**Indicators of Educational Advantage and Pregnancy Intention Status**

Akilah M Wise
University of Michigan School of Public Health, Ann Arbor, MI

## Introduction

It is often purported that unintended pregnancy is causally related to poor maternal, infant, and child development outcomes, such as low birth weight, maternal smoking, and adverse conditions for child development[1]. In the United States, nearly half of total pregnancies in 2001 were reported as unintended [2]and while the aggregate rate of unintended pregnancy has remained stable during the last twenty years, the rate has increased among disadvantaged populations, signaling an increasing disparity between demographically defined subgroups. These correlations have signaled an interest in unintended pregnancy, however there lacks a critical approach in addressing exactly how socioeconomic background translates into pregnancy intention status and, consequentially, maternal, infant, and child well-being outcomes.

Qualitative studies have highlighted the importance of studying contextual factors that are of relevance to decisions made about pregnancies and fertility for women of color and low-income women[3]. The role of education on both the risk of unplanned pregnancy and on adverse infant and maternal and child health outcomes is of particular importance as a potential confounder, and therefore mediator, of these associations. Education is a well-established factor in differential fertility patterns among women with several hypothesized links between educational attainment and lower fertility patterns[4] – including the opportunity costs of having children in the face of family and employment decisions, social, and ideational influences. This study examines the link between educational disadvantage and opportunity and unintended pregnancy in the United States.

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[1] Baydar, N. 1995. "Consequences for Children of Their Birth Planning Status." *Family Planning Perspectives* 27(6):228-245. Bertrand, J.T., K. Hardee, R.J. Magnani, and M.A. Angle. 1995. "Access, Quality Of Care and Medical Barriers In Family Planning Programs." *International Family Planning Perspectives* 21(2):64-74.

[2] Finer, L.B.and S.K. Henshaw. 2006. "Disparities in rates of unintended pregnancy in the United States, 1994 and 2001." *Perspectives on Sexual and Reproductive Health* 38(2):90.

[3] Kendall, C., A. Afable-Munsuz, I. Speizer, A. Avery, N. Schmidt, and J. Santelli. 2005. "Understanding pregnancy in a population of inner-city women in New Orleans--results of qualitative research." *Social Science & Medicine* 60(2):297-311. Moos, M.K., R. Petersen, K. Meadows, C.L. Melvin, and A.M. Spitz. 1997. "Pregnant women's perspectives on intendedness of pregnancy." Pp. 385-392 in *Womens Health Issues*. United States.

[4] Diamond, I.N., Margaret; Varle, Sarah. 1999. "Female Education and Fertility: Examining the Links." Pp. 23-48 in *Critical Perspectives on Schooling and Fertility in the Developing World*, edited by C.C. Bledsoe, JB; Johnson-Kuhnm JA; Haaga, JG. Washington, DC: National Academy Press.

## Methods

Data: I used Waves 1 and 4 of the National Longitudinal Study of Adolescent Health (Add Health), a longitudinal study of a nationally representative group of adolescents who were in grades 7-12 in the United States during the 1994-1995 school year, and limited my data analysis to women who reported a live birth in Wave 4. The Add Health survey consists of four waves, in which Wave 4 was conducted in 2007 and 2008 and participants were 24 to 32 years old. The primary dependent variable is first births by pregnancy intention status. Women who indicated that they did not want a child before their pregnancy were coded as *unintended birth* and women who indicated that they did want a child before their pregnancy were coded as *intended birth*. Predictors: I used the following measures to capture educational advantage in youth: household structure at age 14, mother's education level at Wave 1, and household income reported by parent at Wave 1. These variables are derived from Wave 1 of the Add Health data. Covariates: The following variables were used in the multivariate models as controls: respondent's race and ethnicity, age at Wave 4, age at first birth, education at Wave 4, total household income at Wave 4, and relationship status at time of birth. The race and ethnicity variable was transformed into dummy variables indicating 'non-Hispanic Black,' 'non-Hispanic white,' and 'Latino/Hispanic origin.' Analysis: My central research questions ask whether indicators of educational advantage predict likelihood of having an unintended birth. To address this question, I used logistic regression models to test the association between the educational advantage indicators and likelihood of having an unintended birth in comparison to an intended birth. Second, I estimated models in which household income interacts with household structure and mother's education. Furthermore, since fertility patterns differ by race and ethnicity, I examined stratified models to see if the models differed between African-American and white women.

## Results/Discussion

Table 1 shows the descriptive statistics for the total sample, non-Hispanic Black women, and non-Hispanic white women by pregnancy intention status. Notably, women with intended births were more likely to come from a two parent household than women with unintended births, a trend that persisted within the non-Hispanic Black and non-Hispanic white sample. Additionally, non-Hispanic Black women with intended births had higher percentages of mothers

who had college education, but also higher percentage of mothers with a less than high school education compared to non-Hispanic Black women with unintended births.

Table 2 shows the results from the multivariate logistic analysis. Models 1 and 2 are the results for the total sample of women who gave birth. Both models show that living with two parents as youth decreased the odds of having an unintended birth, specifically by 34% (OR = .66, SE = .14) (Model 1). Model 2 incorporated interactions with log of household income at youth. In Model 2, women who had a mother with a less than high school education are twenty-five times more likely to have an unintended birth than women who had a mother with a high school education (OR = 25.41, SE=27.6). Even more, income attenuates the effects of having a mother with less than high school education (OR = .41, SE = .14) and of being non-Hispanic Black (OR = .40, SE = .13).

Models 3 and 4 are the results for the sample of non-Hispanic Black women who gave birth. Model 3 shows that there is an income effect on likelihood of unintended birth, in which a unit increase of log dollars decreased the odds by 43% (OR = .57, SE = .16). Model 4 incorporates interactions of household structure and mother's education with log of household income at Wave 1 for non-Hispanic Black women. Similar to Model 2, having a mother with a less than high school education increased the odds of having an unintended birth; for this model the odds ratio and standard errors for this variable is quite large, most likely to due to a small sample size (OR = 177.134, SE = 538.752). Similar to Model 2, household income at Wave 1 attenuates the effect of having a mother with a less than high school education (OR = .119, SE = .121).

Models 5 and 6 are the results for the sample of non-Hispanic white women who gave birth. Model 5 shows that there are not any significant effects of educational advantage indicators on likelihood of having an unintended birth. Model 6 incorporates the interactions of household structure and mother's education with log of household income at Wave 1. Again, women with mother's who had a less than high school education were more likely to have an unintended birth than women who had a mother with a high school education (OR = 19.64, SE = 27.85).

**Table 1. Descriptives of Key Variables and Covariates of Women who reported first birth, National Longitudinal Study of Adolescent Health (Add Health) Wave I and Wave IV**

| | Total | | | Black | | | | White | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Intended | Unintended | | Total | Intended | Unintended | | Total | Intended | Unintended | |
| *n* | 544 | 505 | | 283 | 118 | 165 | | 687 | 375 | 312 | |
| Variables | | | | | | | | | | | |
| Two Parent Household Wave 1 | | | | | | | | | | | |
| Yes | 49.49% | 39.25% | *** | 27.58% | 28.60% | 26.21% | | 56.04% | 53.00% | 44.59% | *** |
| Parental Household Income (in 1000s) | 45.617 | 38.911 | | 32.648 | 40.534 | 27.337 | | 52.215 | 49.327 | 42.709 | |
| SD | 2.826 | 1.806 | | 2.990 | 7.833 | 2.343 | | 2.748 | 3.487 | 2.144 | |
| Mother's Education at Wave 1 | | | | | | | | | | | |
| <High School Education | 15.66% | 17.16% | | 12.77% | 16.67% | 11.39% | ** | 12.03% | 13.82% | 16.38% | |
| High School Education | 40.01% | 39.64% | | 40.92% | 32.83% | 49.01% | | 35.55% | 41.84% | 39.66% | |
| Some College | 18.73% | 19.58% | | 21.42% | 20.49% | 20.33% | | 19.43% | 19.13% | 20.21% | |
| College Graduate | 20.63% | 21.58% | | 18.85% | 22.61% | 13.88% | | 30.16% | 20.75% | 23.29% | |
| Missing | 4.97% | 2.04% | | 6.04% | 7.40% | 5.39% | | 2.83% | 4.46% | 0.46% | |
| Covariates | | | | | | | | | | | |
| Age at Wave 4 | 28.540 | 28.368 | | 28.504 | 28.742 | 28.495 | | 28.164 | 28.451 | 28.271 | |
| SD | 0.138 | 0.127 | | 0.192 | 0.312 | 0.162 | | 0.125 | 0.147 | 0.160 | |
| Age at Time of First Birth | 23.289 | 21.201 | *** | 22.046 | 22.484 | 21.688 | ** | 22.408 | 23.590 | 21.027 | *** |
| SD | 0.218 | 0.175 | | 0.262 | 0.481 | 0.261 | | 0.161 | 0.205 | 0.219 | |
| Total Income at Wave 4 | | | | | | | | | | | |
| less than 25,000 | 20.34% | 25.06% | | 34.59% | 42.47% | 33.86% | | 17.54% | 17.35% | 24.01% | |
| $25,000 to $39,999 | 16.67% | 17.86% | | 18.19% | 17.52% | 18.42% | | 16.12% | 15.40% | 17.26% | |
| $40,000 to 49,999 | 11.02% | 8.87% | | 8.95% | 9.56% | 6.46% | | 10.93% | 10.49% | 9.53% | |
| $50,000 to $74,999 | 24.37% | 19.26% | | 17.56% | 13.69% | 18.44% | | 22.88% | 26.82% | 20.24% | |
| $75,000 to $99,999 | 13.84% | 12.35% | | 8.56% | 5.22% | 12.30% | | 13.54% | 15.65% | 12.27% | |
| $100,000 or more | 9.47% | 9.08% | | 6.80% | 4.51% | 4.85% | | 13.11% | 11.00% | 9.29% | |
| Missing | 4.30% | 7.51% | | 7.46% | 7.03% | 5.68% | | 5.88% | 3.29% | 7.39% | |
| Degree Attainment Wave 4 | | | | | | | | | | | |
| No High School Degree | 4.49% | 5.46% | | 10.22% | 11.86% | 11.37% | | 6.93% | 8.27% | 11.43% | |
| HS/GED | 7.68% | 6.89% | | 14.48% | 13.77% | 16.60% | | 11.61% | 14.38% | 12.54% | |
| Some College | 26.97% | 24.62% | | 44.91% | 55.67% | 42.65% | | 43.89% | 50.27% | 55.11% | |
| Attending College | 10.26% | 8.41% | | 20.00% | 13.70% | 20.82% | | 27.90% | 20.68% | 16.64% | |
| College Graduate | 2.88% | 2.34% | | 10.39% | 5.01% | 8.56% | | 9.67% | 6.41% | 4.28% | |
| Relationship Status at Birth | | | | | | | | | | | |
| Married | 59.20% | 17.15% | *** | 17.10% | 22.92% | 13.12% | | 42.50% | 63.97% | 16.54% | *** |
| Cohabiting | 27.52% | 30.48% | | 32.41% | 34.61% | 31.17% | | 28.26% | 26.55% | 30.40% | |
| Single | 15.56% | 52.36% | | 50.49% | 42.47% | 55.71% | | 29.24% | 9.48% | 53.06% | |

† p<.10 *p<.05 ** p<.01 ***p<.001

**Table 2 - Relative Risk Ratios from Logistic Models - Relationship between Educational Advantage Indicators and Pregnancy Intention Status**
**National Longitudinal Study of Adolescent Health (Add Heath) Wave I and Wave IV**

| | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | | Model 5 | | | Model 6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | OR | SE | | OR | SE | | OR | SE | | OR | SE | | OR | SE | | OR | SE | |
| Two Parent Household age 14 | 0.662 | 0.137 | * | 0.114 | 0.114 | * | 0.583 | 0.273 | | 0.065 | 0.112 | | 0.678 | 0.191 | | 0.091 | 0.120 | † |
| Log Household Income Wave I | 0.940 | 0.164 | | 1.234 | 0.307 | | 0.570 | 0.160 | * | 0.580 | 0.197 | | 1.263 | 0.265 | | 1.497 | 0.516 | |
| Mother's Education | | | | | | | | | | | | | | | | | | |
| Less than High School | 1.387 | 0.361 | | 25.407 | 27.603 | ** | 0.699 | 0.410 | | 196.628 | 606.260 | | 1.486 | 0.599 | | 19.639 | 27.854 | * |
| High School | --- | --- | | --- | --- | | | | | | | | | | | | | |
| Some College | 1.267 | 0.333 | | 4.772 | 6.332 | | 1.127 | 0.558 | | 0.701 | 1.598 | | 1.166 | 0.381 | | 4.754 | 8.399 | |
| College | 1.192 | 0.321 | | 0.703 | 1.001 | | 0.484 | 0.195 | † | 0.012 | 0.025 | * | 1.517 | 0.485 | | 1.949 | 3.547 | |
| Race | | | | | | | | | | | | | | | | | | |
| non-Hispanic White | --- | --- | | --- | --- | | --- | --- | | --- | --- | | --- | --- | | | | |
| non-Hispanic Black | 0.940 | 0.229 | | 18.267 | 19.057 | ** | --- | --- | | --- | --- | | --- | --- | | | | |
| Hispanic | 0.828 | 0.426 | | 0.202 | 0.323 | | --- | --- | | --- | --- | | --- | --- | | | | |
| Two Parent Household * Income | --- | --- | | 1.634 | 0.454 | † | --- | --- | | 1.845 | 0.860 | | --- | --- | | 1.722 | 0.629 | |
| Mother's Education * Household Income | | | | | | | | | | | | | | | | | | |
| Less than High School* Household Income | --- | --- | | 0.414 | 0.137 | ** | --- | --- | | 0.114 | 0.120 | * | --- | --- | | 0.462 | 0.190 | † |
| High School* Household Income | --- | --- | | -- | | | --- | --- | | --- | | | --- | --- | | | | |
| Some College* Household Income | --- | --- | | 0.687 | 0.255 | | --- | --- | | 1.168 | 0.763 | | --- | --- | | 0.667 | 0.328 | |
| College* Household Income | --- | --- | | 1.114 | 0.420 | | --- | --- | | 2.577 | 1.493 | | --- | --- | | 0.906 | 0.448 | |
| Race | --- | --- | | | | | --- | --- | | | | | | | | | | |
| non-Hispanic White * Income | --- | --- | | --- | --- | | --- | --- | | --- | --- | | --- | --- | | | | |
| non-Hispanic Black * Income | --- | --- | | 0.401 | 0.132 | ** | --- | --- | | --- | --- | | --- | --- | | | | |
| Hispanic * Income | --- | --- | | 1.575 | 0.680 | | --- | --- | | --- | --- | | --- | --- | | | | |

Model 1: Basic Model; Model 2: Interaction with Income; Model 3: Basic Model, Black Women; Model 4: Interaction with Income, Black Women;
Model 5: Basic Model, White Women; Model 6: Interaction with Income White Women
Models control for age at Wave IV, Age at First Birth, Relationship Status, Education at Wave 4, Total Household Income at Wave 4
**† p<.10 *p<.05 ** p<.01 ***p<.001**