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Paternal Incarceration and the Housing Security of Urban Mothers

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Abstract

High rates of imprisonment among American fathers have motivated an ongoing examination of incarceration's role in family life. A growing literature suggests that incarceration creates material and socioemotional challenges not only for prisoners and former prisoners but also for their families and communities. The authors examined the relationship between fathers' incarceration and one such challenge: the housing insecurity of the mothers of their children. Using data from the Fragile Families and Child Wellbeing Study (N = 4,125) and a series of longitudinal regression models, they found that mothers' housing security was compromised following their partners' incarceration, an association likely driven in part, but not entirely, by financial challenges following his time in prison or jail. Given the importance of stable housing for the continuity of adult employment, children's schooling, and other inputs to healthy child development, the findings suggest a grave threat to the well-being of children with incarcerated fathers.

Keywords

Fragile Families and Child Wellbeing Study; housing; incarcerated parents; mothers

Housing security has long been recognized as an integral component of the economic, physical, and emotional health and well-being of individuals and families (Bradley, Oliver, Richardson, & Slayter, 2001; Lee, Tyler, & Wright, 2010; Postmus, Severson, Berry, & Yoo, 2009). The lack of safe and stable housing is often viewed as an indicator of severe social exclusion, particularly for individuals vulnerable in other aspects of their lives (Lee et al., 2010). Children's schooling, the receipt of social services, treatment for medical conditions, and the search for employment are each facilitated by a stable home address (Bradley et al., 2001; Buckner, 2008; Rafferty, Shinn, & Weitzman, 2004).

Even in the absence of homelessness, housing insecurity threatens grave consequences for health and well-being. Although federal guidelines (42 U.S.C. § 11302) define *homelessness* as the lack of a "fixed regular, and adequate nighttime residence," researchers have noted that eviction, frequent moves, difficulty paying rent, doubling up, and living in overcrowded conditions represent "a manifestation of the same underlying relationship between housing costs and household resources" (Honig & Filer, 1993) and threaten individual and family

functioning (Gilman, Kawachi, Fitzmaurice, & Buka, 2003; Kushel, Gupta, Gee, & Haas, 2005; Ma, Gee, & Kushel, 2008; Reid, Vittinghoff, & Kushel, 2008; U.S. Department of Housing and Urban Development, 2003). Crowded conditions and excessive residential mobility also have the potential to disrupt children's school attendance and performance (Cunningham, Harwood, & Hall, 2010; Goux & Maurin, 2005) and other aspects of family functioning.

We examined the risk of housing insecurity among a vulnerable population of growing interest to researchers and policymakers: families experiencing a father's incarceration. The sharp and unprecedented expansion of the correctional population in the past 40 years, combined with consistently high rates of fatherhood among incarcerated men, has led to an increasing number of families with fathers in prison and jail. A growing literature has suggested that fathers' incarceration adversely affects their partners and children, including their economic and material well-being (Comfort, 2007; Geller, Garfinkel, & Western, 2011; Schwartz-Soicher, Geller, & Garfinkel, 2011). Although safe and stable housing has the potential to enable family resilience to these challenges, these economic challenges conversely have the potential to undermine housing security, further destabilizing family life (Wildeman, 2013). Using data from a large longitudinal survey of urban families, we estimated the relationship between fathers' incarceration and mothers' housing insecurity, considering challenges ranging from relatively common occurrences, such as skipping a rent or mortgage payment, to more disruptive hardships, such as eviction or homelessness. To the extent that fathers' incarceration increases such instability, their partners and children may require specialized attention by social service providers.

HYPOTHESIZED RELATIONSHIPS

There are a number of reasons to expect that fathers' incarceration might compromise the housing security of their families. When fathers reside with their children, incarceration removes them from the household and incapacitates them from the labor market, depriving their families of a potential source of income. Even fathers who do not live with their children often contribute financially in the form of child support (Geller et al., 2011; Nepomnyaschy & Garfinkel, 2007), visit with their children (Geller, 2013), and maintain involvement in their lives and day-to-day routines (Swisher & Waller, 2008; Tach, Mincy, & Edin, 2010). Travis, McBride, and Solomon (2005) noted that 68% of incarcerated fathers had provided the primary source of income to their families. Incarceration not only limits these contributions but also threatens the earning power of remaining family members, who may sacrifice work time to perform tasks previously done by the incarcerated father (Lynch & Sabol, 2004), or struggle to cover expenses associated with his incarceration, such as legal representation, or maintaining contact through phone calls and visits (Comfort, 2008).

Furthermore, the family financial instability associated with a father's incarceration is likely to persist past the time that he spends in prison or jail. A substantial body of research has documented the labor market challenges that ex-prisoners face upon reentry (Bushway, Stoll, & Weiman, 2007; Holzer, 2007), and women with formerly incarcerated partners receive less in either shared earnings or child support than do similarly situated women whose partners were not incarcerated (Geller et al., 2011). The earnings challenges of

formerly incarcerated men are compounded by the tendency of their romantic relationships to dissolve (Western, 2006), reducing the likelihood that even their limited earnings are shared with their former households (Geller et al., 2011). On the basis of these and other strains, a father's incarceration may also elevate maternal stress levels (Wildeman, Schnittker, & Turney, 2012) and diminish mothers' mental health (Fishman, 1990), reducing their ability to manage family resources. Accordingly, Schwartz-Soicher et al. (2011) found that families with incarcerated fathers experienced significantly more material hardship than families with no paternal incarceration.

In addition to causing financial and emotional strain, incarceration may limit the quantity and quality of housing available to prisoners and their families. Certain classes of offenders, most notably sex offenders, face restrictions on where they are allowed to live (Levenson & Cotter, 2005; Zandbergen & Hart, 2006; Zgoba, Levenson, & McKee, 2009). In addition, certain types of housing assistance (most notably, public housing) may be unavailable to the families of incarcerated individuals, due to a "One Strike and You're Out" style of regulation that authorizes public housing authorities to evict and exclude from the application process for a "reasonable amount of time" any household containing a person with a background of criminal activity that the public housing authority believes would endanger the health or safety of the community. Although the total number of individuals excluded from public housing due to one-strike policies is unknown, Human Rights Watch (Carey, 2004) estimated that more than 3.5 million people with criminal convictions would be denied access to housing assistance as the result of "one strike" policies over a 5-year period. These individuals may have partners and children at risk of losing access to public housing, even if these family members have no criminal histories of their own (Venkatesh, 2002).

CONFOUNDING FACTORS

Despite the challenges faced by families of incarcerated fathers, the extent of incarceration's causal effect on partner housing insecurity—if one exists at all—is unknown. The effect of fathers' incarceration on their partners and children is dependent on the relationship that fathers had with their families before going to jail or prison (Geller, Cooper, Garfinkel, Schwartz-Soicher, & Mincy, 2012; Western & Wildeman, 2009). Criminal behavior is more prevalent among unmarried men (Sampson & Laub, 1990), and although many unmarried and nonresident fathers maintain involvement in the lives of their children (Swisher & Waller, 2008; Tach et al., 2010), we know little about prior involvement among fathers who become incarcerated, in particular whether these fathers were involved enough for their families to be affected by their absence (Sampson, 2011, though see Geller, 2013). Moreover, many incarcerated fathers had complicated families of origin (Rumbaut, Gonzales, Komaie, Morgan, & Tafoya-Estrada, 2006; Sampson & Laub, 1993); such complexity has also been associated with unstable relationships in adulthood (Doucet & Aseltine, 2003) and may attenuate effects of incarceration on their partners or former partners.

Furthermore, as a population, incarcerated men face a number of educational, cognitive, mental health, and socioeconomic challenges even before their contact with the criminal

justice system (Western, 2006). They are disproportionately young; predominantly members of racial/ethnic minority groups, and have low levels of education (Pew Center on the States, 2008); and would likely face challenges in the labor market even in the absence of their incarceration, limiting their financial contributions to their families. Many men who become incarcerated also face challenges related to substance use (Drucker, 2011), mental health (Drucker, 2011), physical health (Curtis, 2011; Patterson, 2010), and impulse control (Farrington, 1998; Gottfredson & Hirschi, 1990), which have the potential to both limit their earnings and destabilize their family relationships (Western, 2006). Furthermore, to the extent that women partner with men who are demographically and socioeconomically similar (Vanyukov, Neale, Moss, & Tarter, 1996), those with incarcerated spouses and partners are likely to be vulnerable in the housing market as well. Women with incarcerated partners have disproportionately low incomes, with few economic resources and little social capital (Sugie, 2012), and they face high rates of stress even before their partner's incarceration (Wildeman et al., 2012). Women with incarcerated partners are also more likely to themselves have histories of incarceration (Geller, Garfinkel, Cooper, & Mincy, 2009). It is unclear whether partner incarceration has an independent effect that exacerbates these challenges or whether observed disadvantage is driven solely by pre-incarceration conditions. In addition, to the extent that mothers with incarcerated partners receive greater levels of public assistance (Sugie, 2012), any hardships created by their partners' incarceration may be attenuated.

EMPIRICAL EVIDENCE

Although a growing literature has documented a nexus among incarceration, homelessness, and the housing insecurity of former prisoners (Geller & Curtis, 2011; Gowan, 2002; Greenberg & Rosenheck, 2008; Herbert, 2005; La Vigne & Parthasarathy, 2005; Lee et al., 2010; Metraux & Culhane, 2004; Metraux, Roman, & Cho, 2008; Travis, Solomon, & Waul, 2001), far less is known about the effect of incarceration on the housing security of the family members of incarcerated men. However, recent research has suggested that these family members are at serious risk. Wildeman (2013) found strong associations between recent paternal incarceration and the risk of homelessness among young urban children. Foster and Hagan (2007) also identified paternal incarceration as a key predictor of social exclusion during the transition to adulthood and, notably, as predictive of having experienced homelessness by this point in the life course. Although these studies identified important risks facing the children of incarcerated men, their focus on homelessness, the most severe form of insecurity, is likely to have missed substantial disruption resulting from other challenging housing situations (Geller & Curtis, 2011). Other studies examined less severe indicators of housing insecurity, such as skipping rent payments (Schwartz-Soicher et al., 2011), eviction (Schwartz-Soicher et al., 2011), or residential mobility (Phillips, Erkanli, Keeler, Costello, & Angold, 2006), but only as component pieces of broader indicators of material hardship, rather than with a specific focus on housing needs.

CONTRIBUTIONS OF CURRENT ANALYSIS

We advance the literature on incarceration and housing by estimating the extent to which mothers' housing insecurity might be compromised by the incarceration of their romantic

partners. We focused on a broad indicator of insecurity, based on circumstances relatively common among low-income families, as well as those that are rare and indicative of extreme social exclusion. We controlled for detailed measures of women's socioeconomic disadvantage, as well as past housing insecurity, to reduce the likelihood that observed relationships are confounded by factors other than their partners' incarceration. In so doing, we sought to isolate the effects of paternal incarceration from other factors that might compromise maternal housing security. We tested five specific hypotheses:

Hypothesis 1: Mothers' housing security is negatively associated with their partners' incarceration, an effect felt most strongly for women living with their partners prior to the incarceration.

Hypothesis 2: The relationship between paternal incarceration and maternal housing security is mediated by fathers' financial contributions, which are undermined following an incarceration.

Hypothesis 3: The relationship between paternal incarceration and maternal housing security is mediated by maternal stress, which increases following a fathers' incarceration.

Hypothesis 4: Mothers in public housing are at increased insecurity risk when their partners are incarcerated.

Hypothesis 5: Mothers receiving housing assistance (but not living in public housing) are protected from the housing insecurity that may follow a father's incarceration.

METHOD

Data Source, Analysis Sample, and Missing Data

Data were drawn from the Fragile Families and Child Wellbeing study (hereafter *Fragile Families*), a population-based survey of urban couples with children. The Fragile Families study follows a stratified random sample of nearly 5,000 couples in large U.S. cities with children born between 1998 and 2000 (see Reichman, Teitler, Garfinkel, & McLanahan, 2001, for a description of the research design). The study was developed to allow researchers to understand the capacities of, and challenges facing, unwed urban parents, and contains detailed questions on the role of fathers in family life, and the social and material well-being of fathers, mothers, and children.

The study oversamples unmarried parents, and the sample is highly socioeconomically disadvantaged, with a high prevalence of incarceration among the fathers. More than 40% of the fathers, including approximately half those unmarried at their child's birth, have spent time in prison or jail. The fathers with no history of incarceration are also of relatively low income, with low levels of education, and provide a valuable comparison sample for the assessment of incarceration's unique risks. The study surveys both men and their partners at the time of their child's birth, with follow-up surveys conducted when the children are 1, 3, and 5 years old. Our analysis sample consisted of the 4,125 mothers reporting on their housing security at Year 5. (When weighted to represent the 20 Fragile Families cities, the analysis sample drops to 4,041.)

Although our analysis sample consisted of mothers who reported on their housing security at the time of their child's fifth birthday, our analysis may be vulnerable to selection bias if mothers were missing data on key predictors of Year 5 housing insecurity, and the propensity for missing data was unevenly distributed. To the extent that mothers facing housing hardships are more difficult to retain in surveys, the role of incarceration as a determinant of housing insecurity may be misstated in our estimates. We therefore assessed the sensitivity of our findings to missing data, using two methods of analysis. First, we estimated a set of models that used complete case analysis (also known as *listwise deletion*), which dropped families from a regression model if they were missing data on any variables in the model. Although complete case analysis has the potential to produce unbiased coefficient estimates, this requires that data be missing "completely at random" (Allison, 2002). This is unlikely to be the case in a longitudinal survey where retention might have been affected by factors also related to family stability. We therefore also used an imputation procedure (specifically, multiple imputation through chained equations—see Royston, 2004, and Van Buuren, Boshuizen, & Knook, 1999—and the *ice* and *micombine* commands in Stata) to estimate missing values of incarceration and father involvement indicators, as well as potential confounders. We examined the sensitivity of findings to our choice of missing data strategy.

Variables

Housing insecurity—We measured mothers' housing insecurity using indicators identified by Geller and Curtis (2011), which identified insecurity at several different degrees of severity, based on mothers' living conditions at the time of each follow-up survey, and on hardships she reported experiencing in the year leading up to her survey. Mothers were considered insecure if they indicated having skipped a rent or mortgage payment due to a lack of funds, moving in with others due to financial constraints (also known as "doubling up"), moving residences more than once per year in the past wave (Gilman, Kawachi, Fitzmaurice, & Buka, 2003), having been evicted, or having been homeless (per 42 U.S.C. § 11302). Our primary outcome of interest was a constructed binary indicator of whether respondents indicated any of these insecurities over the year preceding their Year 5 survey. We also examined whether our findings were robust to our choice of outcome measure, or if some components of the measure (e.g., skipping a rent payment, doubling up, etc.) were more closely associated with fathers' incarceration than others.

Incarceration—Our measure of paternal incarceration was based on fathers' self-reports, supplemented with additional indicators (e.g., mother reports, subcontractor reports that fathers were incarcerated when contacted for follow-up) to reduce the risk of measurement error associated with underreporting (Groves, 2004). At each follow-up wave, fathers were asked to self-report whether they had been charged with a crime in the years leading up to the interview; if they had, they were asked if they had been convicted and, if they had, they were asked if they had been incarcerated.

We constructed measures of both “recent incarceration” (i.e., whether fathers had been incarcerated in the period following the Year 1 survey, leading up to the Year 5 survey) and “distal incarceration” (i.e., in the period leading up to the Year 1 survey).

Covariates

As noted, families of incarcerated men are likely to differ from other families in ways that influence their housing circumstances. Our analyses therefore controlled for a series of covariates we expected to be correlated with both fathers’ incarceration and mothers’ housing security. We focused predominantly on maternal characteristics, which we posit are highly correlated with those of her partner (Vanyukov et al., 1996).

Covariates included mothers’ race, nativity, baseline age and education, and family history (i.e., family mental health history, and whether she was living with both her biological parents at age 15), as well as time-stable traits such as cognitive ability and impulsivity. Cognitive ability was measured using the Wechsler Adult Intelligence Scale (Wechsler, 2008), and impulsivity was measured using the Dickman (1990) scale of dysfunctional impulsivity. We measured mental health history using mothers’ self-reports of whether their own mothers suffered from depression, in order to avoid confounding with contemporaneous conditions. We also controlled for a rich set of family, behavioral, and economic characteristics, including the couple’s relationship status (married, cohabiting, or nonresident) at the Year 1 follow-up survey, and several indicators of mothers’ physical and mental health, as well as substance use, at the time of their baseline and Year 1 surveys. In addition to measuring mothers’ family history of mental health, we also constructed indicators of self-reported health at baseline (scored 1 if they reported “excellent” or “very good” health, and 0 if they reported “good”, “fair”, or “poor” health), parenting stress, and perceived social support. Parenting stress was measured as an additive scale ($\alpha = .61$ at Year 1) constructed from the extent to which mothers agreed or disagreed with four statements: (a) “Being a parent is harder than I thought [it would be],” (b) “I feel trapped by my parental responsibilities,” (c) “Taking care of the children is more work than pleasure,” and (d) “I often feel tired and worn out from raising my family.” Each individual item was coded on a scale from 1 to 4 (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree), and results were summed. Perceived social support was measured using a principal-components factor ($\alpha = .74$) that explained 58% of the variance in whether mothers reported having someone they could count on to (a) loan them \$200 in the next year, (b) provide them a place to live in the next year, (c) help with emergency child care, and (d) co-sign for a loan for \$1000.

We constructed and controlled for several indicators of mothers’ socioeconomic status, as well as the number of children in her household, to indicate how many people must be supported at a given level of income. Socioeconomic status indicators included mothers’ employment and earnings at Year 1, as well as the amount of money her partner had contributed to the household in the first year of the study. Financial contributions were computed in terms of shared earnings for resident fathers and child support for nonresident fathers (Geller et al., 2011). We also controlled for whether mothers reported owning their home at Year 1 or reported receipt of public assistance, housing-specific assistance in

particular. Mothers were classified into one of three mutually exclusive categories: (a) those living in public housing, (b) those receiving vouchers or other housing assistance, and (c) mothers not receiving assistance with their housing costs. Finally, we controlled for whether mothers reported any history of incarceration by the Year 5 survey.

Potential Mechanisms

As noted above, and described in greater detail below, we assessed the plausibility of several potential mechanisms that may govern the relationship between incarceration and housing. In addition to the Year 1 measures indicated above, we also constructed Year 5 measures of fathers' financial contributions and maternal stress, which we expected to mediate any estimated effects.

Modeling Strategy

We assessed the relationship between fathers' incarceration and mothers' housing security using a series of logistic regression models that leveraged the longitudinal structure of the Fragile Families data to examine how mothers' housing circumstances change following her partner's incarceration. A sensitivity analysis running comparable linear probability models, with substantively similar results, is available on request. We focused our interpretation on what we refer to as "recent" incarceration, between the Year 1 and Year 5 survey waves, denoted as INC_{15} , and the associated regression coefficient β_1 . To isolate the predictive role of recent partner incarceration from other factors that might influence insecurity, we controlled for the covariates described above (\mathbf{X}) as well as for partner incarceration experiences that preceded the Year 1 survey (INC_1):

$$\text{Logit}(INSECURE_5) = \beta_0 + \beta_1 INC_{15} + \beta_2 INC_1 + \beta_3 \mathbf{X} + \varepsilon.$$

To further isolate the effects of incarceration from other factors that might influence mothers' housing insecurity, we estimated Model 2, which controlled not only for covariate vectors \mathbf{X} but also for a vector of Year 1 insecurity indicators, $INSECURE_1$. In this model, β_1 identified changes in insecurity associated with incarceration incidents between Years 1 and 5:

$$\text{Logit}(INSECURE_5) = \beta_0 + \beta_1 INC_{15} + \beta_2 INC_1 + \beta_3 \mathbf{X} + \beta_4 INSECURE_1 + \varepsilon.$$

If unobserved changes in family or community circumstances lead to both a new incarceration experience and subsequent housing insecurity, the estimate of β_1 in Model 2 would reflect a spurious relationship in addition to any causal one, overstating the effects of fathers' incarceration. We therefore took the coefficient β_1 in Model 3 as an upper bound, reduced-form estimate of the extent to which mothers' housing insecurity may have been affected by their partner's incarceration.

To the extent that Model 2 suggested an effect of fathers' incarceration on mothers' housing insecurity, we hypothesized, on the basis of research conducted by Western and Wildeman (2009) and Geller et al. (2012), that estimated effects would be more pronounced among

families in which the father was more involved before his incarceration. We tested the plausibility of our Model 2 findings using a third model that estimated how the association between paternal incarceration and maternal housing might be moderated by fathers' pre-incarceration residence status. Model 3 controlled not only for Year 1 relationship status but also for the interaction between Year 1 coresidence (RES_1) and subsequent incarceration (INC_{15}). In this model, β_1 represents the effect of a nonresident partner's incarceration on housing insecurity, and the effect of incarceration of a resident partner is denoted by the sum $\beta_1 + \beta_5$. To the extent that the coefficient β_5 suggested stronger associations for partners that were previously coresident, Model 3 would increase our confidence that fathers' incarceration had a causal effect on mothers' housing security:

$$\text{Logit}(INSECURE_5) = \beta_0 + \beta_1 INC_{15} + \beta_2 INC_1 + \beta_3 X + \beta_4 INSECURE_1 + \beta_5 INC_{15} \times RES_1 + \varepsilon.$$

We hypothesized that our estimates in Models 1 through 3 would suggest a robust association between fathers' incarceration and mothers' subsequent housing insecurity. Accordingly, we next estimated a series of models examining potential mediators and moderators of the relationship between incarceration and our aggregate measure of housing insecurity. Our tests for mediation and moderation were variations of Model 2, which estimated the average effect of paternal incarceration on mothers' housing outcomes. We assessed the plausibility of each potential mediator using a modification of a Sobel–Goodman mediation test, focusing specifically on linear probability models and the complete case sample. (The Stata *sgmediation* test precluded the test of mediation in nonlinear models, or models based on multiply imputed data sets.) The Sobel–Goodman test identified the extent to which (a) fathers' incarceration was associated with a given potential mediator, (b) fathers' incarceration was associated with mothers' housing insecurity when the mediator was not considered, (c) the unique association between the potential mediator and mothers' housing insecurity, and (d) the extent to which the association between incarceration and housing insecurity was reduced when the potential mediator is considered. Although controls for posttreatment circumstances must be interpreted with caution, and cannot be assumed to represent a causal mechanism (Gelman & Hill, 2007), this test helped to assess the plausibility of potential mediators, whose causal effects can be explored in future research.

We first tested the hypothesis that fathers' incarceration might undermine their partners' housing security through a reduction in household income. Model 4 included an additional control for fathers' financial contributions at Year 5:

$$\text{Pr}[INSECURE_5] = \beta_0 + \beta_1 INC_{15} + \beta_2 INC_1 + \beta_3 X + \beta_4 INSECURE_1 + \beta_5 CONTRIB_5 + \varepsilon.$$

We next tested the extent to which fathers' incarceration might undermine their partners' housing insecurity through mental health strains. Model 5 added a control for **STRESS₅**, maternal stress at Year 5, and we tested its plausibility as a mediator using the *sgmediation* test:

$$\Pr[INSECURE_5] = \beta_0 + \beta_1 INC_{15} + \beta_2 INC_1 + \beta_3 \mathbf{X} + \beta_4 INSECURE_1 + \beta_5 STRESS_5 + \varepsilon.$$

Finally, we tested the extent to which incarceration's effects might be tied to housing policy, by testing the moderating role of public housing and other forms of housing assistance. Model 6 returned to the imputation sample and logit functional form and included an interaction between fathers' incarceration between Years 1 and 5 and mothers' residence in public housing at Year 1 (PH_1), and the receipt of other housing assistance at Year 1 ($VOUCHER_1$). The coefficient β_1 represents the estimated effects of partner incarceration on the insecurity of women not receiving housing assistance at Year 1, the estimated effect of partner incarceration on women in public housing is denoted by $\beta_1 + \beta_5$, and the effect on women receiving other housing assistance is estimated by $\beta_1 + \beta_6$. As noted, we hypothesized that β_5 would be positive, indicating increased insecurity among mothers subject to the scrutiny of public housing, but that β_6 would be negative, reflecting a protective role of other housing assistance against the insecurity associated with incarceration:

$$\begin{aligned} \text{Logit}(INSECURE_5) &= \beta_0 + \beta_1 INC_{15} \\ &+ \beta_2 INC_1 \\ &+ \beta_3 \mathbf{X} + \beta_4 INSECURE_1 \\ &+ \beta_5 INC_{15} \\ &\times PH_1 + \beta_6 INC_{15} \\ &*VOUCHER_1 + \varepsilon \end{aligned}$$

Sensitivity Analyses

As noted above, our primary estimates of incarceration's effect on housing insecurity were focused on an aggregate measure of insecurity and a sample constructed through multiple imputation. We assessed the sensitivity of our findings to our choice of outcome measure and missing-data approach. After estimating the associations between fathers' incarceration and our aggregate measure of mothers' housing insecurity, we estimated the extent to which incarceration was associated with each of the component indicators of insecurity, replicating each model to predict, in turn, each of the five indicators of insecurity. We also assessed the sensitivity of findings to our missing data approach, by reestimating models on a complete case sample.

RESULTS

Sample Description

A summary of maternal housing insecurity among our analysis sample is provided in Table 1, underscoring the prevalence of housing insecurity facing urban mothers. Our data, weighted to be representative of the 20 Fragile Families cities, showed that nearly one-fifth (18%) of mothers in these cities reported some form of insecurity around the time of their child's fifth birthday. However, the prevalence of housing insecurity varied substantially by

domain; the most common type of insecurity, having skipped a rent or mortgage payment, was experienced by 11% of urban mothers, and the most rare type of insecurity, eviction, was experienced by only 2%. For each type of housing insecurity, Table 1 identifies significant differences in maternal housing insecurity by partner incarceration history, with mothers whose partners had been incarcerated significantly more likely to experience each form of housing insecurity than mothers whose partners had no history of incarceration.

Table 1 also suggests that the differences between our two analysis samples were only slight. Because both the complete-case and imputed samples focused on mothers reporting on all components of housing insecurity, the full-sample rates of housing insecurity were equal across samples; the difference between the “partner ever incarcerated” and “partner never incarcerated” rates was driven by the allocation of mothers whose partner incarceration histories were unknown in the complete-case sample. Imputing the incarceration histories of these fathers suggested virtually no changes in rates of insecurity among women with either incarcerated or never-incarcerated partners. Subsequent tables therefore present results based on the imputation sample, with complete case results discussed only in terms of deviations from the imputation findings.

Although rates of housing insecurity were significantly higher among mothers whose partners had histories of incarceration, these hardships were likely driven not only by the incarceration itself but also by other socioeconomic challenges faced by incarcerated fathers and their families. As shown in Table 2, women whose partners had histories of incarceration faced significant disadvantages in addition to their increased housing insecurity; they were younger when the focal child was born, were less likely to have been married at the time of the birth, and were more likely to live apart from their child’s father. They faced higher rates of depression among their own mothers, displayed higher levels of impulsivity, scored lower on cognitive tests, and had lower levels of educational attainment and employment. They reported higher rates of substance use and worse health. They had more children, were less likely to be homeowners, reported lower levels of social support, and were more likely to have histories of incarceration. Each of these factors, significant at $p < .05$, might have compromised mothers’ housing security even in the absence of their partners’ incarceration. On the other hand, mothers with incarcerated partners were more likely to live in public housing at Year 1 and reported higher rates of both housing assistance and public assistance more generally, suggesting greater disadvantage, but also that welfare benefits might have helped to mitigate socioeconomic hardships. Table 2 underscores the need to control for the numerous socioeconomic factors that might confound estimates of the causal effect of fathers’ incarceration on mothers’ insecurity.

Insecurity Risk

Table 3 presents odds ratios (ORs) indicating the estimated increase in the odds of housing insecurity among women with histories of partner incarceration, suggesting that women experiencing their partners’ incarceration faced significantly elevated risks. Model 1 suggested that women whose partners were recently incarcerated faced odds of insecurity nearly 50% higher (OR = 1.49) than women whose partners were not recently incarcerated. This difference was of smaller magnitude than that noted in Table 1 (due to covariate

adjustment), but substantial, as well as highly statistically significant. The estimated difference associated with recent partner incarceration was above and beyond that associated with her own lifetime history of incarceration, and of approximately equal magnitude. (Note that mothers' own incarceration histories were independently associated with increased housing insecurity.)

Model 1 also suggested that several other socioeconomic factors were associated with mothers' housing insecurity. Women displaying higher levels of impulsivity were significantly more likely to report housing insecurity, as were women with family histories of depression and those reporting higher levels of parenting stress at Year 1. On the other hand, women who had graduated college reported significantly lower rates of housing insecurity, as did those reporting higher rates of social support. Year 1 homeownership was associated with a marginal reduction in mothers' odds of housing insecurity at Year 5, as was mothers' baseline health. It is important to note that although these associations need not reflect causal relationships (e.g., women with greater stability in their personal lives may have been better positioned both to complete their education and to maintain their housing security), controlling for other aspects of stability reduced the likelihood that the relationship between incarceration and housing insecurity was driven by unobserved heterogeneity.

Model 2 suggested that the increased risk of insecurity among women with incarcerated partners was not driven by housing insecurity that preceded the Year 1 survey or any subsequent incarceration of their partner. The increased odds of insecurity associated with recent incarceration did not substantially change when earlier housing insecurity was considered (OR = 1.49); covariate associations were slightly altered (most often, reduced) in both magnitude and significance, but qualitative results remained similar. Using repeated measures of housing insecurity allowed the observation of changes, increasing our confidence that the observed risk of mothers' insecurity associated with their partners' recent incarceration represented a causal effect.

Model 3 further tested the plausibility of our estimated relationships by examining the extent to which the association between fathers' incarceration and mothers' experience of insecurity was moderated by pre-incarceration coresidence. As noted earlier, we hypothesized that paternal incarceration was most disruptive to families who had been living together before the father's time in prison or jail. This hypothesis was supported by Model 3, which suggested a significantly stronger incarceration–insecurity relationship for mothers whose partners were coresident prior to their incarceration (interaction OR = 1.51). In fact, Model 3 suggested that the association between incarceration and housing insecurity was only statistically significant for couples who had been coresident prior to the incarceration.

Potential Mechanisms

Having estimated significant associations between fathers' incarceration and mothers' subsequent experience of housing insecurity, we examined potential mechanisms that might have governed these relationships. In Table 4 we present tests of potential mediators and moderators of the relationship between fathers' incarceration and mothers' housing insecurity.

In the upper panel of Table 4, the first set of columns restates the results of Model 2, indicating that mothers with recently incarcerated partners faced odds of housing insecurity 49% higher than those of mothers whose partners were not incarcerated. The second set of columns presents the results of Model 4, which added an additional control for fathers' Year 5 contributions. Model 4 suggested that fathers' financial contributions mediated a portion of incarceration's effects on mothers' housing insecurity: Fathers' financial contributions were associated with a significant reduction in mothers' odds of insecurity, and the coefficient on recent incarceration was reduced from .40 to .29 when fathers' post-incarceration contributions were considered. This mediating role was further supported by the Sobel–Goodman test (in the lower panel of the table), which found reduced financial contributions among formerly incarcerated fathers and an estimated protective effect of financial contributions on mothers' housing insecurity. However, even when financial contributions were considered, incarceration maintained a significant independent association with subsequent housing insecurity. The Sobel–Goodman test suggested that 21% of incarceration's total association with mothers' housing insecurity was explained by reductions in fathers' financial contributions, and that other mechanisms were also likely at play.

The third set of columns in Table 4 presents results from Model 5, which examined Year 5 maternal stress as a potential mediator of incarceration's effects on housing insecurity, and found its mediating role to be limited. Although maternal stress was a significant predictor of mothers' housing insecurity, the Sobel–Goodman mediation test found that maternal stress explained only 13% of incarceration's total association with housing insecurity, again suggesting that other mechanisms may have been at play.

Finally, the last columns of Table 4 present results from Model 6, which tested the plausibility of housing policy as a determinant of mothers' housing security following their partners' incarceration. Specifically, we hypothesized that the risks associated with fathers' incarceration would be exacerbated for mothers in public housing, who were subject to regulations such as one-strike enforcement but that the effects of incarceration would be mitigated for mothers receiving other forms of housing assistance. Model 6 provided little support for these hypotheses, as neither public housing nor other housing assistance was a significant moderator of incarceration's estimated effect. Moreover, the interaction between incarceration and public housing was associated with diminished insecurity rather than more.

DISCUSSION

Summary of Findings

The goal of our study was to assess the effects of fathers' incarceration on the housing security of their families, and specifically of the women with whom they have children. As demonstrated in Table 3, we found strong and robust associations, suggestive of adverse effects: Mothers with recently incarcerated partners, on average, faced approximately 50% greater odds of housing insecurity than other mothers. The negative associations between fathers' incarceration and mothers' housing security were concentrated in families in which the father had been resident prior to his incarceration, which supported the first of our

entering hypotheses and was consistent with prior research suggesting a father's removal from the household as a driver of incarceration's adverse effects on families (Geller et al., 2012).

Our examination of other potential mechanisms suggested only limited support for our mediation and moderation hypotheses (Hypotheses 2–5). As noted above, fathers' financial contributions were a significant predictor of mothers' housing insecurity and explained 21% of the association between mothers' insecurity and fathers' incarceration. However, their mediating role was limited: The majority of the association was left unexplained when contributions were considered. Maternal stress was even less closely associated with the incarceration–insecurity relationship, and we found little evidence of moderation of the incarceration–housing relationship by either mothers' residence in public housing or other receipt of housing assistance. However, it bears noting that the interaction coefficients represent an average level of moderation and may mask a heterogeneous relationship whereby housing assistance was protective in some circumstances but risky in others.

Sensitivity to Missing-Data Approach

Although the majority of results we have presented were based on a multiple-imputation sample, our key findings were largely similar when models were estimated for a complete case sample. (Detailed results are available on request.) In our complete case analysis, Models 1 and 2 suggested relationships that were reduced in magnitude and only marginally significant (ORs reduced from approximately 1.49 to 1.35, $p = .057$); this reduced significance was due in part to the dropped cases in the complete case sample ($N = 1,852$). Model 3 suggested a statistically significant association (OR = 1.81, $p < .01$) among mothers whose partners had previously been coresident, but not those who lived separately from their partners, suggesting that our key substantive finding, of an adverse relationship concentrated in formerly coresident families, was observed in both the complete case and imputed data sets.

Sensitivity to Outcome Choice

As noted, our outcome of primary interest was an aggregate indicator of whether mothers experienced “any insecurity” (among five components) in the year leading up to their Year 5 interviews. Examining each type of insecurity (results available on request), we found that our general observation, of compromised housing security among mothers with recently incarcerated partners, is robust across outcomes. However, the magnitude and significance of these associations varied. Using the aggregate measure, we found that mothers with recently incarcerated partners faced odds of insecurity that were nearly 50% greater than mothers whose partners were never incarcerated ($p < .001$). This association was slightly diminished for skipping a rent payment, the most common type of insecurity (OR = 1.33, $p = .029$). Eviction, moving more than once per year, doubling up, and homelessness were each more closely associated with partner incarceration than the aggregate measure of insecurity (adjusted ORs = 1.71, 1.75, 1.77, and 2.36, respectively). The statistical significance of these relationships also varied: Frequent moves, doubling up, and homelessness were each significantly associated with incarceration at $\alpha = .05$ or less, whereas eviction was only marginally associated with incarceration ($p = .059$).

When we examined differences in the incarceration–insecurity relationship by fathers’ pre-incarceration residence, we found that, like our aggregate indicator, skipping a rent payment and moving more than once per year were each significantly associated with incarceration only for families in which the incarcerated father had been coresident prior to his incarceration. Eviction, only marginally associated with incarceration overall, was limited to a marginal association for formerly coresident mother, and was not significantly associated with incarceration for mothers who had not been living with their partners in the wave before their incarceration. Each of these findings underscores the potentially destabilizing effect of an incarcerated father’s removal from the family household. On the other hand, doubling up was associated with incarceration for families living separately as well as those previously coresident, and mothers’ experiences of homelessness, the most serious form of housing insecurity, were associated with incarceration only for women who had not been living with their partner before his incarceration.

Limitations and Directions for Future Research

Although we observed significant associations between fathers’ incarceration and mothers’ subsequent housing insecurity, which were of considerable magnitude and largely robust, our findings must be interpreted with caution. Ascertaining causal effects from observational data presents challenges, because observed increases in mothers’ housing insecurity may reflect a spurious relationship driven by unobserved difference between families with and without paternal incarceration histories. This concern is particularly relevant to our homelessness findings. We had hypothesized that the effects of paternal incarceration on maternal housing would be greatest for couples that had previously been coresident. Although this was the case for several domains of housing insecurity, we found that the increased risk of homelessness was greatest for nonresident partners, suggesting that the experience of homelessness may have been tied to other aspects of family disadvantage, rather than the shock of incarceration.

This counterintuitive finding points to two directions for future research. The first is an analysis more focused on causal inference. We consider our current estimates to be an upper bound on incarceration’s causal effects, but an analysis examining exogenous shocks to a family’s risk of paternal incarceration is likely to more closely identify incarceration’s unique effect. The second direction we propose for future research is a detailed analysis of mothers’ experiences of different domains of housing insecurity. A growing literature suggests that incarceration undermines family income (Geller et al., 2011), which may in turn affect the ability to pay rent (Phillips et al., 2006; Schwartz-Soicher et al., 2011). However, the links between income loss and more severe experiences of housing insecurity, such as homelessness, may be mediated by social support and other factors. Although the current analysis drew on a rich set of observable control variables (including social support), and presents preliminary tests of mediation and moderation, a large portion of the relationship between incarceration and housing insecurity remains unexplained. These complex relationships would benefit from further analysis, potentially using a structural equation modeling framework.

Finally, our analysis was limited by a lack of detailed information about the fathers' experience in the criminal justice system. We knew little about the crime for which fathers were incarcerated, the length of time they spend incarcerated, whether they are incarcerated in prison or jail, or how recently they were released. The effects of incarceration are likely to vary widely on the basis of these factors (Comfort, 2007; Metraux et al., 2008). Although our estimates represented average effects across a range of circumstances, the exploration of effect heterogeneity is an important direction for future research.

Conclusions and Policy Implications

Despite these limitations, our findings add to the growing literature documenting the extreme disadvantage facing the millions of families with currently or formerly incarcerated fathers, and they provide guidance for policymakers, criminal justice practitioners, and social service providers who wish to strengthen families following a father's incarceration. Specifically, the partially mediating role of fathers' financial contributions suggests that efforts to increase the consistency of monetary support could have substantial payoff for family stability, and housing security in particular. Previously coresident couples may be helped by short-term rent subsidies that enable them to maintain their ability to pay rent and stay in their homes following the loss of a breadwinner to incarceration. Increasing attention is also being paid to the child support system, one of the few systems to administratively connect incarcerated fathers to their partners and children, as a mode of stabilizing the income of families in which nonresident fathers are incarcerated (CDCR Today, 2011). Housing-focused subsidies, and consistent child support payments, have the potential to help vulnerable families, including the partners of incarcerated men, maintain connections to their local communities and better handle the other challenges they face.

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Mothers' Year 5 Housing Insecurity, by Partner Incarceration Status

Table 1

Insecurity type	Partner incarceration status					
	Full sample (<i>N</i> = 4,041)	Complete cases			Imputed	
		Partner ever incarcerated (<i>n</i> = 1,808)	Partner never incarcerated (<i>n</i> = 1,817)	Partner incarceration unknown (<i>n</i> = 416)	Partner ever incarcerated	Partner never incarcerated
Any insecurity	18	13	22	28	15	
Skipped payment	11	9	12	15	9	
Doubled up	6	4	7	11	4	
Moved > 1x per year	4	2	5	7	2	
Homelessness	3	1	6	6	2	
Evicted	2	1	4	3	2	

Note: All table values are percentages. All differences between ever-incarcerated and never-incarcerated cases are statistically significant at *p* < .001. In weighted and imputed data, the number of incarcerated fathers varies from 1,103 to 1,129; the number of never-incarcerated fathers varies from 2,912 to 2,938 across the five imputed data sets. Data are weighted to represent 20 Fragile Families Cities.

Table 2

Mothers' Demographic and Socioeconomic Background, by Partner Incarceration Status

Variable	Ever incarcerated <i>M (SD) or %</i>	Never incarcerated <i>M (SD) or %</i>
Mother race		
White	17%	34%
Black	53%	27%
Hispanic	27%	30%
Other	3%	9%
Mother foreign born	11%	32%
Mother age	24.0 (5.8)	28.3 (6.0)
Mother lived with both parents	33%	62%
Mother cognitive ability (range: 0–15)	6.5 (2.6)	7.1 (2.9)
Mother impulsivity (range: 0–6)	0.91 (0.74)	0.74 (0.72)
Family history of depression	31%	22%
Married (Year 1 [Y1])	20%	69%
Cohabiting (Y1)	27%	16%
Nonresident (Y1)	53%	16%
Mother completed less than high school (baseline [BL])	43%	24%
Mother high school graduate, not college graduate (BL)	55%	49%
Mother college graduate (BL)	2%	27%
Father's financial contributions (Y1)	\$3,158 (\$4,536)	\$10,856 (\$12,411)
Maternal employment (Y1)	41%	52%
Maternal earnings (Y1)	\$8,219 (\$10,387)	\$16,072 (\$24,494)
Baseline maternal health ("excellent" or "very good")	60%	72%
Mother's substance use (BL)	5%	1%
Father's substance use (BL)	16%	3%
Maternal benefit receipt (Y1)	55%	17%
Number of children (Y1)	2.3 (1.6)	2.0 (1.2)
Maternal home ownership (Y1)	10%	32%
Mother in public housing (Y1)	19%	7%
Other maternal housing assistance (Y1)	10%	4%
Maternal social support	-0.27 (1.17)	0.10 (0.70)
Any maternal incarceration by Year 5	12%	4%

Note: Percentage sums (race, education, and relationship status) may not total 100% due to rounding. All differences are statistically significant at $p < .001$ with the exception of Hispanic race. Mothers with and without partner histories of incarceration were equally likely to be Hispanic. In weighted and imputed data, the number of incarcerated fathers varies from 1,103 to 1,129; the number of never-incarcerated fathers varies from 2,912 to 2,938 across the five imputed data sets. Data are weighted to represent 20 Fragile Families Cities.

Table 3
 Summary of Logistic Regression Analysis of Mothers' Year 5 Housing Insecurity (Any): Effect Estimation

Predictor	Model 1			Model 2			Model 3		
	Socioeconomic controls only			Socioeconomic controls and Y1 housing insecurity			Including interaction by Y1 residence		
	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>b</i>	<i>SE</i>	<i>OR</i>
Recent incarceration (Y1–Y5)	0.40***	0.11	1.49	0.40***	0.11	1.49	0.22	0.14	1.25
Distal incarceration (by Y1)	-0.03	0.12	0.97	-0.09	0.12	0.91	-0.08	0.12	0.92
Incarceration (Y1–Y5) × resident (Y1)							0.41*	0.19	1.51
Early life covariates									
Black	0.01	0.13	1.01	0.09	0.13	1.09	0.08	0.13	1.08
Hispanic	-0.13	0.15	0.88	-0.10	0.15	0.90	-0.10	0.15	0.90
Other race	0.27	0.25	1.31	0.30	0.25	1.35	0.28	0.26	1.32
Mother foreign born	0.05	0.15	1.05	0.05	0.15	1.05	0.07	0.15	1.07
Mother age	-0.01	0.01	0.99	-0.01	0.01	0.99	-0.01	0.01	0.99
Mother lived with both parents	-0.15	0.09	0.86	-0.13	0.09	0.88	-0.13	0.09	0.88
Mother cognitive ability (range: 0–15)	0.04	0.02	1.04	0.03	0.02	1.03	0.03†	0.02	1.03
Mother impulsivity (range: 0–6)	0.16**	0.06	1.17	0.18**	0.06	1.20	0.19***	0.06	1.21
Family history of depression	0.61***	0.09	1.84	0.54***	0.10	1.72	0.54***	0.10	1.72
Contemporaneous covariates									
Cohabiting	0.04	0.13	1.04	0.04	0.13	1.04	0.01	0.13	1.01
Nonresident	0.01	0.15	1.01	-0.02	0.15	0.98	0.12	0.16	1.13
Less than high school	-0.01	0.09	0.99	-0.01	0.10	0.99	-0.02	0.10	0.98
College graduate	-0.43*	0.21	0.65	-0.39†	0.21	0.68	-0.28†	0.21	0.76
Father's contributions (Y1)	-0.01	0.01	0.99	-0.01	0.01	0.99	-0.01	0.01	0.99
Maternal employment (Y1)	0.05	0.10	1.05	0.04	0.10	1.04	0.04	0.10	1.04
Maternal earnings (Y1)	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Baseline maternal health	-0.14†	0.09	0.87	-0.14	0.09	0.87	-0.15†	0.09	0.86

Predictor	Model 1			Model 2			Model 3		
	Socioeconomic controls only			Socioeconomic controls and Y1 housing insecurity			Including interaction by Y1 residence		
	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>b</i>	<i>SE</i>	<i>OR</i>
Maternal stress (Y1)	0.16*	0.07	1.17	0.10	0.08	1.11	0.10	0.08	1.11
Mother's substance use (BL)	0.07	0.17	1.07	-0.03	0.17	0.97	-0.04	0.17	0.96
Father's substance use (BL)	0.14	0.13	1.15	0.09	0.13	1.09	0.08	0.13	1.08
Maternal benefit receipt (Y1)	0.03	0.10	1.03	-0.06	0.11	0.94	-0.07	0.11	0.93
Number of children (Y1)	0.04	0.03	1.04	0.03	0.03	1.03	0.03	0.03	1.03
Maternal home ownership (Y1)	-0.28	0.16	0.76	-0.16	0.16	0.85	-0.15	0.16	0.86
Mother in public housing (Y1)	-0.16	0.14	0.85	0.00	0.14	1.00	0.00	0.14	1.00
Other housing assistance (Y1)	0.22	0.17	1.25	-0.07	0.18	0.93	-0.07	0.18	0.93
Maternal social support	-0.19***	0.05	0.83	-0.14**	0.05	0.87	-0.14**	0.05	0.87
Any maternal incarceration (Year 5)	0.40**	0.14	1.49	0.35*	0.15	1.42	0.34*	0.15	1.40
Skipped rent (Y1)				0.81***	0.12	2.25	0.81***	0.12	2.25
Evicted (Y1)				0.38	0.24	1.46	0.38	0.23	1.46
Doubled up (Y1)				0.64***	0.13	1.90	0.64***	0.13	1.90
Homeless (Y1)				-0.11	0.29	0.90	-0.12	0.29	0.89
Moved > 1x per year (Y1)				0.38**	0.13	1.46	0.38**	0.13	1.46
Pseudo R ² range	0.07-0.08			0.10-0.11			0.11		

Note: N = 4,125 in each imputed data set. OR = odds ratio; Y1 = Year 1; Y5 = Year 5; BL = baseline.

† *p* < .10.

* *p* < .05.

** *p* < .01.

*** *p* < .001.

Table 4

Results of Regression Analyses Examining of Potential Mediators and Moderators of the Relationship Between Fathers' Incarceration (Year 1–Year 5 [Y1–Y5]) and Mothers' Housing Insecurity, and Results of Sobel–Goodman Tests for Mediation

Predictor	Model 2 (restated)			Model 4 (+ Y5 contributions)			Model 5 (+ Y5 stress)			Model 6 (housing assistance)		
	<i>b</i>	<i>SE</i>	OR	<i>b</i>	<i>SE</i>	OR	<i>b</i>	<i>SE</i>	OR	<i>b</i>	<i>SE</i>	OR
Logit model results (based on multiple imputation samples, <i>N</i> = 4,125 per sample)												
Recent incarceration (Y1–Y5)	0.40***	0.11	1.49	0.29**	0.11	1.33	0.38***	0.11	1.49	0.46***	0.12	1.58
Fathers' Y5 contributions				-0.07***	0.02	0.93						
Maternal stress (Y5)							0.34***	0.07	1.41			
Incarceration (Y1–Y5) × PH (Y1)										-0.23	0.23	0.79
Incarceration (Y1–Y5) × other assistance (Y1)										-0.021	0.39	0.81
Results of Sobel–Goodman mediation tests (based on linear probability model with complete case sample, <i>N</i> = 1,849)												
Unmediated estimate				0.06*	0.03	0.50 [†]	0.02					
Estimated incarceration effect on mediator				-1.82***	0.37	0.11**	0.04					
Estimated effect of mediator on insecurity				-0.01***	0.00	0.06***	0.02					
Estimated indirect effect				0.01*	0.00	0.01*	0.00					
Estimated direct effect				0.05*	0.03	0.04 [†]	0.02					
Proportion of total effect that is mediated				0.21		0.13						

Note: Models 4, 5, and 6 include all covariates included in Model 2 and displayed in Table 3. Results are based on unweighted data.

[†] *p* < .10.

* *p* < .05.

** *p* < .01.

*** *p* < .001.