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## Male abortion beneficiaries: Exploring the long-term educational and economic effects of abortion among men who report teen pregnancy

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#### Abstract

**Purpose:** To determine if men who report avoiding adolescent fatherhood through a partner's use of abortion have different socioeconomic outcomes than men who report a live birth during adolescence.

**Methods:** We analyzed a subsample of men who reported a pregnancy before the age of twenty that ended in either a live birth (n = 460) or abortion (n = 137) in the National Longitudinal Study of Adolescent to Adult Health. We used propensity score and exact matching of baseline characteristics from Wave I of the study completed in 1994 to compare college completion and income reported in Wave IV of the study completed between 2007 and 2008.

Results: Among men who reported a live birth 5.8% reported graduating from college and 32.4% had any post-high school education compared to 22.1% and 58.5% of men who reported a pregnancy ended in abortion. In the multivariable matching analysis, men whose adolescent pregnancies ended in abortion had an increased probability of graduating from college (average treatment effect [ATE] = 8.6 p<.01) and completing any post-high school education in the treatment group (ATET = 16.5, p<.001) than men whose adolescent pregnancies ended in live birth. We found a positive association between abortion and personal income only compared men who did not reside with their child born during adolescence.

Conclusion: Women's use of abortion services were associated with educational benefits for men who report teen pregnancies.

Implications and Contributions: Access to abortion may positively impact men's who report teen a teen pregnancy's educational attainment.

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## Keywords

Abortion; Teen Fatherhood; Education

## INTRODUCTION

Parental age at first birth is an important indicator of educational attainment and economic mobility: teenage parents are less likely to complete high school or college than their peers who postpone childbearing [1]. When framed through a life course perspective, delaying childbearing is positively associated with an individual's likelihood of completing college and greater financial resources [2-4]. To date, most research has focused on the impact of adolescent and unintended pregnancy, and resulting births on women and their offspring [5-8]. A smaller body of research, however, also suggest that adolescent pregnancy may also negatively impact teen fathers' socioeconomic trajectories [1,9]. While there are several ways to avoid parenthood during adolescence, the use of abortion to terminate a pregnancy is one such understudied mechanism. This paper specifically examines the impact of delayed parenthood through the use of abortion on men's socioeconomic status.

Using nationally representative data, previous research found that teen fatherhood is associated with decreased years of schooling and reduced likelihood of receiving a high school diploma [1,10]. Teen fatherhood may also increase the odds of full-time employment at younger ages and subsequently not affect short-term earnings [10]. Other work has shown that young men may enter the workforce before earning their high school or college degrees, to avoid being labeled a "deadbeat dad" [11]. Data from a sample of African American men from a socially disadvantaged neighborhood found no effect of teenage fatherhood on employment or education [12]. The lack of difference in socioeconomic outcomes in this study may reflect overall differences in opportunity costs between across different communities, race/ethnic groups, and socioeconomic status' in terms of early childbearing [13].

The majority of adolescent pregnancies are unplanned pregnancies, many unwanted, and more than one in three end in abortion [14]. Understandably, Abortion has largely been framed as a "woman's issue" and much of the research on abortion has focused on the effects of access to abortion on women's lives [15,16]. While the negative effects of unplanned pregnancy may disproportionately impact women, the availability and use of abortion to support reproductive and parenting goals may also impact the lives of their male partners who are able to avoid unwanted parenthood following an unintended pregnancy. Watson [17] uses the term "abortion beneficiaries" to highlight that in virtually all cases of abortion there are individuals, beyond the woman, who may benefit from her use of abortion services, including a male partner. Women who successfully access abortion following an unwanted pregnancy are less likely to be in poverty later in life [15]. It is possible that a man's socioeconomic status may also be impacted by a partner's abortion insofar as he is able to avoid early and unwanted parenthood, complete his education, and pursue a more financially lucrative career; but how abortion impacts men's future socioeconomic status is unknown.

When men are the focus of abortion research it is often in the clinic setting, immediately prior to or after the abortion procedure [18,19]. While men may have a limited capacity to ultimately decide whether a pregnancy ends in a live birth or abortion, some research has shown that in general, men are supportive of women's access to abortion [20]. And, in hypothetical scenarios adolescent men view unintended pregnancies as events that will negatively impact their educational and career goals [21,22].

Understanding the impact of abortion on male adolescents' future socioeconomic status (SES) is complicated by several factors. First, there are selection factors that influence both the odds of experiencing a teen pregnancy, as well as future SES. Young men who experience teen pregnancy have lower SES and increased odds of engagement in risk behaviors than young men who do not report a teen pregnancy [23]. Second, once a pregnancy happens, women may terminate a pregnancy specifically because a male partner is perceived as being unwilling or unable to support a child [24]. Third, there may be selection bias as only some male partners know that a pregnancy and/or an abortion has happened and others do not. Many women consider their male partners in their decisionmaking processes about having an abortion [25] and the majority of women having abortions inform their male partners about their abortions [20]. However, women may elect not to disclose their pregnancy or abortion for a number of reasons, including not being in a relationship with the person or experiencing reproductive coercion or intimate partner violence in the relationship [20,26]. Women may also choose not to disclose an abortion to a partner because of a perceived negative reaction from a partner. While it is unclear whether perpetrating intimate partner violence in adolescence is associated with future socioeconomic status, lower SES is associated with higher rates of disapproval of abortion as a way to end a pregnancy [27,28].

Recognizing these challenges, we approach an analysis of Watson's concept of "abortion beneficiaries" to adolescent men. The goal of this work is to explore SES outcomes for young men who avoid teenage parenthood due to a partner's use of abortion compared to peers who report adolescent parenthood. We conduct additional analyses to explore whether the relationship between abortion and future SES varies by whether the child is in residence, a proxy of father involvement [29,30].

## **METHODS**

This analysis uses a subsample of men who report a pregnancy before the age of 20 from the National Longitudinal Study of Adolescent to Adult Health. We use a counterfactual framework and propensity score matching to compare income and college graduation in early adulthood (mean age=29) between men who reported a teen pregnancy that ended in a live birth (control group) and those who reported a teen pregnancy that ended in abortion (treatment group). We recognize the limitations of using abortion data and the fact that among men, abortion is even more likely to be underreported than it is by women. And while we draw from a nationally representative sample, we are not attempting to provide prevalence estimates or generalizable inferences about the effects of abortion to a broader population. Rather, we are interested in a counterfactual analytical approach, where among a sample of adolescent men who experience a teen pregnancy, we compare future SES men

who share similarities across multiple characteristics that may influence both the likelihood of a pregnancy ending in abortion and future SES (e.g. parent education, family structure, future orientation [i.e. their expectations for future life accomplishments], alcohol use) in the treatment group (abortion) and the control group (live birth).

#### Data

The National Longitudinal Adolescent to Adult Health (Add Health) data set is a nationally representative, longitudinal data set of U.S. men and women [31,32]. Wave I data collection began in 1994. The sample was drawn from 80 high schools and 52 middle schools. A subsample of students was selected to participate in in-depth interviews (n=20,747). The most recent complete follow-up survey (Wave IV) was completed between 2007 and 2008. Retention rate at Wave IV was 80.3%. The sample in this study was restricted to male respondents who reported a pregnancy before the age of 20 in either Wave III or Wave IV that ended in live birth or abortion (n=643). An additional 45 participants were excluded for missing data on key covariates resulting in a final total eligible sample of 597 respondents. Due to missing data on some dependent variables, sample size varies slightly across outcomes and is reported in the Tables. Weighted sample estimates show that 10% of the total male sample reported a pregnancy that ended in live birth or abortion before age 20 at Wave IV of data collection. Ethic approval was granted by the University of Utah Institutional research board.

#### **Measures**

**Treatment**—Wave IV Add Health survey respondents completed pregnancy history rosters, that included information on when and how the pregnancy ended (i.e. abortion, miscarriage, live birth, mode of delivery). Pregnancy histories reported in Wave IV are considered the most complete and recommended for use. Using respondent date of birth and the reported pregnancy end ended, a measure was created that captures whether respondents reported a pregnancy before the age of 20. A dichotomous variable was created that captured whether a teen pregnancy ended in abortion (treatment=1) or a live birth (control=0). We excluded respondents who reported a pregnancy that ended in miscarriage because it is unclear whether miscarriage reported by a male partner reflects a true miscarriage, a pregnancy "scare", or a possible abortion that was reported as "miscarriage" on the survey. We argue that live births and abortions are concrete events and unlikely to be misreported if the male partner was aware they happened. Respondents who reported both having an abortion and live birth before the age of 20 were coded as having a live birth (0). We used data from Wave IV household rosters to create an indicator of whether at Wave IV, the respondent reported living with their biological child born while they were adolescents.

Education and Economic Status at Wave IV.—Our two measures of socioeconomic status, college completion and income, were derived from Wave IV of the survey. College completion captures whether respondents indicated that they had graduated from college (1=yes, 0=no) at Wave IV. We also include a measure that captures whether respondents have completed some post-high school education (i.e. vocational degree, associate's degree, some college completed [1= yes, 0=no]). Personal income is a continuous measure that ranges from \$0 to \$100,000.

**Control Variables.**—All models adjust for respondent age, race/ethnicity (non-Hispanic White [referent], Non-Hispanic Black, Hispanic, Asian, other race/ethnicity), and family structure at Wave I (two-biological parent household [referent], single parent, other two-parent household; other family structure). Previous research has shown that impact of teen fatherhood on future socioeconomic status is mediated by the teen's parents' education completion [9], thus we control for parent education (less than high school or high school graduate [referent], some college or college graduate, missing) and federal poverty level (FPL) based upon total household income reported by their parent at Wave I and household size (below 100% FPL [referent]; 100% FPL; and missing).

We include additional baseline measures that may influence the likelihood of experiencing a teen pregnancy, abortion, as well as educational achievement and future income including depressive symptoms, drinking, and generations of teen parenthood. Add Health measured depressive symptoms at Wave I using CES-D 10 scale and ranges from 0 to 22. Binge drinking at Wave I was measured from an item that asks respondents in the past 12 months if they had consumed five or more alcohol beverages in a single day (1=yes, 0=no). Previous research has shown that having a teen parent is predictive of teenage fatherhood [33], thus we include an indicator for "adolescent parent" if the difference between the age of respondent at Wave I and the age of the parent filling out the parent survey indicated that the parent was younger than age 20 at the time of the respondent's birth. We measure future education orientation from a survey item that asked respondents at Wave I, "On a scale of 1 to 5, where 1 is low and 5 is high, how much do you want to go to college?" Religiosity was measured using an item that asked respondents "How important is religion to you?" and ranges from 1 "very important" to 4 "not important at all." We also included a measure that captures whether respondents reported being married to or cohabitating with their pregnancy partner (1=yes, 0=no).

#### **Analytical Approach**

We first present the descriptive statistics for the total sample and by whether the respondent reported the pregnancy ended in live birth or abortion. We conduct bivariate tests for all measures included in the analyses, adjusted Wald for continuous variables and chi-square for categorical variables, by pregnancy status. We also present the descriptive statistics for men who reported live births, stratified by whether they resided with the child at Wave IV. We employ a counterfactual framework and matching techniques to explore the effects of abortion on men's future SES compared to live births. This approach is common in social sciences where using an experimental design and randomization to a treatment or control group is either impossible or unethical [34,35]. By using propensity score matching we are able to compare men who reported a live birth (control) to those who reported an abortion (treatment) who share similar probabilities of experiencing an abortion (control) based upon a series of covariates that influence the likelihood of an abortion occurring and also may influence future SES. For this analysis we use the "Teffects" package in Stata 15.0 with the nearest neighbor specification. First we enter all covariates described in the measurement section into an equation that predicts the probability of experiencing an abortion, our "treatment" for this analysis. We added the specification that there be exact matching on whether the respondent's family income in Wave I was <100% FPL and whether the

respondent's parent had graduated or attended some college or not. These specifications ensure that our sample is closely matched on background SES. Then respondents who reported the "treatment" (i.e. abortion) are matched to respondents with similar probabilities to report the "treatment" but are in the "control" group (i.e. live birth). We compare education and income outcomes between matched treatment and control respondents. This result is known as the average treatment effect (ATE). We also present that average treatment effect of the treated (ATET), which tells us, among those in the treatment group (adolescents whose pregnancies ended in abortion), the relationship between abortion and their education and income at Wave IV. None of our observations fell out of the region of "common support," that is where they did not have a match that was within an acceptable distance in the propensity score for matching.

In addition, to account for differences in SES possibly introduced by variation in father involvement, we present results comparing men who reported abortions to those who 1) continue to live in the same household as their child born during adolescence at Wave IV; and 2) do not live in the same household as their child born during adolescence at Wave IV. In addition to the covariates used in the analysis, respondents were also matched on population weights.

## **RESULTS**

Table 1 presents descriptive statistics for the total sample and for our treatment (abortion) and control groups (live birth). We also present descriptive statistics for men who reported live births, stratified by whether they shared a household with the child at Wave IV.

Among our sample of men who report teen pregnancies, just 5.8% of those who report a live birth report graduating from college compared to 22.1% of those who report the pregnancy ended in abortion (p<.001) and 32.4% of those with live births reported some post-high school education compared to 58.5% of those who reported abortions (p<.001). We also found differences in the reported income at Wave IV: men who reported live births reported fewer personal earnings (\$32,941) compared to those who reported abortions (\$38,638, p<. 10).

The groups differed by various aspects of baseline SES, for example 25.9% of men who reported live births reported living below 100% of the FPL compared to 9.2% of men who reported an abortion (p<.001); 37.9% of men who reported a live birth lived with two biological parents compared to 49.1% of men who reported an abortion (p<.001); and 55.9% of men who reported a live birth had parents with a high school education or less compared to 34.5% of men who reported an abortion (p<.001). Additionally, 69.5% of men who reported an abortion were White compared to 50.6% of those who reported a live birth (p<.05). Men who reported a live birth or abortion were similar on several other characteristics including age, depressive symptoms, binge drinking, religiosity, and college expectations.

Among men who reported live births before age 20, 46% reported co-residing with the child at Wave IV. Nine percent of men who co-resided with the child reported graduating from college compared to 3.2% of men who did not co-reside with the child. Few differences

were found across other characteristics, however, men who co-resided with the child at Wave IV had a higher prevalence of living with two biological parents, higher levels of college expectations, and fewer depressive symptoms at Wave I compared to men who did not co-reside with the child.

## **Matching Results**

Our results for the total sample (Panel A) show an association between abortion and a higher probability of graduating college among adolescent males that reported a teen pregnancy (ATE = 8.6%, 95% CI 2.3, 14.9). The ATET shows that among those men who reported an abortion, the effect of abortion (treatment) was associated with a 16.5% (95% CI = 7.3, 25.8) probability of graduating from college. We found similar positive associations between abortion and any post-high school education for the treatment group (ATET = 14.2, 95% CI 0.3, 28.1). We did not find a difference in personal income by abortion status.

Panels B and C present the results comparing men who reported abortions to those who had live births, stratified by whether men resided with their children born during adolescence. The positive association between abortion and education was found for both comparison groups. The results for personal income, however, suggest an abortion benefit in personal income only for men who did not reside with their child at Wave IV, particularly for the treatment group (ATET = \$8,173.6,95% CI = \$2,139.2,\$14,208.2). We found no relationship between abortion and income for men who resided with their child at Wave IV (ATE = \$-1,280.7,95% CI = \$-6,760.0,\$4,414.7).

### DISCUSSION

Our results demonstrate educational benefits for adolescent men who reported abortions by their partners compared to men who reported partners had a live birth. Researchers consistently understudy the role of men in reproductive decision-making and fertility, specifically when it comes to abortion – a highly stigmatized, yet common pregnancy outcome. As a result, the potential socioeconomic benefits to men are often unmeasured and unacknowledged. Our results document the nature of males as "abortion beneficiaries" thus objectively demonstrating that access and availability of abortion not only improves the lives of women, but may have far-reaching positive effects for the men involved in the pregnancy.

Similar to other studies [10], we did not find consistent support for the abortion benefit on personal earnings, however, this result was driven by relatively high personal earnings reported by men who resided with the children born during their adolescence. For those who did not reside with the child, we found an abortion benefit. This difference may be spurious: men who are able to secure better jobs and higher incomes may be more likely to have a stable relationship with their pregnancy partner and child. Other research has found a "fatherhood premium" in wages, but only for coresidential fathers [36]. Given the well-established link between education and income [37], it's likely that that the gaps in college completion between abortion beneficiaries and men who report live births will contribute to widening differences in income over the life course.

We acknowledge that there are several limitations to this study, most significantly having to do with potential underreporting of abortion as evidenced by the small proportion of the total sample reporting abortion. We acknowledge that our sample likely does not reflect the total population of men who had an adolescent pregnancy terminated and that these men may be systematically different from the men in the sample in that they may hold strong negative attitudes about abortion [28], may have been unaware of a partner's abortion, or may be perpetrators of intimate partner violence [20,26]. It is important to note, however, that other data suggest that 9% of men reported a live birth before age 20 in 1996 [38]. In the Add Health sample, 8.18% (95% CI 6.88, 9.49) reported a live birth before age 20. Given that Wave I was collected in 1995 and 1996, the percent of men in the sample that reported live births before age 20 is reasonable. For our study, however, we are not necessarily interested in generalizability or prevalence estimates of abortion, rather, we are focused on a counterfactual scenario that compares men who report live births and those who report abortions. And again, while there are men who may have benefited from abortions or may even be fathers and not know, men are not likely to report live births or abortions that did not happen. Thus, while our sample may not be generalizable, we are unlikely to have people in our sample who did not experience these events.

Second, there are selection factors that may influence both the odds of having an abortion and future SES. Abortion can be a costly procedure, especially for adolescents. It is possible that men whose adolescent pregnancies end in abortion may do so in part because they are able to help pay for the procedure, and there are SES differences in abortion attitudes, such that men with higher incomes are more supportive of abortion access [28]. Our descriptive statistics do show that men who report abortions during adolescence had higher familial SES as measured through federal poverty levels and parent education. We attempt to account for these differences with our analytic approach by matching on baseline socioeconomic characteristics; however, there may be unobserved factors that impact our results. One potential advantage of using a sample of men, is that while there are certainly selection issues related to men that are at play in some abortion decisions, ultimately, the decision for a pregnancy to be carried to term or aborted is the woman's and somewhat exogenous to the man. Finally, sample size limitations, preclude stratified matching by race/ethnicity. Supplementary analyses using generalized linear models and interactions between abortion and race/ethnicity, however, were not significant.

Acknowledging these limitations, these results provide important insights into the impact of women's access to abortion for men. While contemporary debates around abortion often focus on women, it is useful to also examine the ways in which men involved in a teen pregnancy may benefit from access to safe and legal abortion. The results should not be provided as motivation for men to coerce a woman into having an abortion, rather, they highlight that restricting access to abortion may have negative consequences for men whose partners desire abortion but are unable to access services. The results also highlight that while women serve as the targets of stigma attached with abortion, men benefit from the physical and emotional labor of women who elect to terminate adolescent pregnancies and manage this external stigma. Abortion is a common procedure. One in four women will have an abortion in their lifetime [39]. For each of these pregnancies, there is male partner who either knowingly or not, may be positively impacted by a woman's decision to have an

abortion. If men acknowledge themselves as abortion beneficiaries it could contribute to a less stigmatized narrative of abortion that could positively impact policy and abortion access.

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Table 1.

## Descriptive Statistics

|   | Total<br>Sample | Live<br>Birth | Abortion  | P        | Child in<br>Residence | Child Not<br>in<br>Residence | P  |
|---|-----------------|---------------|-----------|----------|-----------------------|------------------------------|----|
|   | (n = 597)       | (n = 460)     | (n = 137) |          | (n = 194)             | (n = 266)                    |    |
| College Graduate (%)                            | 8.6             | 5.8           | 22.1      | **       | 9.4                   | 3.2                          | *  |
| Post-High School Education (%)                  | 36.9            | 32.4          | 58.5      | ***      | 36.3                  | 29.5                         |    |
| Personal Income (\$)                            | 33963.0         | 32941.0       | 38638.0   | †        | 35,320.7              | 31,046.8                     | †  |
| Paternal Age (m)                                | 18.5            | 18.6          | 17.9      | ***      | 18.7                  | 18.6                         |    |
| Federal Poverty Level (FPL)<br>(%)<br><100% FPL | 23.1            | 25.9          | 9.2       | ***      | 21.2                  | 29.3                         |    |
| 100% FPL  | 53.3            | 49.8          | 70.2      | *        | 55.4                  | 45.9                         |    |
| Missing   | 23.6            | 24.3          | 20.6      |          | 23.5                  | 24.8                         |    |
| Race (%)<br>White                               | 53.9            | 50.6          | 69.5      | *        | 52.2                  | 49.5                         | †  |
| Black   | 24.4            | 26.1          | 16.2      |          | 22.4                  | 28.7                         |    |
| Latina  | 16.8            | 18.4          | 9.1       |          | 23.4                  | 14.8                         |    |
| Other   | 5.0             | 5.0           | 5.2       |          | 2.1                   | 7.0                          |    |
| Family Structure (%)<br>Two biological parents  | 39.8            | 37.9          | 49.1      | ***      | 41.5                  | 35.3                         | *  |
| Other two parent                                | 17.2            | 17.3          | 16.9      |          | 10.4                  | 22.3                         |    |
| Single mom                                      | 22.7            | 24.6          | 13.5      | **       | 21.7                  | 26.6                         |    |
| Single dad                                      | 4.7             | 2.8           | 14.2      | **       | 2.8                   | 2.7                          |    |
| Other family structure                          | 15.6            | 17.5          | 6.3       |          | 23.6                  | 13.1                         |    |
| Parent Education (%)<br>High School or Less     | 52.2            | 55.9          | 34.5      | ***      | 53.1                  | 57.9                         |    |
| Some college                                    | 43.2            | 38.7          | 64.6      | ***      | 42.3                  | 36.2                         |    |
| Missing   | 4.6             | 5.4           | 0.9       | **       | 4.6                   | 5.9                          |    |
| Parent was a teen (%)                           |                 |               |           |          |                       |                              |    |
| No  | 67.1            | 64.9          | 77.5      | †        | 61.8                  | 67.1                         |    |
| Yes   | 17.5            | 19.2          | 9.6       |          | 21.8                  | 17.3                         |    |
| Missing   | 15.4            | 15.9          | 12.9      |          | 16.4                  | 15.6                         |    |
| Married or Cohabitating                         | 52.6            | 54 .4         | 44 .5     |          | 52.1                  | 55.9                         |    |
| Religious                                       | 2.6             | 2.6           | 2.6       |          | 2.5                   | 2.6                          |    |
| College Expectation (m)                         | 3.6             | 3.6           | 3.9       | <i>†</i> | 3.8                   | 3.4                          | ** |
| Binge Drinking, WI (%)                          | 38.2            | 38.1          | 38.5      | 34.9     | 40.3                  |                              |    |
| Depressive Symptoms (m)                         | 9.8             | 9.8           | 9.7       | 9.4      | 10.1                  | †                            |    |

Source: National Longitudinal Study of Adolescent Health

Notes:

†p<.10;

\* p<.05;

\*\* p<.01;

\*\*\* p<.001; m=mean

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Table 2.

Results from Propensity Score Analysis Showing the Average Treatment Effect (ATE) and Average Treatment Effect on Treated (ATET) of Abortion on Teen Pregnancies on Future SES of Men

|                       |  |                            |                            |  |  |                             |                             |  |  | <i>‡</i>   | *                            |
|-----------------------|--|----------------------------|----------------------------|--|--|-----------------------------|-----------------------------|--|--|--|------------------------------|
| Panel A: Total Sample | Personal Income $(n = 557)$            | 1471.5 (-4,382.7, 7,325.7) | 1264.4 (-4,820.2, 7,348.9) | Panel B: Abortion vs. Child in Residence | Post-High School Education Personal Income $(n = 325)$ $(n = 316)$ | -1280.7 (-6,976.0, 4,414.7) | -604.1 $(-6,874.8,5,666.6)$ | Panel C: Abortion vs. Child Not in Residence | Personal Income $(n = 371)$            | 9.82 $(-2.15, 21.79)$ $\neq$ 5,448.70 $(-380.9, 11,278.4)$ | 8,173.60 (2,139.2, 14,208.0) |
|                       |  | 1471.5                     | 1264.4                     |  |  | -1280.7                     | -604.1                      |  |  | 5,448.70   | 8,173.60                     |
|                       | Post-High School Education $(n = 588)$ | 7                          | *                          |  |  | 7                           | *                           |  | Post-High School Education $(n = 397)$ | 7  | *                            |
|                       |  | (-4.54, 18.15) †           | (0.28, 28.08)              |  |  | (-3.35, 22.44)              | 15.67 (-1.20, 32.54)        |  |  | (-2.15, 21.79)   | 14.18 (0.28, 28.08)          |
|                       |  | 8.9                        | 14.18                      |  |  | 9.54                        | 15.67                       |  |  | 9.82   | 14.18                        |
|                       |  | *                          | *                          |  |  | *                           | *                           | Par  |  | *  | *                            |
|                       | College Graduate $(n = 584)$           | (2.27, 14.85)              | 16.54 (7.33, 25.75)        |  | College Graduate $(n = 324)$                                       | (1.35, 16.55)               | ATET 12.78 (2.77, 22.79)    |  | College Graduate $(n = 393)$           | 10.43 (2.97, 17.90)  | 14.29 (2.97, 25.60)          |
|                       |  | 8.56                       | 16.54                      |  |  | 8.95                        | 12.78                       |  |  | 10.43  | 14.29                        |
|                       |  | ATE                        | ATET                       |  |  | ATE                         | ATET                        |  |  | ATE  | ATET                         |

Source: Add Health; ATE=Average treatment effect; ATET=Average treatment effect on treated

Notes:

/\* p<.10;
\*
p<.05;

\*\* p<.01; p.001; Propensity score models all adjust for respondent age, family structure, federal poverty level, parents' education, race/ethnicity, whether respondent's parent was a teen parent, depressive symptoms, college expectations, and binge drinking. All measured at Wave I; Exact matching matches treatment and control group respondents based on <100% FPL at Wave I and respondent's parent having at least some college.