Current incarceration (y5)	.06		.14		.00		
Recent incarceration (y3, y5)	.13		.32		.00		
Prior incarceration (y1, y3)	.38		.92		.00		
Control variables							
Race (b)							
White	.21		.11		.28		***
Black	.49		.61		.40		***
Hispanic	.26		.24		.28		*
Other race	.04		.03		.05		
Foreign-born (b)	.16		.07		.22		***
Age (b)	28.12	(7.28)	26.38	(6.82)	29.34	(7.34)	***
Education (b)							
Less than high school	.31		.41		.23		***
High school diploma or GED	.35		.41		.30		***
Post-secondary education	.23		.17		.27		***
College	.12		.01		.19		***
Number of children in household (b)	1.00	(1.20)	1.06	(1.26)	.96	(1.15)	*
Parent experienced depression (y3)	.31		.35		.29		***
Employed (y3)	.79		.67		.88		***
Income-to-poverty ratio (y3)	2.73	(3.37)	2.01	(3.06)	3.24	(3.48)	***
Homeless (y3)	.05		.08		.03		***
Relationship status with child's mother (y3)							
Married	.38		.18		.53		***
Cohabiting	.22		.23		.21		
Nonresidential relationship	.06		.08		.05		***
Not in a relationship	.35		.52		.23		***
Relationship quality with child's mother (y3)	3.56	(1.30)	3.19	(1.36)	3.83	(1.19)	***
Shared responsibility in parenting (y3)	2.85	(1.08)	2.48	(1.16)	3.11	(.93)	***
Perception of self as a father (y3)	3.14	(.85)	2.98	(.91)	3.26	(.80)	***
Impulsivity (y1)	2.06	(.94)	2.19	(.99)	1.97	(.89)	***
Domestic violence (y1, y3)	.08		.14		.03		***
Drug or alcohol abuse (y1, y3)	.16		.28		.08		***
Potential mechanisms							
Change in employment (y5 - y3)	.00	(.45)	.00	(.54)	.00	(.37)	
Change in income-to-poverty ratio (y5 - y3)	.13	(2.82)	.04	(2.79)	.19	(2.84)	
Change in homelessness (y5 - y3)	-.01	(.27)	-.01	(.34)	-.01	(.22)	
New separation from child's mother (y3, y5)	.11		.14		.09		***
Change in relationship quality with child's mother (y5 - y3)	-.07	(1.22)	-.09	(1.37)	-.05	(1.11)	
Change in shared responsibility in parenting (y5 - y3)	-.13	(.86)	-.21	(.99)	-.07	(.76)	***
Change in perception of self as father (y5 - y3)	-.05	(.81)	-.06	(.89)	-.04	(.75)	
N	3,107		1,284		1,823		

Source: Fragile Families and Child Wellbeing Study.

Notes: b: baseline survey; y1: 1-year survey; y3: 3-year survey; y5: 5-year survey. Asterisks are for two-sided significance tests comparing ever-incarcerated fathers to never-incarcerated fathers.

[a] Current incarceration includes fathers in prison or jail at the five-year interview. Recent incarceration includes fathers in prison or jail at the three-year survey or between the three- and five-year surveys. Prior incarceration includes incarceration at any point before the three-year survey (including prior to the birth of their child).

*p < .05 **p < .01 ***p < .001

Table 2. Means of Key Variables, by Incarceration Status

	Incarceration status		
	Current	Recent	Neither
Depression (y5)	.25 ***	.21 ***	.09
Change in employment (y5 - y3)	-.21 ***	.06	.01
Change in income-to-poverty ratio (y5 - y3)	-.11	.00	.14
Change in homelessness (y5 - y3)	-.04	-.01	-.01
New separation from child's mother (y3, y5)	.17 ***	.22 ***	.09
Change in relationship quality with child's mother (y5 - y3)	-.22 **	-.24 **	-.04
Change in shared responsibility in parenting (y5 - y3)	-.33 ***	-.31 ***	-.05
Change in perception of self as father (y5 - y3)	-.11	-.05	-.44
N	177	413	2,581

Source: Fragile Families and Child Wellbeing Study.
Notes: y3: 3-year survey; y5: 5-year survey. Ns sum to greater than the total analytic sample because current incarceration and recent incarceration are not mutually exclusive. Asterisks are for two-sided significance tests that compare currently incarcerated fathers and recently incarcerated fathers to those who experienced neither current nor recent incarceration.
*p < .05 **p < .01 ***p < .001

Table 3. Logistic Regression Models Estimating Depression as a Function of Incarceration

	Full sample						Prior incarceration	
	Model 1		Model 2		Model 3		Model 4	
Incarceration								
Current incarceration (y5)	.70	(.15) ***	.58	(.22) **	.53	(.21) *	.50	(0.24) *
Recent incarceration (y3, y5)	.61	(.14) ***	.52	(.16) **	.46	(.18) **	.27	(0.21)
Prior incarceration (y1, y3)	.32	(.11) **	.11	(.14)	-.06	(.15)	---	---
Control variables								
Race (b)								
White (reference)			---	---	---	---	---	---
Black			-.15	(.20)	-.25	(.21)	-.26	(0.34)
Hispanic			.08	(.19)	-.03	(.21)	-.12	(0.31)
Other race			.01	(.30)	-.20	(.29)	.01	(0.52)
Foreign-born (b)			-.33	(.17)	-.21	(.17)	-.67	(0.56)
Age (b)			-.01	(.01)	.00	(.01)	-.02	(0.03)
Education (b)								
Less than high school (reference)			---	---	---	---	---	---
High school diploma or GED			.00	(.14)	.02	(.13)	.07	(0.24)
Post-secondary education			-.18	(.15)	-.10	(.14)	-.23	(0.24)
College			-.29	(.25)	-.05	(.30)	.26	(0.74)
Number of children in household (b)			.01	(.05)	.03	(.05)	.09	(0.08)
Parent experienced depression (y3)			.73	(.14) ***	.72	(.14) ***	.84	(0.22) ***
Depression (y3)			1.30	(.15) ***	1.14	(.15) ***	.74	(0.20) ***
Employed (y3)					-.13	(.14)	-.06	(0.21)
Income-to-poverty ratio (y3)					.00	(.02)	.02	(0.04)
Homeless (y3)					.63	(.21) **	.62	(0.31) *
Relationship status with child's mother (y3)								
Married (reference)					---	---	---	---
Cohabiting					.08	(.18)	.28	(0.38)
Nonresidential relationship					-.38	(.31)	.27	(0.50)
Not in a relationship					.10	(.19)	.44	(0.42)
Relationship quality with child's mother (y3)					-.24	(.06) ***	-.12	(0.07)
Shared responsibility in parenting (y3)					.05	(.08)	.07	(0.10)
Perception of self as a father (y3)					-.09	(.09)	-.07	(0.11)
Impulsivity (y1)					.09	(.09)	.15	(0.11)
Domestic violence (y1, y3)					.06	(.19)	.22	(0.21)
Drug or alcohol abuse (y1, y3)					.21	(.21)	.12	(0.24)
Constant	-2.70		-2.88		-2.23		-2.60	
Pseudo R-squared	.05		.12		.15		.15	
N	3,107		3,107		3,107		1,181	

Source: Fragile Families and Child Wellbeing Study.

Notes: b: baseline survey; y1: 1-year survey; y3: 3-year survey; y5: 5-year survey. All models include city fixed-effects and use robust standard errors.
*p < .05 **p < .01 ***p < .001

Table 4. Propensity Score Models Estimating the Effect of Current and Recent Incarceration on Depression

	Treatment N	Control N	B	S.E.	
Current incarceration, full sample					
Nearest neighbor matching	170	2,891	.08	(.04)	*
Radius matching	170	2,891	.09	(.04)	*
Kernel matching	170	2,891	.10	(.04)	**
Probability increase in depression from logistic regression models	---	---	.10		*
Recent incarceration, full sample					
Nearest neighbor matching	403	2,658	.06	(.03)	*
Radius matching	403	2,658	.05	(.02)	*
Kernel matching	403	2,658	.05	(.02)	*
Probability increase in depression from logistic regression models	---	---	.07		**

Source: Fragile Families and Child Wellbeing Study.

Notes: Probability increase in depression from logistic regression models based on Table 3, Model 3.
*p < .05 **p < .01

Table 5. Logistic Regression Models Estimating Depression as a Function of Incarceration, with Mechanisms

	Full sample						Prior incarceration	
	Model 1		Model 2		Model 3		Model 4	
Incarceration								
Current incarceration (y5)	.36	(.22)	.43	(.20) *	.29	(.22)	0.43	(0.24)
Recent incarceration (y3, y5)	.44	(.18) *	.35	(.19)	.33	(.19)	0.18	(0.26)
Prior incarceration (y1, y3)	-.09	(.15)	-.07	(.15)	-.10	(.16)	---	---
Potential mechanisms								
Change in employment (y5 - y3)	-.51	(.16) **			-.47	(.16) **	-0.11	(0.20)
Change in income-to-poverty ratio (y5 - y3)	-.04	(.03)			-.05	(.03)	-0.13	(0.06) *
Change in homelessness (y5 - y3)	.72	(.26) **			.65	(.25) *	1.29	(0.37) **
New separation from child's mother (y3, y5)			.29	(.21)	.31	(.22)	0.34	(0.38)
Change in relationship quality with child's mother (y5 - y3)			-.34	(.07) ***	-.32	(.07) ***	-0.21	(0.10) *
Change in shared responsibility in parenting (y5 - y3)			-.04	(.08)	-.03	(.08)	0.08	(0.13)
Change in perception of self as father (y5 - y3)			-.15	(.09)	-.14	(.09)	-0.18	(0.12)
Constant	.16		.17		.18		.18	
Pseudo R-squared	-1.93		-1.49		-1.23		-2.04	
N	3,107		3,107		3,107		1,181	

Source: Fragile Families and Child Wellbeing Study.

Notes: y1: 1-year survey; y3: 3-year survey; y5: 5-year survey. All models include all covariates from Model 3 of Table 3. All models include city fixed-effects and use robust standard errors.

*p < .05 **p < .01 ***p < .001