

Material Hardship and Contraceptive Use during the Transition to Adulthood

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April 2020

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### **Abstract:**

Decades of research have attempted to understand the paradox of stubbornly high unintended pregnancy rates despite widespread use of contraception. Much of this research has focused on the socioeconomic disparities in rates of unintended pregnancy, finding that disadvantaged women tend to use less effective contraceptive methods and use them less consistently. Building upon this research, this study examines how material hardship is associated with less consistent contraceptive use among women who do not desire to become pregnant. Using the Relationship Dynamics and Social Life (RDSL) Study, a weekly longitudinal survey, I find lower levels of contraceptive use and less consistent use of contraception among women experiencing material hardship, relative to those without hardship experiences. I also investigate the extent to which this association is explained by access barriers and lower contraceptive efficacy among women experiencing hardship. Using structural equation modeling, I find that these mediators do significantly explain the relationship between hardship and risky contraceptive behaviors, suggesting that hardship creates mental and resource constraints that impede successful implementation of contraception. However, net of these mediators, material hardship remains associated with riskier contraceptive behaviors among young women, calling for further research on how hardship exposes women to greater risk of unintended pregnancies.

## **Introduction**

Nearly half of pregnancies (45%) are unintended, but this rate is significantly higher for low-income women (Finer and Zolna 2016). For women living below the poverty line, almost 65% of pregnancies are unintended (Finer and Zolna 2016), meaning that a far disproportionate number of these women and their children face the negative consequences of unintended pregnancy (Dott et al. 2010; Gipson, Koenig, and Hindin 2008; Kost and Lindberg 2015; Sonfield et al. 2013). In addition, young women are particularly at risk; over three-quarters of pregnancies to women aged 18 to 19 were classified as unintended in 2011, which has remained largely stable in the past decade (Finer and Zolna 2013, 2016). Nationally, declines in unintended pregnancy have been tied to increasingly effective forms of contraception and enhanced access through healthcare expansion (Jones, Mosher, and Daniels 2013; Kavanaugh and Jerman 2018; Mulligan 2015). But, persistently high rates of unintended pregnancy among young and low-income women indicate that there remain important barriers, either structural or individual-level, to contraceptive use (Musick et al. 2009; Nelson and Kakaiya 2016).

The concept of *material hardship* may help us understand the mechanisms through which disadvantage creates barriers to effective contraceptive use. Material hardship operationalizes the idea of poverty as “unmet needs,” by measuring the extent to which families are able to secure basic necessities (Mayer and Jencks 1989). Material hardships occur when families lack the resources to meet their needs and as a result face material deprivation like a utility shutoff, insufficient food, or pawning belongings to make ends meet. While income and poverty status only measure economic resources, material hardship reveals how varying financial and family contexts can result in similar constraints and deprivations. Scholars have shown that hardship and poverty status are only moderately correlated, indicating that while some poor families are

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able to meet their needs, often through social assistance programs that provide food and housing essentials, even non-poor families can face demands exceeding their resources (Iceland and Baurman 2007; Mayer and Jencks 1989). Recent work from Schenck-Fontaine and Panico (2019) demonstrates the importance of investigating different manifestations of economic security, documenting the different effects that income poverty, material deprivation, and financial stress, both alone and in combination, have on children’s behavioral outcomes. They show that income poverty alone underestimates the experience of economic hardship among families and misses the important effects of stress and material hardship on children. But, material deprivations do not only affect children in families; research on cognitive burden suggests that the gap between income and subjective needs reduces individuals’ *immediate cognitive capacity* and can harm one’s ability to follow through on long-term plans (Mani et al. 2013; Mullainathan and Shafir 2013; Shah, Mullainathan, and Shafir 2012).

Contraceptive use may be particularly affected by material hardship through this mechanism of cognitive burden. Contraceptive behaviors require forward planning and frequent diligence, by setting clear intentions that you do not want to become pregnant and following through on intentions by consistently filling prescriptions, attending doctor’s appointments, or keeping condoms on hand. Contraception is a decision and action that must be implemented over and over again. However, material hardship may constrain both the financial resources required for consistent contraception and the cognitive resources to maintain these behaviors long-term. The need for long-term planning can help us understand how hardship makes daily requirements of life, not just contraception, much more challenging and even impossible. However, most research on contraception focuses on either use at last intercourse or “usual” use (Jones et al.

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2013; Martinez, Copen, and Abma 2011), which may miss how behaviors that change over time, like contraceptive use, are affected by hardship.

Uniting this perspective of material hardship with measures of contraception that closely capture dynamics of use and consistency, this article asks: *How does material hardship affect the contraceptive behaviors of young women who want to avoid pregnancy?* I investigate whether young women experiencing hardship differ in their overall use of contraception, the types of methods they use, and their consistency. I then ask: *What mechanisms mediate the association between material hardship and contraceptive behaviors?*

To answer these questions, I use data from the Relationship Dynamics and Social Life (RDSL) study, which collected *detailed, weekly* information about young women’s sexual and romantic experiences for more than two years. Weekly measures of contraception provide the level of detail and reduction of recall bias that make RDSL the ideal dataset for this study (Barber, Kusunoki, and Gatny 2011). Most other study designs, including the National Survey of Family Growth (NSFG) and the National Longitudinal Study of Adolescent Health (AddHealth), use cross-sectional interviews which ask about contraceptive behaviors over one’s lifetime, the past year, or last sexual intercourse. In contrast, RDSL interviews capture dynamic, inconsistent behaviors. RDSL also offers a robust set of material hardship measures, unlike other national surveys on contraception, as well as efficacy and access questions that facilitate analysis of mechanisms. No other surveys offer this combination of design strengths and relevant measures.

Contraceptive use is particularly important for young women because unintended pregnancy rates are highest during the transition to adulthood and a pregnancy at this age can have a dramatic effect on life trajectory. In addition, younger adults face higher rates of material hardship than do older adults (Karpman, Zuckerman, and Gonzalez 2018), which suggests that

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the association between hardship and unintended pregnancy may be even more crucial at this age. Material hardship also provides a relevant measure of financial well-being for a population whose poverty status is challenging to measure accurately, because women at this age are often in very different stages of their transition to independence. Overall, the RDSL facilitates a unique study uniting the literatures of material hardship and determinants of contraceptive behavior. I also confirm my main findings in a national sample using Wave III of AddHealth. I extend prior work to suggest that material hardship may be importantly related to risky contraceptive behaviors because it affects young women’s access to contraception and ability to enact contraceptive plans.

### **Background**

Use of contraception has increased dramatically among U.S. women in the past several decades, particularly among younger women (Finer and Zolna 2016; Kavanaugh and Jerman 2018). In addition, more women are using the most effective forms of contraception and contraceptive failures have declined (Kavanaugh and Jerman 2018; Sundaram et al. 2017). So, why do we still see high rates of unintended pregnancies when effective contraceptives are widely available and used more frequently? Scholars have pointed to inconsistency as a factor; 40% of unintended pregnancies occur to women using contraception inconsistently or incorrectly (Sonfield, Hassted, and Gold 2014). Recent research has also tied inconsistent contraceptive use to socioeconomic disadvantage, finding that low-income and less-educated women have riskier contraceptive practices, which may contribute to higher rates of unintended pregnancy (Boonstra et al. 2006; Frost and Darroch 2007; Frost et al. 2008; Frost et al. 2007; England 2008).

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At a basic level, consistent contraceptive use requires three main components (Ajzen 1991; Ajzen and Klobas 2013): first, a decision to use contraception and/or avoid pregnancy, second, uninterrupted access to effective contraception methods, and finally, the ability to follow through on the decision to use contraception by using it during every sexual encounter, termed *contraceptive self-efficacy* by England and colleagues (England et al. 2016). The following sections describe how these components may be impacted by material hardship, and why material hardship may affect women’s ability to consistently implement a contraceptive plan. Women who want a pregnancy will, of course, not be motivated to use contraception; thus, I do not include women who want to get pregnant in my empirical models<sup>1</sup>.

### Access to Contraception

Women’s ability to consistently afford and obtain contraception offers perhaps the most direct connection between material hardship and contraceptive behaviors. Individuals experiencing material hardship face difficult choices allocating scarce resources to various expenses (Desmond 2012; Finnigan and Meagher 2019; Heflin and Butler 2013), and contraceptive costs may not be as urgent as paying rent or utility bills. Material hardship offers an advantage over measures of poverty status and income, because of this ability to directly measure whether women are making these trade-offs between necessities or if their needs are met through their own income or the social safety net.

While contraception costs are declining and the oral contraceptive pill is often free, many women face considerable barriers to obtaining contraception. A primary barrier for women is

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<sup>1</sup> In supplementary analyses (appendix table 1), I also show that women who do not desire pregnancy have very similar attitudes towards pregnancy and contraception, regardless of material hardship, indicating that riskier contraceptive behaviors among women experiencing hardship are not likely due to different attitudes.

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insurance coverage; economically disadvantaged women are more likely to be uninsured (Dehlendorf et al. 2010), and there remains a large unmet need for publicly-funded contraceptive services (Frost, Frohwirth, & Zolna 2014). Even among the insured, issues including transportation to the doctor, taking time off work for appointments, and regular pharmacy trips create barriers, especially for women already facing the overwhelming time and bureaucratic demands of poverty (Desmond 2017; Edin and Lein 1997; Hays and Hays 2003). For example, IUDs offer women low-maintenance and long-lasting contraception, but IUDs still require considerable upfront time and resources costs, as insertion requires at least two appointments and an often-expensive co-payment. On the other hand, even condoms, a relatively low-barrier and low-cost option, can add up to be a significant expense when used regularly as a primary pregnancy-prevention method. In addition, male partners are often expected to obtain condoms (Fennell 2011), but disadvantaged young women tend to be involved with similarly situated men (Meier and Allen 2008; Schwartz and Mare 2005; Silva 2013), who likely face the same challenges in obtaining contraception. Low income couples also often stop condom use as a signal of trust when relationships become serious (Edin et al. 2007; Edin and Kefalas 2005), but this transition away from condoms becomes a problem when women lack access to other methods. These factors likely combine to create access barriers for young women experiencing material hardships.

Access barriers lead to greater incidence of unprotected sex, but evidence on whether inadequate access to contraception leads to unintended pregnancy has been mixed. Some qualitative work has found that women do not discuss lack of access as a reason for contraceptive failures (Borrero et al. 2015; Reed et al. 2014). However, quantitative research on the Affordable Care Act insurance mandate found that increased access through insurance is

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associated with a clear increase in contraceptive use (Mulligan 2015), and survey research has found that women do cite access issues as a factor contributing to unprotected intercourse and unplanned pregnancies (Biggs, Karasek, and Foster 2012; Nettleman et al. 2007). Based on these literatures, I hypothesize that: *material hardship is associated with decreased access to contraception, which explains part of the association between hardship and risky contraceptive behaviors*. Access barriers are likely associated with lower use of more burdensome hormonal methods and greater inconsistency of contraceptive use, which may indicate women are having trouble consistently obtaining their preferred methods.

### Contraceptive Efficacy

While women across the socioeconomic spectrum often fail to effectively implement a contraceptive plan, research suggests that women with low incomes and lower educational attainment are more likely to inconsistently or incorrectly use contraception (Frost and Darroch 2008; Kost et al. 2008; Sundaram et al. 2017). England and others use the idea of contraceptive efficacy to help explain why women who do not desire pregnancy use contraception inconsistently or not at all (England 2016; Longmore et al. 2003; Reed et al. 2014). Efficacy refers to the ability to follow through on plans and intentions; for contraception, efficacy involves the ability to take oral contraceptives every day, regularly fill prescriptions, make clinic appointments, or ensure partners use condoms every time. Scholars have generally found lower self-efficacy among disadvantaged groups (England 2016; Longmore et al. 2003), supporting qualitative observations that women in economic distress often struggle with implementing contraception plans (Edin and Kefalas 2005; Reed et al. 2014).

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Through qualitative interviews on women’s sexual histories, Reed and colleagues (2014) identify two aspects of efficacy as particularly crucial to women’s contraceptive consistency: women’s ability to be assertive over partners’ contraceptive behaviors and their ability to be diligent with contraceptive routines. Prior research suggests that these two elements of efficacy may be affected by socioeconomic disadvantage. First, condom use is often understood to be the male partner’s responsibility (Fennell 2011), so women must exert considerable energy to ensure a less efficacious partner uses one (Reed et al. 2014). But, studies have found an increased willingness and likelihood of having unprotected sex among racially and socioeconomically marginalized groups (Biggs et al. 2012; Foster et al. 2012), which may indicate lower ability to control partners’ behaviors. In addition, socioeconomically disadvantaged women experience more reproductive coercion, often leading to unprotected intercourse (Grace and Anderson 2018). Therefore, disadvantaged women may have lower ability to ensure their partners use contraception, which may to some extent explain their lower contraceptive consistency.

Second, experiences with material hardship likely affect women’s ability to enact contraceptive plans. Ross and Mirowsky (1998; 2013) find that disadvantaged groups tend to feel less in control over their personal lives, leading to negative health behaviors. Further, a growing literature on cognitive burden suggests that living in poverty, even for a short period, can harm individuals’ decision-making and risk-evaluation abilities (Mani et al. 2013; Wijnberg and Reding 1999; Wood 2003). Shah and colleagues (2012) describe this phenomenon as “scarcity mindset,” an increased cognitive load that narrows one’s focus to short-term problems, to the neglect of long-term plans. Material hardship directly measures the material deprivations that cause this stress and cognitive burden for poor families, making hardship a uniquely appropriate measure for understanding why contraceptive behaviors might be influenced by poverty. These

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literatures lead me to my fourth hypothesis: *material hardship is associated with lower contraceptive efficacy, which in turn explains part of the association between hardship and risky contraceptive behaviors*. I expect that cognitive burden will affect women’s ability to obtain hormonal methods and remain consistent, and I expect that women’s efficacy will particularly affect consistency of methods that require partner cooperation.

### Material Hardship and Contraceptive Behaviors

While there is no existing research on the effects of material hardship on contraceptive use, material hardship has been linked to depression and poor mental health (Heflin and Iceland 2009; McCarthy et al. 2018), children’s behavioral and physical health (Schenck-Fontaine and Panico 2019; Yoo, Slack, and Holl 2009; Zilanawala and Pilkauskas 2012), and relationship distress and intimate partner violence (Schneider, Harknett, and McLanahan 2016; Williams, Cheadle, and Goosby 2015). These effects of hardship and the mechanisms illustrated in the preceding sections suggest that material hardship may affect women’s contraceptive behaviors, and particularly their ability to maintain consistent contraception long-term. Inconsistency will look different based on the methods women are using. Access issues may lead to women relying upon less effective, non-hormonal methods or to women switching to less effective contraceptive methods, perhaps due to insurance barriers. Lower contraceptive efficacy lead to less consistent condom use and more unprotected sex among women experiencing hardship. Therefore, my final hypothesis is: *material hardship is associated with riskier contraceptive behaviors: lower overall contraceptive use, lower use of hormonal methods, and greater inconsistency of contraceptive use*. I also expect that these relationships will be mediated by access to contraception and contraceptive efficacy.

## Data & Methods

### Relationship Dynamics & Social Life Study

To answer my research questions, I use data from the Relationship Dynamics and Social Life Study, a longitudinal, weekly survey based on a representative random and population-based sample of 1,003 18- and 19-year-old women from a county in Michigan. Respondents were selected from the Michigan Department of State personal identification card and driver’s license records. The research team conducted face-to-face baseline interviews between March 2008 and July 2009<sup>2</sup>, and the baseline response rate was 93%. While the sample is not nationally representative, the sample is consistent with national averages for high school and post-secondary enrollment, employment rates, and marriage rates (Clark 2018; Ela and Budnick 2017). However, the RDSL sample is notably different from the U.S. racial composition; about 34% of RDSL respondents are African-American, compared to only 17% nationally, and RDSL has a comparative underrepresentation of Asian and Latina women.

After the baseline interview, 99% of respondents (992) were enrolled in the longitudinal follow-up study and followed for the next 2.5 years with weekly surveys on relationships, sex, and contraceptive use over the internet or phone. The study used multi-modal weekly surveys, incentive schemes, and a reminder system to minimize attrition over the study. These strategies were effective in maintaining respondents; the study has at least 6 months of weekly survey data from 84% of respondents and more than 72% of women remained in the study for at least 1.5 years (Barber et al. 2016, 2011).

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<sup>2</sup> While this study design does control for cohort and age effects, survey administration during the beginning of the Great Recession may introduce period effects. Therefore, I provide a supplementary analysis of AddHealth.

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*Sample:* Respondents also completed a supplemental survey with questions about poverty and socioeconomic status<sup>3</sup> (hereafter “Poverty Supplement”) between May and June 2009. The supplement had a 65% response rate (582 of 895 respondents enrolled in the study at that time), or over half the total RDSL sample (58%)<sup>4</sup>. This study uses measures of material hardship from the Poverty Supplement and restricts analysis to women who completed it. I also restrict the sample to women at risk of unintended pregnancy: women who are sexually active and report no desire for pregnancy<sup>5</sup>. Of the 584 women who responded to the Poverty Supplement, 437 women were at risk of unintended pregnancy at some point in the following survey weeks. These 437 women comprise the overall sample for this study, but women who never used a given method are not included in method-specific analyses. The 437 women contributed 22,523 weekly surveys to the analysis.

### Measures

*Contraceptive Behaviors:* Each week, women were asked<sup>6</sup>, “did you use or do anything that can help people avoid becoming pregnant, even if you did not use it to keep from getting pregnant yourself?” Women were also asked whether they used some form of contraception “every time you had intercourse.” These weekly measures were summarized into a set of **five**

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<sup>3</sup> The supplement was not introduced as an explicitly poverty-focused survey, but rather as an additional survey on a range of topics including school, jobs, and finances.

<sup>4</sup> RDSL has high response rates and low rates of attrition (Barber et al. 2016; Watson and Wooden 2009), but comparing the responders and non-responders to the supplement reveals that the non-responders are generally more disadvantaged than responders. This is consistent with prior research and non-response bias on surveys. Models using chained multiple imputation on the hardship measures shows similar results as the contraceptive behavior models presented here and a small conservative bias on some contraceptive behaviors.

<sup>5</sup> Each week women were asked whether they had sexual intercourse (defined as vaginal intercourse) and to rate how much they wanted to become pregnant in the next month or avoid becoming pregnant on a scale of zero to five. The sample includes only weeks in which women were both sexually active and reported having zero desire for pregnancy and the strongest desire to avoid pregnancy.

<sup>6</sup> RDSL captures any use of contraception, regardless of reason for using, following national surveys like NSFG. Contraception reduces unintended pregnancy risk even when women are using it for other reasons, such as acne treatment, severe PMS, or irregular menstrual cycles.

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measures of contraceptive use and consistency<sup>7</sup>. These summary measures only include sexually-active, anti-natal weeks collected after the Poverty Supplement.

I divide these five measures into three conceptual groups, which reflect the stages of decision-making and follow-through integral to pregnancy prevention. **First**, are women using *any contraception*? To capture any use, I examine proportion of weeks in which respondents used any type of contraception (i.e., condoms, withdrawal, oral contraceptive pills, IUD, etc.). **Second**, if women are using contraception, what *method type* are they using? This variable captures the proportion of contraceptive-use weeks in which respondents used hormonal methods (i.e., pills, IUD, patch).

**Third**, how *consistently* are women using contraception? I use three separate measures to examine consistency, since inconsistency can manifest differently by method-type. The first consistency measure is: the proportion of coital-specific (e.g., condom, spermicide, withdrawal) contraceptive method weeks where respondents used the method for *every* instance of sexual intercourse<sup>8</sup>. This measure assesses efficacy and follow-through at the time of sexual intercourse. The second measure is: the number of times respondents switched from one contraceptive method to a *less effective* method (e.g., contraceptive pills to condoms). Women often switch methods due to dissatisfaction and side effects, but method switches may also indicate problems accessing contraception and can leave women at greater risk of unintended pregnancy (Frost, Singh, and Finer 2007). Finally, the third measure is: a count of the number of gaps in contraceptive use (i.e., periods of non-use) when women are having unprotected intercourse.

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<sup>7</sup> See Appendix Table 2 for the distributions of the dependent variables.

<sup>8</sup> This measure only includes weeks in which a coital-specific method was the woman's *most effective* form of contraception. In addition, sensitivity analyses including only condom-use weeks showed substantively similar results, but the sample was considerably smaller.

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These five sets of contraceptive behaviors allow me to examine dynamics of contraception that may be affected by material hardship through different mechanisms. Separate measures of hormonal and coital-specific methods also allow me to capture behaviors that are influenced by method preferences. African-American women generally do not prefer hormonal methods<sup>9</sup> (Jackson et al. 2016); therefore, examining consistency of condom use and gaps in contraception allows me to identify how hardship affects women if they prefer coital-specific methods.

*Material Hardship*: My main independent variable captures experiences of material hardship during the past year. The Poverty Supplement, which women responded to *before* the weekly surveys, asks seven hardship questions, adapted from the Survey of Income and Program Participation. Table 1 summarizes the questions and descriptive statistics<sup>10</sup>.

[Table 1]

These seven measures were combined into a count variable to capture the number of material hardships experienced by each respondent, summarized in Table 2<sup>11</sup>. The index was used to create three binary measures—no hardships, one hardship, and two or more material hardships—to create similarly sized groups<sup>12</sup>.

[Table 2]

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<sup>9</sup> Abortion rates are higher among African-American women (Jones and Jerman 2017), which may also play a role in hardship, as abortion may be a result of inconsistent contraception and the expense of an abortion may cause hardship. Unfortunately, RDSL is not well-suited to analyses of pregnancies terminated by abortion.

<sup>10</sup> Only one respondent failed to complete all hardship questions and she had no experiences of material hardship on the items that she completed. She was therefore coded as experiencing zero hardships.

<sup>11</sup> Appendix table 3 shows the distribution of hardship separately for women experiencing one hardship and women experiencing multiple hardships. This table shows that the distribution between these two groups is quite similar, with both groups most commonly experiencing pawning belongings, food insecurity, and telephone disconnection.

<sup>12</sup> Supplemental analyses using different constructions of material hardship yielded substantively similar results and supported the decision to combine women experiencing multiple hardship into one group. Models including each hardship individually also do not find that any one hardship drives the relationship between hardship and contraceptive behaviors.

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I also include a measure of whether the respondent was *uninsured*, to capture the unique effects of this barrier to healthcare. A lack of insurance is a significant hardship in the context of U.S. healthcare, both by putting women at risk of foregoing important healthcare needs and forcing women to cover medical costs at the expense of other essentials (Hall, Dalton, and Johnson 2014; Heflin and Butler 2013; Raiz 2006). However, given the qualitatively different effects of being uninsured, I separate insurance from other aspects of hardship<sup>13</sup>. Only one respondent was missing on this item and was imputed as the mode (insured).

*Mediators:* I examine how the relationship between material hardship and contraception may be mediated by *access to contraception* and *contraceptive efficacy*. These mediator variables are constructed from a set of seven items on the baseline interview and supplemental surveys. The specific question wording, response ranges, and descriptive statistics are presented in Table 3. All measures are coded such that higher numbers indicate agreement with the question as presented in the table. The control over sex and contraception scale was validated using polychoric factor analysis. Rather than using the less-interpretable factors in the analysis, I create the scale by adding together each individual variable and dividing by the number of variables in the scale. The Cronbach’s alpha for the scale is presented in the table. Two adjustments were also made to the mediators to improve interpretability in the models. First, the control over sex and contraception scale was divided by 10. Second, the worry about having enough money mediator was transformed into a dummy variable, with “1” indicating that the women responded either a 6 or 7 on the worry scale, about 38% of the sample, (i.e., those

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<sup>13</sup> The study was conducted before the implementation of the Affordable Care Act and Medicaid expansion, implications of these policy changes are elaborated in the discussion.

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women who worried the most) and with “0” indicating a woman worries less about money, about 62% of the sample.

[Table 3]

Notably, the control over sex and contraception scale falls slightly below the commonly accepted 0.70 threshold. The control over sex and contraception scale follows the conceptualization from Reed and colleagues (2014) and incorporates measures of both whether women believe they can control their partners’ behaviors and whether they can control their own behavior. Reed and colleagues find that women’s own self-efficacy and their ability to influence their partners’ can interact in complex ways to expose women to greater risks of unprotected sex. Although a more in-depth set of measures for self-efficacy and partner control would be ideal, the available measures in RDSL allow us to create a general, though imperfect, measure of the degree to which women can implement contraceptive behaviors, even when using methods not in their direct control.<sup>14</sup> As such, I combine these topics together into one scale.

*Controls:* I include controls to isolate the association between material hardship and contraceptive behaviors, net of other measures of economic security. At this age, it can be quite challenging to accurately capture poverty status, because young women are becoming adults and supporting themselves, often for the first time. These young women will likely be at different stages of this transition based on the socioeconomic status of and relationships with their families. Therefore, respondents vary both in their level of personal responsibility for earning their own living and the family backgrounds that influence their likelihood of experiencing

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<sup>14</sup> Results from the polychoric factor also supported including the measure on self-control with the measures of partner control. The Chronbach’s alpha for the scale with only the three partner measures was significantly lower than the four-item scale.

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poverty. So, I include three main sets of measures to account for women’s background economic security

First, because women at this age vary in the degree to which they can rely on their families, I include a dummy variable for whether women are fully responsible for themselves. Women were asked, “As people get older, they begin to take more responsibility for themselves. How much responsibility do you take for earning your own living?” I create a dummy variable, *fully responsible for self*, where “1” indicates that women responded as “completely responsible for this all of the time” (about 30% of the sample<sup>15</sup>) and “0” indicates women are not completely responsible for earning their own living. Second, I include a measure of family income to control for the degree to which women’s families can provide them support. I include a dummy variable for women who report their parents as having very low incomes (less than \$15,000), about 24% of the sample.<sup>16</sup> Third, I include an index for family background and childhood disadvantage measured with four dichotomous measures: the respondent’s mother was under the age of 20 at first birth, the respondent’s mother’s educational attainment was less than a high school diploma or equivalent, the respondent did not grow up with two parents, and the respondent’s family ever received public assistance during her childhood. The measures are summed to form a family background index.<sup>17</sup> Finally, I include a dichotomous measure of whether the woman reported receiving public assistance at baseline. Together, these measures seek to account for young

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<sup>15</sup> Alternative model specifications measured independence by whether a woman was living with her family and whether there was an interaction effect between independence and hardship, both specifications provided substantively similar results.

<sup>16</sup> Only one respondent was missing from the item on being responsible for oneself, and she was imputed as the mode (“not independent”). Nine respondents (2% of sample) were missing on family income at the Poverty Supplement and at baseline; these respondents were also imputed as the mode (“high family income”).

<sup>17</sup> These measures were also tested as separate controls, but nearly none of the individual measures were significant. Therefore, the index measure was used to capture family background effects.

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women’s level of independence and the degree to which she can fall back on her family, in order to isolate the effects of material hardship.

I also control for a set of demographic variables, measured at baseline, that predict sexual activity and contraceptive behavior in other RDSL research (Barber, Yarger, and Gatny 2015; Kusunoki et al. 2016). I represent race by a dichotomous variable of whether the respondent identifies as African-American, with all other racial and ethnic groups collapsed into the zero category.<sup>18</sup> Religious importance represents a dichotomous variable with “1” indicating that women responded that religious faith is “very important” or “more important than anything else,” and a “0” indicating that women responded religious faith was somewhat or not important. High school GPA is self-reported GPA coded as continuous. I also use two dichotomous measures from the baseline survey: were employed and were enrolled in school at baseline (around 18-19 years old).

Finally, I control for sexual history that likely impacts future behaviors. The adolescent risky sex index is a sum of four dichotomous variables: whether the respondent first had sex at 16 or younger, whether the respondent had two or more sexual partners before the study, whether the respondent ever had sex without any contraception, and whether the respondent had any pregnancies prior to the study. I also include a control for whether the woman had any prior births at the time of the poverty supplement.

*Analytic Strategy:* For the continuous dependent variables (proportion of weeks with any contraceptive use, proportion of weeks with a hormonal method, and proportion of coital-specific

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<sup>18</sup> A sensitivity analysis using white vs. non-white yielded nearly identical substantive results. A supplemental analysis including an interaction between race and material hardship indicated that the effect of hardship does not vary significantly by race.

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weeks with consistent use), I estimate OLS regression models with robust standard errors. I estimate negative binomial regression models with robust standard errors for the two count variables (number of contraceptive switches to worse methods and number of contraceptive gaps), to account for over-dispersion. The negative binomial regressions also include an exposure variable for the number of weeks at risk of the outcome to account for observation bias. For the mediation analyses on the continuous outcomes, I use structural equation modeling with the *sem* command in Stata and bootstrapping to evaluate the significance of the indirect effects through the mediator variables (Gunzler et al. 2013). The structural equation models use two equations to evaluate the indirect effect of the independent variables through the proposed mediators. Equation 1 predicts the mediator variable(s) on the independent variables, controlling for the full set of controls. Equation 2 predicts the dependent variable on the mediator variables, controlling for the full set of controls. The model thus isolates and tests the statistical significance of the effect of the independent variable on the dependent variable that operates solely through the mediator, net of the direct effect of the independent variable. However, this method is not accepted for non-continuous outcomes, so for count variables, I rely on substantive interpretations.

## Results

### Descriptive Statistics

Table 4 presents sample characteristics for the overall sample and by each level of material hardship, with independent samples t-tests (HS GPA) and chi-square tests (all other variables) for significant differences between the material hardship groups. The RDSL data has a relatively large proportion of African-American women, about 34% in the overall sample (not

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shown) and 27% in this analytic sample. Therefore, the women in RDSL may represent a somewhat more disadvantaged group, given the strong connection between racial and economic inequality in the United States<sup>19</sup>.

Table 4 shows that, women experiencing two or more material hardships tend to be more disadvantaged than women with one or no hardships. Women experiencing hardship are more likely to be uninsured, fully responsible for themselves, receiving public assistance, and report low family income. Women who experienced two or more hardships faced more disadvantage as children; for example, over 40% were born to a mother who had her first birth as a teen and more than half received public assistance as a child. Only a quarter of women without hardship experienced these childhood disadvantages, and women experiencing one hardship were similar to women without hardship. Women experiencing multiple hardships also had riskier sexual histories. For example, over 60% were 16 or younger at first sex and 77% had two or more partners at baseline. In addition, women with two or more hardships were more likely to be African American (38%) than women with no hardship (23%).

Overall, these sample characteristics indicate that women experiencing hardship are more disadvantaged during childhood and adolescence, but on some measures, women with one hardship are indistinguishable from women with none. This similarity between women without any hardship experiences and those with one hardship suggests this sample may be disadvantaged overall. If this is the case, our estimates for the effect of material hardship on contraceptive use may be conservative, as our comparison group is also disadvantaged.

[Table 4]

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<sup>19</sup> See Ela and Budnick (2017) for additional comparisons of the RDSL sample to nationally representative NSFG.

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### Contraceptive Behaviors

Table 5 shows that material hardship is associated with lower contraceptive use and greater inconsistency of contraceptive use and that insurance hardship is associated with decreased use of more effective, hormonal methods of contraception. In Model 1, women experiencing two or more material hardships use contraception about 8 percentage points less of the time compared to women without hardships. Women experiencing one hardship are not statistically significantly different from women without hardship. Focusing on hormonal methods in Model 2, insurance hardship is the strongest predictor of hormonal contraception, with uninsured women using doctor-prescribed, hormonal methods an average of 20 percentage points less of the time than insured women.

Model 3 assesses women’s ability to prevent pregnancy when doing so requires an active decision every time they engage in sexual intercourse. The results show that experiencing two or more hardships is associated with an average of 14 percentage points fewer weeks of consistent coital-specific method use, compared to women with no hardship. Women experiencing just one hardship have an average of 9 percentage points fewer weeks of coital-specific consistency than women without hardship, but this difference is only marginally significant. Insurance status is also associated with coital-specific method consistency; uninsured women are consistent about 11 percentage points *more* of the time than insured women. This may be because insured women who choose coital-specific methods, despite having more effective options, are less motivated or concerned about avoiding pregnancy compared to uninsured women who may use these less-effective methods only because they do not have access to other options. Frost and Darroch (2008) similarly find that uninsured women are more likely to use contraception consistently than insured women.

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Model 4 shows that women experiencing two or more material hardships have an average of 1.35 times ( $e^{-30}=1.35$ ) as many switches to less effective methods compared to women without hardship. Model 5 shows that hardship is associated with greater gaps in contraceptive use; experiencing one hardship is associated with an average of 1.7 times ( $e^{-55}=1.7$ ) as many gaps as women who have not experienced material hardship. While women experiencing two or more hardships have about 1.6 times ( $e^{-48}=1.6$ ) as many contraceptive gaps than women without hardship, this difference is only marginally significant<sup>20</sup>.

[Table 5]

### Mediation Models

Table 6 presents results adding mediators to models from Table 5. The first model for each outcome, labeled “a,” is the same model as Table 5 (controls included but not shown), and the second model for each outcome, labeled “b,” includes the two sets of mediators (controls included but not shown). I include mediators according to the hypotheses set up in the background section; accordingly, I only include control over sex and contraception in models for outcomes that could be affected by control over coital-specific contraceptive methods.

First in Models 1a and 1b, contraceptive efficacy and access significantly explain some of the association between hardship and any contraceptive use. In other words, women experiencing hardship use less contraception in part because they face challenges in affording contraception and because they worry more about making ends meet and perceive less control over their sexual and contraceptive experiences. Although the change is statistically significant and represents

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<sup>20</sup> As a sensitivity analysis, I also include a control for whether a woman *ever* expresses a desire for pregnancy during the survey and the proportion of weeks the woman was in a romantic relationship. These controls do not change substantive results and were excluded in favor of the presented models which provide a clean temporal ordering.

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about a 13% decrease in magnitude, the substantive change in the association is rather small. Even net of access and efficacy, women experiencing two or more hardships are using contraception an average of 7 percentage points less of the time compared to women without hardship.

Second, in Models 2a and 2b, access significantly mediates the relationship between insurance status and use of hormonal methods. Uninsured women use less doctor-prescribed contraception at least partially because it is not easy for them to get birth control. Access explains away over a third of the relationship between being uninsured and lower use of hormonal methods.

Next, in Models 3a and 3b, control over sex and contraception significantly explains the association between material hardship and lower coital-specific method consistency. Women experiencing material hardship and relying on condoms use them less consistently at least partially because they perceive a lack of control over sexual intercourse. Control explains over a third of the association between two or more hardship and coital-method consistency, as well as 20% of the association between one hardship and consistency.

Models 4a and 4b show that affordability is marginally significantly related to switches to less effective contraceptive methods, which reduces the association between hardships and switches by 40%. Women experiencing multiple hardships feel that contraception is unaffordable, which makes them more likely to switch to worse methods.

Finally, none of the mediators are significantly associated with contraceptive gaps, as shown in Model 5b. However, including the access and efficacy mediators does weaken the relationship between hardship and gaps, reducing the association by over 20% for one hardship and over a third for two or more hardships. These findings suggest a need for further

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investigation of how these mediators might be related to why women have gaps in their contraceptive use.

[Table 6]

### **Supplemental Analyses**

To supplement these findings, I confirm the association between material hardship and less consistent contraception in a nationally-representative dataset, AddHealth. While RDSL remains the ideal choice for studying long-term contraceptive consistency, it remains limited in its generalizability to the full U.S. population. Supplementary Table 1 provides a comparable analysis using Wave III of AddHealth, including only women ages 18 to 22 (Harris and Udry 2018). AddHealth measures contraceptive consistency using a retrospective question about the frequency of pregnancy prevention or birth control use in the past year. AddHealth includes only a subset of material hardship measures, so I examine the association between *any* hardship and consistent contraception<sup>21</sup>, including comparable controls. Supplement Table 1 shows that women experiencing hardship report using contraception less frequently in the past year than do women without hardship (a difference of 0.26 on a scale from 0 to 4). This finding confirms the general pattern found in the RDSL.

### **Discussion**

Consistency of contraceptive behaviors is crucial to successful prevention of pregnancy. Methods differ in the degree to which women must make active decisions and plan for pregnancy prevention, but all types of contraception require at least some degree of forward-

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<sup>21</sup> The AddHealth survey asks about lack of phone service, missed or underpayment of rent/mortgage, missed or underpayment of utility bill, utility shutoff in the past 12 months, and current homelessness. The hardship measure captures whether a respondent said yes to any of these items.

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planning. Prior literature suggests that socioeconomically disadvantaged young women have riskier contraceptive behaviors than more advantaged women (Frost et al. 2007; Wu et al. 2008; Kusunoki et al. 2016), which ultimately increases risk of unintended pregnancy. I extend upon this work with three main contributions. First, I show how material hardship may help us understand *why* disadvantaged young women use contraception less effectively. I find that, net of family background and economic security, experiencing material and insurance hardship is associated with *less use of any* contraception, *less use of hormonal methods*, and *less consistent use* of contraception. These risky contraceptive behaviors put young women experiencing hardship at increased risk of unintended pregnancy.

Contraceptive efficacy and cognitive burden are potential pathways through which socioeconomic disadvantage impede consistent contraceptive behaviors (England et al. 2016; Musick et al. 2009; Reed et al. 2014). As a second contribution to the literature, I find support for the role of efficacy in contraception. I find that lower control over sex and contraception helps explain why young women experiencing hardship are less likely to use contraception and less likely to use it consistently. I also find that worrying about making ends meet helps account for why young women experiencing hardship are less likely to use any contraception, supporting prior findings that poverty and material hardship may make it more difficult for women to follow through on plans when overwhelmed with worry over immediate needs (Shah et al. 2012). My finding that hardship partly operates through this mechanism of worrying about finances suggests that cognitive burden can influence behaviors that require long-term planning and diligence, like contraception. But, more research is needed to examine how exactly worry over money operates to affect contraceptive behaviors.

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Finally, I extend upon previous research to suggest that access may be an underappreciated barrier to contraceptive use (Guttmacher Institute 2008; Mulligan 2015; Dehlendorf et al. 2010). Young women experiencing hardships perceive contraception as difficult to obtain and unaffordable, which partially explains their lower use of doctor-prescribed, hormonal methods and their switches to less reliable methods. Scholars often dismiss access as a barrier due to widely available options and low cost of condoms (Borrero et al. 2015). But, the mediating role of access indicates that what may be regarded as a small expense or inconvenience can still pose a barrier to contraception, suggesting the continued need for expanded reproductive health services (Nelson and Kakaiya 2016; Potter et al. 2014). In addition, while condoms are generally regarded as inexpensive, for women relying solely on condoms, even this small expense adds up over time.

The mediating role of access barriers also suggests opportunities for intervention. While recent expansions in healthcare access may affect these findings, state rollbacks of reproductive care and contraceptive coverage and the continued precarity of employer-based healthcare suggest that contraceptive access likely remains a barrier for many women (Kavanaugh and Jerman 2018; Mulligan 2015; Potter et al. 2014). In addition, findings on efficacy suggest that policy interventions should avoid placing additional cognitive demands on women experiencing hardship, which may unintentionally impair contraceptive efficacy. Research has shown that the bureaucratic demands of poverty programs become a burden of themselves (Moynihan and Herd 2010; Moynihan, Herd, and Harvey 2015), and this study shows how cognitive burden may have direct effects on health behaviors.

It is also important to note that even net of these mediators, material hardships remain a significant predictor of contraceptive behaviors. I also failed to find any significant mediators for

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contraceptive gaps. Families often cycle in and out of poverty and material hardship; if gaps are more likely among women experiencing hardship, this cyclical nature may compound to greatly increase young women’s risk of long periods of unprotected sex. As with many issues of concern to sociologists and demographers, there may be a limit to the progress we can make by addressing the mechanisms through which disadvantage affects outcomes, rather than addressing the foundational issue of poverty (Link and Phelan 1995). My findings also support prior calls for additional work on the multiple dimensions of poverty that families can experience (Schenck-Fontaine and Panico 2019). Failing to account for the ways in which economic insecurity may manifest through material deprivation and financial stressors, beyond just income level, will miss how many families experience poverty and will underestimate the impacts of insecurity on wellbeing.

*Limitations.* In addition to the limited generalizability of RDSL, I do not attempt to prove a causal account of material hardship and contraception. I do, however, include a robust set of demographic and sexual history controls, and I measure material hardship before contraceptive behaviors. With these extensive controls and longitudinal design, these results are at minimum strongly suggestive of an association between hardship and contraception. In addition, the women who failed to respond to the survey were more disadvantaged compared to the women who completed this survey, which may introduce a conservative response-bias. Finally, hardships encompass experiences in the prior year; therefore, estimates of the effect of hardship may be underestimated if the negative impacts of hardship subside over time. As such, further research should examine the proximate impacts of material hardship on contraception and include a nationally-representative group of women, including older populations.

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*Conclusions:* Research on contraceptive use and stubbornly high unintended pregnancy rates indicates that consistent contraception can be challenging for women across the socioeconomic spectrum. But, it is easy to imagine that, when faced with the urgent needs of unpaid bills and chaos caused by utility shutoffs, maintaining a contraceptive plan can be forgotten in the shuffle. Contraception is just one example of a behavior that requires an ongoing commitment and diligence; hardship may also negatively affect behaviors such as care for long-term health needs, educational performance, or financial planning. These findings matter in the context of a shrinking social safety net and persistent attempts to restrict women’s access to contraception. Access to social services helps low-income individuals avoid material hardship, but the U.S. welfare system fails to provide many families with sufficient support to meet their needs (Edin and Lein 1997; Heflin 2006). If women experiencing material hardship face greater risk of unintended pregnancy, then further limiting their access to financial support and contraception will only further increase high rates of unintended pregnancy among the low-income women and contribute to the intergenerational transmission of disadvantage.

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### Acknowledgments

I am grateful to my anonymous reviewers, Jennifer Barber, Yasamin Kusunoki, Heather Gatny, Fabian Pfeffer, and the RDSL working group for their support and feedback on earlier drafts. This research was supported in part by the National Science Foundation Graduate Research Fellowship Program (DGE #1256260) and by a National Institute of Child Health and Human Development (NICHD) training grant to the Population Studies Center (PSC) at the University of Michigan (T32 HD007339). The data used in this analysis was collected with support from two research grants from the NICHD (R01 HD050329, U54 HD093540, PI Barber) and a research grant from the National Institute on Drug Abuse (R21 DA024186, PI Axinn). The author also gratefully acknowledges use of the services and facilities of the PSC, funded by the NICHD under award number P2CHD041028. The content of this publication is solely the responsibility of the author and does not necessarily represent the official views of the National Institutes of Health or the National Science Foundation. Earlier versions were presented at the annual meetings of the American Sociological Association (Philadelphia, August, 2018) and the Population Association of America (Austin, May, 2019).

**Author’s Contributions:** All data analysis and writing are the sole product and responsibility of the author.

**Data Availability:** All data sets are publicly available through the Inter-university Consortium for Political and Social Research. The RDSL website offers additional information about the publicly available RDSL data and requests for access to the restricted version:  
<https://rdsl.psc.isr.umich.edu/>

### Compliance with Ethical Standards

**Ethics and Consent:** The author reports no ethical issues.

**Conflicts of Interest:** The authors declare no conflicts of interest.

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## “Material Hardship and Contraceptive Use during the Transition to Adulthood”

Table 1: Material Hardship Measures (n = 437)

In the past twelve months...	Yes	No
You or anyone in household pawned or sold personal belongings?	27.3%	72.7%
Sometimes or often didn't have enough to eat?	27.0%	73.0%
Had telephone disconnected due to unpaid bills?	23.9%	76.2%
Received food or shelter from private charities?	12.6%	87.4%
Had gas or electric shut off due to unpaid bills?	7.3%	92.7%
Been evicted for not paying rent or mortgage?	6.2%	93.8%
Been homeless?	4.1%	95.9%

Table 2: Material Hardship Count (n=437)

Hardships	Frequency	Number of Respondents
0	45.8%	204
1	23.1%	105
2+	31.1%	128

Table 3: Descriptive Statistics and Question Text of Mediator Variables

Measures	N	Range	Distribution (Categorical) or Mean/sd (continuous)		
			Strongly Disagree	Disagree	Agree/Strongly Agree
<b>Access</b>					
1. You can't afford to pay for birth control. <sup>a</sup>	437	1 to 3	40.3%	34.6%	25.2%
2. It is not easy for you to get birth control. <sup>a</sup>	437	1 to 3	49.9%	34.1%	16.0%
<b>Contraceptive Efficacy</b>					
1. Control over Sex and Contraception Scale (alpha: 0.66)	437	0 to 100	79.6		
			(19.3)		
<i>1.1. Imagine that you were with a partner who wanted to have sexual intercourse but you did not. What are the chances that you could stop your partner from having sex with you?</i>	437	0 to 100	82.25		
			(26.64)		
<i>1.2. If you decided to have sex, what are the chances that you could get your partner to withdraw or "pull out" before ejaculating or coming?</i>	437	0 to 100	77.76		
			(27.53)		
<i>1.3. If you decided to have sex, what are the chances that you could get your partner to use a condom?</i>	437	0 to 100	87.63		
			(24.49)		
<i>1.4. Imagine being with a partner and you both want to have sexual intercourse, but you have no birth control available. What are the chances that you could stop yourself once you were highly aroused or turned on?</i>	437	0 to 100	70.90		
			(30.53)		
2. On a scale from 1 to 7, how often do you worry that you will not have enough money to pay for things?	437	1 to 7	4.65		
			(1.84)		

Notes:<sup>a</sup> - Highest two categories combined due to small cell sizes. Data Source: Relationship Dynamics and Social Life Study

- Italicized items are combined into a scale

# “Material Hardship and Contraceptive Use during the Transition to Adulthood”

Table 4: Proportions (dichotomous) or means (continuous) with std. deviation for analytic variables, overall sample and by number of hardships

		Full Analytic Sample	0 Material Hardships	1 Material Hardship	2+ Material Hardships	Statistical Significance of Group Differences		
		Proportion/ mean (sd)	Proportion/ mean (sd)	Proportion/ mean (sd)	Proportion/ mean (sd)	0 vs 1	1 vs 2+	0 vs 2+
Poverty	Uninsured	0.21	0.13	0.24	0.32	*		***
	Fully responsible for self	0.30	0.22	0.33	0.39	*		**
	Low family income	0.24	0.15	0.23	0.39	+	**	***
	Receiving public assistance at baseline	0.23	0.13	0.25	0.39	**	*	***
Family Background Index	Mother less than 20 at first birth	0.32	0.25	0.34	0.41			**
	Mother less than HS graduate	0.08	0.04	0.07	0.15		*	***
	Grew up with fewer than 2 parents	0.42	0.32	0.38	0.61		**	***
	Received public assistance during childhood	0.34	0.25	0.30	0.51		**	***
Background	African-American	0.27	0.23	0.25	0.38		*	**
	High religious importance	0.54	0.51	0.55	0.59			
	High school GPA	3.20 (.58)	3.30 (.52)	3.18 (.62)	3.06 (.62)	+		***
	Enrolled in school at baseline	0.73	0.83	0.65	0.62	***		***
	Ever employed at baseline	0.51	0.56	0.49	0.45			+
Adolescent Risky Sex Index	One or more prior pregnancies at baseline	0.24	0.14	0.28	0.35	**		***
	Age 16 or younger at first sex	0.53	0.47	0.55	0.63			**
	Two or more partners at baseline	0.63	0.54	0.61	0.77		**	***
	Ever had sex without contraception at baseline	0.48	0.32	0.55	0.68	***	*	***
	Any prior births	0.18	0.08	0.25	0.29	***		***
N		437	204	105	136			

Notes: \*\*\* - p<.001, \*\* - p<.01, \* = p<.05, + = p<.1, using Chi<sup>2</sup> and two-tailed t-tests

Data Source: Relationship Dynamics and Social Life Study

“Material Hardship and Contraceptive Use during the Transition to Adulthood”

Table 5: OLS and Negative Binomial Regression Results of Contraceptive Use and Consistency on Material Hardship and Insurance

	Any Use		Method Type		Consistency of Contraceptive Use		
	1	2	3	4	5	6	7
Material Hardship (ref: no hardships)							
One Hardship	-.03 (.02)	-.01 (.05)	-.09 + (.05)	.19 (.16)	.55 * (.27)		
Two or More Hardships	-.08 ** (.03)	-.06 (.05)	-.14 ** (.05)	.30 * (.15)	.48 + (.25)		
Insurance Hardship (ref: insured)							
Uninsured	.02 (.03)	-.20 *** (.05)	.11 * (.05)	.16 (.15)	.09 (.27)		
Fully Responsible for Self	-.02 (.02)	.01 (.05)	-.02 (.05)	-.10 (.13)	.37 + (.20)		
Low Family Income	-.07 * (.03)	-.04 (.05)	-.10 + (.06)	.12 (.16)	.14 (.24)		
Family Background Index	.00 (.01)	-.01 (.02)	-.01 (.02)	.09 (.06)	.13 (.10)		
Baseline Public Assistance	.01 (.03)	.05 (.06)	.16 * (.06)	-.04 (.17)	.04 (.27)		
African-American	-.01 (.03)	-.11 * (.05)	-.04 (.05)	.32 * (.16)	.25 (.26)		
High Religious Importance	-.02 (.02)	.00 (.04)	-.09 + (.04)	.12 (.13)	.37 + (.21)		
High school GPA	.05 * (.02)	.08 * (.03)	.10 * (.04)	-.11 (.10)	-.52 *** (.14)		
Baseline Enrolled in School	.03 (.03)	.15 ** (.05)	-.04 (.05)	.17 (.15)	-.14 (.24)		
Baseline Ever Employed	.03 (.02)	.14 *** (.04)	.02 (.05)	-.46 *** (.13)	-.27 (.20)		
Adolescent Risky Sex Index	-.01 (.01)	.00 (.02)	-.04 * (.02)	.17 ** (.05)	.24 * (.09)		
Any Prior Births	-.02 (.05)	.03 (.06)	-.08 (.08)	-.07 (.17)	.10 (.30)		
$R^2$	.15	.16	.16	—	—		
chi2	—	—	—	93.74	113.41		
N	437	424	322	424	424		

Notes: Standard errors are shown in parentheses. Data Source: Relationship Dynamics and Social Life Study; \*\*\*p<.001, \*\*p<.01, \*p<.05, +p<.1 (two-tailed tests)  
<sup>a</sup> - Among women who ever used any type of contraception. <sup>b</sup> - Among women who ever used a coital-specific method of contraception.  
<sup>c</sup> - Negative Binomial Regression Model, presenting regression coefficients; includes exposure variable for number of weeks exposed to outcome.  
<sup>d</sup> - Complete categorical variable significant at p<.05 level (Likelihood Ratio test); <sup>e</sup> - Complete categorical variable significant at p<.10 level (Likelihood Ratio test)

“Material Hardship and Contraceptive Use during the Transition to Adulthood”

Table 6: OLS and Negative Binomial Regression Results of Contraceptive Behaviors on Hardship and Mediators

	Any Use		Method Type		Consistency of Contraceptive Use					
	Proportion of Sex Weeks with Any Contraceptive Use		Proportion of Contraceptive Weeks with Hormonal Method <sup>d</sup>		Proportion of Coital-Specific Method Weeks with Consistent Use <sup>b</sup>		Number of Switches to Less Effective Method <sup>a,c</sup>		Number of Contraceptive Gaps <sup>a,c</sup>	
	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b
Material Hardship (ref: no hardships)										
One Hardship	-.03 (.02)	-.02 (.02)	-.01 (.05)	.02 (.05)	-.09 + (.05)	-.07 (.06)	.19 (.16)	.12 (.16)	.55 * (.27)	.43 (.27)
Two or More Hardships	-.08 ** (.03)	-.07 * (.03)	-.06 (.05)	-.01 (.05)	-.14 ** (.05)	-.09 + (.06)	.30 * (.15)	.18 (.16)	.48 + (.25)	.31 (.28)
Insurance Hardship (ref: insured)										
Uninsured	.02 (.03)	.00 (.03)	-.20 *** (.05)	-.13 ** (.05)	.11 * (.05)	.13 * (.06)	.16 (.15)	-.02 (.16)	.09 (.27)	-.06 (.27)
Access										
Can't Afford Contraception (ref: strongly disagree)										
Disagree										
Agree/Strongly Agree										
Not Easy to Access Contraception (ref: strongly disagree)										
Disagree										
Agree/Strongly Agree										
Contraceptive Efficacy										
Control over Sex and Contraception										
Worried about Having Enough Money										
R <sup>2</sup>	.15	.19	.16	.23	.16	.19	–	–	–	–
chi2	–	–	–	–	–	–	93.7	105.9	113.4	125.1
N	437	437	424	424	322	322	424	424	424	424

Notes: Standard errors are shown in parentheses. All models include all controls from Table 4. Data Source: Relationship Dynamics and Social Life Study

<sup>a</sup> - Among women who ever used any type of contraception. <sup>b</sup> - Among women who ever used a coital-specific method of contraception.

<sup>c</sup> - Negative Binomial Regression Model, presenting regression coefficients; includes exposure variable for number of journal weeks.

<sup>d</sup> - Complete categorical variable significant at p<.10 level (Likelihood Ratio test); <sup>e</sup> - Complete categorical variable significant at p<.001 level (Likelihood Ratio test)

\*\*\*-p<.001, \*\*-p<.01, \*-p<.05, +p<.1 (two-tailed tests) ; Mediation Significance: †† -p<.05

“Material Hardship and Contraceptive Use during the Transition to Adulthood”

Supplemental Tables:

Supplement Table 1: OLS Regression of Contraceptive Consistency on Hardship, AddHealth Women ages 18 to 22

	On how many occasions of vaginal intercourse in the past 12 months did you or your partner use some form of birth control or pregnancy protection?
Any Material Hardship	-.26 * (.12)
Uninsured	-.10 (.10)
Independent	-.03 (.10)
Black	-.07 (.11)
High Religious Importance	-.11 (.10)
Childhood Public Assistance	-.28 + (.15)
Age 16 or Younger at First Sex	-.32 *** (.09)
Currently Enrolled in School	.72 *** (.09)
Ever Employed	-.44 + (.24)
Currently on Public Assistance	-.53 *** (.16)
R <sup>2</sup>	.14
N	1,300

Notes: Standard errors in parentheses.

Data Source: National Longitudinal Study of Adolescent to Adult Health

\*\*\*-p<.001, \*\*-p<.01, \*-p<.05, +-p<.1