Teen Mothers Forgotten: The Gap Between High School and Higher Education
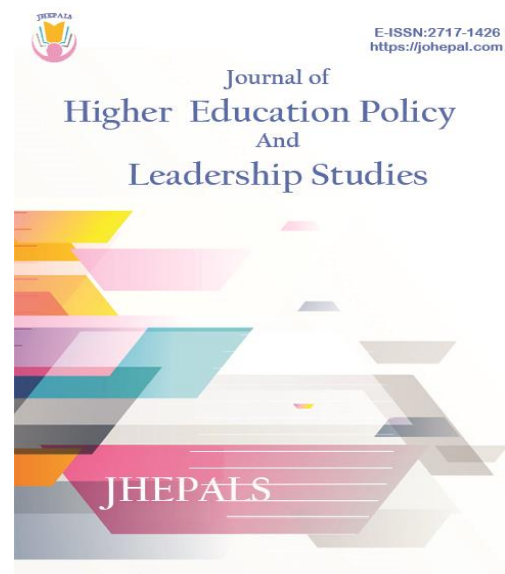
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Abstract

Though the national teen birth rate has declined since 1991, teen motherhood is still associated with educational and lifetime disparities among women who give birth at ages 15-19. Using the Understanding America Study data, I examine teen mothers' educational and financial outcomes with nearest-neighbor matching. My sample is 1,335 mothers with 118 teen mothers, and I define teen mothers as mothers who had children at 15-17 years old. Compared to mothers who did not have children at ages 15-17, I find marginal significance that teen mothers are less likely to graduate high school at 10 percentage points less. More significantly, I find teen mothers to be 32 percentage points less likely to have an associate degree and 25 percentage points less likely to have a Bachelor's Degree, both at the 99% confidence level. Moreover, teen mothers are 15 percent more likely to live in poverty. These results imply a need for more support for teen mothers to complete higher education degrees beyond high school.

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Introduction

Female adolescents aged 15-19 had a quarter-million births in 2014 and nearly 175,000 births in 2019 (Barshay, 2018; CDC, 2021). U.S. teen birth rates have been declining since 1991, but despite these lower rates, the United States had the highest adolescent birth rate of all developed nations at 16.7 in 2019 (CDC, 2021; World Population Review, 2021) and 15.3 as of April, 2023 (World Population Review, 2023). In addition, teen birth rates have been declining the most for White females, and the least for Black females (5.8% and 1.9% drops, respectively), and in 2018 the birth rate for Hispanic and Black teens combined was almost double for White teens (CDC, 2021; Livingston & Thomas, 2019). Locally, Arkansas had the highest U.S. teen birth rate at 30 births per 1,000 adolescents aged 15-19 In 2019 (World Population Review, 2021), and is now 27.8 (World Population Review, 2023).

When examining the direct effects of teen births, teen mothers are associated with a higher likelihood of unemployment which can directly affect their children's lives (CDC, 2021). Society stigmatizes teen moms as unmotivated, irresponsible, and incompetent (Smithbattle, 2013). Teen mothers during birth are more likely to experience miscarriages, maternal illness, stillbirths, and neonatal deaths (World Population Review, 2021).

These direct effects ripple into a lifelong journey of struggles for teen mothers. For example, children born to teen mothers are more likely to live in poverty, be incarcerated, underachieve in school, suffer poor health, and be placed in foster care; taxpayers view these outcomes as costly, which translates to less tax revenue (NCSL, 2018). Moreover, in 2010, the U.S. spent $9.4 billion extra on teen mothers compared to $2.37 billion on family planning services (DePillis, 2014).

Among the added health risks teen births give and the economic burden teen mothers place on society, the cycle may continue—teen daughters of previous teen mothers are 1.57 times more likely to experience teen motherhood themselves (Wall-Wieler et al. 2016).

In theory, teen motherhood puts additional responsibilities on mothers, so it might be difficult for them to they can't focus on school; plus, their school may not encourage them to finish their high school degree or obtain a GED due to the stigmatization of teen mothers. The U.S. implements programs to help teen moms complete their high school diplomas/GEDs. Still, there may not be additional support beyond that for teen mothers to complete their Associate, Bachelor's, Master's, or professional/doctorate. In addition, when a teen mother has less education, she may be more likely to have a lower income. This calls for a need to analyze teen moms' educational outcomes and income levels.

Literature Review

Educational Outcomes

Educational attainment is essential for realizing higher earnings and lowering the likelihood of poverty, but being a teen mother does not fare well for positive educational outcomes. Nearly one-third of girls who drop out of high school early name pregnancy or parenthood as a reason (Shuger, 2012). Teenage mothers can face issues finding child support during their school days, thus leaving them with difficult decisions regarding their high school education.

Fifty-three percent of teen mothers receive a high school diploma compared with 90 percent of female teenagers who do not give birth at ages 15-19 (Manlove & Lantos, 2020; CDC, 2021). Broken down by race and ethnicity, Black teen mothers are the most likely subgroup to follow through with their high school degree (62%), with Hispanic teen mothers being the least likely (45%) (Manlove & Lantos, 2020).

Beyond the commonly defined teen mother as 15-19 years of age, teenagers 15-17 will have experienced giving birth during high school. Schulkind and Sandler (2019) find that when teen mothers give birth during the school year, they are seven percent less likely to graduate high school than those who give birth right after graduation. Morning sickness can lead to tardies, regular doctor's visits can equate to absenteeism, and fearing social stigmas can impact their decision to graduate or drop out (Chen, 2020). Without a high school diploma, finding a good job that will financially support their child feels impossible and continues the teen mother's need for welfare (Chen, 2020; Barber et al., 2017)

Smithbattle's (2007) longitudinal study found when teens become pregnant, they invest in furthering their education by re-evaluating their current trajectories. Teen mothers want to finish high school and do better for their future families with continuing education in their sights. Still, their renewed commitment is foiled by work demands to financially support their children or find proper childcare (Smithbattle, 2007).

Moreover, the National Campaign to Prevent Teen and Unplanned Pregnancy (2015) reports that women who give birth during community college are 65 percent less likely to complete their degrees. Beyond high school and associate's degrees, less than two percent of teen mothers attain a college degree by 30 (Shuger, 2012). This evidence of willing young mothers' wants and desires to complete their schooling and reach for higher education only to be thwarted by their social and economic realities suggests a critical opportunity to promote and help teen mothers' educational aspirations in higher education (Smithbattle, 2007).

Income

Generally, not finding a good job due to teen mothers' lack of educational degrees can lead to a lower income (Wymelenberg, 1990). However, low income and the effects of young motherhood do not correlate in some recent literature. For example, Rosenbaum (2020) finds that early childbearing has no long-term impact on women's earnings, yet his sample's age bracket is allowed up to 25 years old. In contrast, NCSL (2018) reports 63 percent of teen mothers receive public assistance within the first year of their child's birth.

Like Rosenbaum (2020), Schulkind and Sandler (2019) find that the labor market outcomes for mothers who gave birth during high school are not statistically different from mothers who did not give birth during high school. The authors suggest that teen mothers have job opportunities similar to non-teen mothers and that helping women earn their high school degrees will not improve potential earnings. Levine (2014) implies teen mothers from non-favorable backgrounds will have lower job opportunities linked to their environment because they will likely remain where they are. In comparison, teen mothers with higher socioeconomic circumstances might have more dismal job outlooks and have a higher chance of becoming economically disadvantaged. Overall, Johansen et al. (2019) conclude early parenthood limits educational opportunities and employment for higher income opportunities.

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What to Study?

This paper aims to fill recent gaps in the literature by looking at degrees for teen mothers, and I seek to examine if teen motherhood does not associate with income as prior literature has reported. I intend to analyze these outcomes with nearest neighbor matching race, ethnicity, age, parental education, and state-fixed effects. A unique factor of this paper will be examining the differences between teen moms who experienced childbirth from the 15–17-year-old age band instead of previous literature's 15-17-year-old age band. This finding will be essential to separate the women who had children in their high school years versus those grouped with teenagers who could have had children after high school graduation. Prior studies illustrate most teen mom bands as 15-19-year-olds, but this does not account for the unique factor of only analyzing teen mothers during their high school years. I explore three research questions:

- RQ1: What are the descriptive characteristics of teen mothers who had children in high school?
- RQ2: What effect does teen motherhood have on educational outcomes?
- RQ3: What effect does teen motherhood have on socioeconomic outcomes?

Research Design and Methods

Descriptive Sample Characteristics

I use the USCDornsife Center for Economic and Social Research at the University of Southern California's Understanding America Study (UAS), a nationally representative survey sample of over 6,000 individuals. I used Wave 20 and the My Household surveys of the UAS data, which gathered information on respondents' demographics, family, cognitive abilities, and health. I limit the sample of the My Household survey to only women who report having children. I then match respondents merged with the Wave 20 survey and reflect the sample attrition between the two surveys in Table 1.

Table 1.
Sample attrition between initial sample and analytic sample

	Initial Sample	Analytic Sample	Difference
Total N	2,566	1,335	-1,231
Teen Mom	304	118	-186
% U.S. Citizen	96.5	99.9	3.4
% White	81.8	87.0	5.2
% Hispanic / Latino	22.3	13.6	-8.7
% Black	12.4	10.6	-1.8
% Native American	6.0	5.9	-0.1
% Asian	5.5	1.8	-3.7
% Pacific Islander	1.7	1.2	-0.5

To explore the descriptive statistics and my RQ1, I report the demographics below in Table 2.

Table 2.
Contrasting descriptive statistics of analytic sample between mothers age 15-17 and mothers older than 17

	Total Mothers		Mothers (age > 17)		Mothers (age 15-17)	
	N	%	N	%	N	%
Total	1,335	100	1,217	91.2	118	8.8
Never Married	167	12.5	138	11.3	29	24.6***
High School Diploma/GED	1,269	95.1	1,168	96.0	101	85.6***
Associate's Degree	732	54.8	700	57.5	32	27.1***
Bachelor's and above Degree	494	37.0	477	39.2	17	14.4***
Below the Poverty Line	204	15.3	162	13.3	42	35.6***
Currently Working	846	63.4	781	64.2	65	55.1

Out of the 1,335 mothers, 91 percent of the sample have children after the age of 17 (M>17), leaving 9 percent as our analytic sample of interest, 118 teen mothers aged 15-17 (M15-17). To calculate if the percentage of mothers married, education degrees, current income, or current working status is statistically significant between the M>17 and M15-17 groups, I conduct one-tailed z-tests. Each descriptive category percentage is statistically significantly different between the mothers except for "Currently Working."

Compared to the M>17 groups, a higher percentage of M15-17 were never married. For educational outcomes, a lower percentage of M15-17 received their high school diploma or GED, Associate's Degree, and Bachelor's Degree, the largest gap being an Associate's Degree at 30.4 percentage points difference. The M15-17 group is 22.3 percentage points higher than the M>17 groups to be below the United States' average poverty line. Still, there is no statistical difference between the two groups and their working full or part-time statuses.

Multivariate Regression

To continue investigating my RQ1, I employ a multivariate regression to analyze how specific demographic characteristics are associated with the teen mother variable M15-17 as the dependent variable on all demographic characteristics. My equation is as follows:

$$Y_{TeenMom\_i} = \beta_0 + X_{uasid}\beta_1 + \varepsilon_i$$

Where:

- *TeenMom_i* is the dependent indicator variable for if a mother gave birth from age 15-17 (M15-17)
- X_{uasid} is a vector of demographic characteristics, including race, ethnicity, age, parental education, parental working background, and state-born fixed effects
- ε_i is the error term representing the variability in the data that is not explained by the independent variables

I report these descriptive associations below in Table 3.

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Table 3.
Regressing teen motherhood (M15-17) with demographic characteristics

variables	coef.	robust std. err.
Hispanic/Latino	0.12***	0.04
Black	0.05	0.03
American Indian	-0.06	0.06
Asian	-0.09***	0.03
Hawaiian/Pacific Islander	-0.26***	0.09
Mixed	0.02	0.04
Age	-0.02	0.00
Age Squared	0.00	0.00
Father Education	x	
Father Unemployed	x	
Mother Education	x	
Mother Unemployed	x	
State Fixed Effects	x	
Observations	1,335	
R-Squared	0.13	

***p<0.01

Only a few demographic characteristics emerge from the regression as statistically significantly associated with M15-17. Compared to non-Hispanic/Latino women, Hispanic/Latino women are 12 percentage points more likely to be M15-17 holding all else equal at the 99% confidence level. Compared to White women, Asian women are 9 percentage points less likely to be M15-17, holding all else equal at the 99% confidence level. Finally, compared to White women, Hawaiian/Pacific Islander women are 26 percentage points less likely to be M15-17 holding all else equal at the 99% confidence level.

Nearest Neighbor Matching

To investigate RQ2 and RQ3, I construct approximate nearest neighbor matching. This estimation approach is due to my need to match multiple variables (Cunningham, 2021). I use Abadie and Imbens's (2006) method for nearest-neighbor matching with STATA-calculated propensity scores to account for asymptotic distribution. The nearest neighbor matches each teen mother, M15-17, with other mothers, M>17 of standard controls that are the smallest distance in variables from one another. Then, I will estimate the average treatment effect (ATE) to balance the characteristics of the treatment, giving birth from ages 15-17, and the control, giving birth older than 17. My equation is as follows:

$$\widehat{ATE} = \sum_{j=1}^{J} [\overline{Y}_{1j} - \overline{Y}_{0j}] \frac{N_j}{N}$$

Where:
- *ATE* is the effect coefficient for the likelihood of never marrying, having a high school diploma/GED, Associate's Degree, Bachelor's and above degree, living in poverty, and working full or part-time.
- *J* is a small number of values for relevant *x* variables such as race, ethnicity, age, parental education, parental working background, and state-born fixed effects

- $\bar{Y}_{1j}$ is the average outcome in *J* if the mother gave birth from age 15-17 (M15-17)
- $\bar{Y}_{0j}$ is the average outcome in *J* if the mother gave birth after age 17 (M>17)
- N_j is the number of observations in *J*
- *N* is the total observations

I present the results of this estimator in Table 4 of the results.

Results

After nearest-neighbor matching the teen mothers with those who gave birth at an age older than 17, I report three significant and one marginal associations. Two associations of likelihood are not statistically significant—never marrying and working status. Teen mothers, M15-17, are not more or less statistically significantly likely to never marry or not have a current job compared to other mothers, M>17.

RQ2: I report marginal significance for M15-17 and high school diplomas. Holding all else equal, M15-17 is 10.7 percentage points less likely to have a high school diploma or GED than M>17, but this result is only marginally significant at the 90% confidence level. More confidently, I report the results for the likelihood of obtaining an Associate's Degree or a Bachelor's degree and above.

Holding all else equal, M15-17 is 31.9 percentage points less likely to have an Associate's Degree compared to M>17, and this result is statistically significant at the 99% confidence level. Moreover, holding all else equal, M15-17 is 24.8 percentage points less likely to have a Bachelor's Degree or another higher education degree compared to M>17, and this result is statistically significant at the 99% confidence level.

RQ3: Lastly, holding all else equal, M15-17 are 14.6 percentage points more likely to live below the United States' poverty line compared to M>17, and this result is statistically significant at the 95% confidence level. These findings provide insights into the potential long-term consequences of teen mothers and suggest the importance of programs that support educational attainment and economic stability for young mothers.

Table 4.
Treatment-effects, nearest-neighbor matching on Teen Mother, M15-17, and other mothers, M>17

Treatment-effects estimation		N = 1,335
Nearest-Neighbor Matching		*Matches = 1*
Matching		*Minimum = 1*
Mahalanobis		*Maximum = 2*
ATE	Coefficient	A.I. Robust Std. Err.
Never Married	8.9	0.06
High School Diploma/GED	-10.7*	0.06
Associate's Degree	-31.9***	0.06
Bachelor's Degree and Above	-24.8***	0.04
Poverty	14.6**	0.07
Working	-10.1	0.07

* p < 0.10, ** p < 0.05, *** p < 0.01

Discussion and Implications

This study investigated the long-term associations with teen mothers by comparing the educational attainment and economic stability of mothers, M15-17, and mothers who gave birth at age older than 17, M>17, using nearest-neighbor matching. The results of my study suggest that teen mothers are at a disadvantage in terms of educational and economic outcomes compared to mothers who give birth at an older age.

While my study found that teen mothers are not statistically significantly more or less likely never to marry or not have a current job compared to other mothers, the results show that teen mothers are less likely to have a high school diploma or GED. Still, this difference is marginally significant at the 90% confidence level. These findings indicate the importance of providing educational opportunities and support to young mothers to help them obtain a high school diploma or GED, which can have long-lasting positive effects on their economic and social outcomes.

Furthermore, the study also found that teen mothers are significantly less likely to have an Associate's Degree, a Bachelor's Degree, or another higher education degree than mothers who gave birth at an older age. This finding highlights the critical need for educational programs and policies targeting young mothers to help them attain post-secondary education. Such programs can provide young mothers the necessary skills and knowledge to secure better job opportunities and higher wages, ultimately improving their economic outcomes and well-being.

Regarding economic stability, the study found that teen mothers are more likely to live below the poverty line compared to mothers who gave birth at an older age, and this difference is statistically significant at the 95% confidence level. These findings underscore the importance of developing policies and programs that support teen mothers' economic stability and financial independence, such as job training and financial literacy programs.

My results reflect United States's higher education systems may be leaving behind teen mothers. Focusing on higher education obtainment for teen moms is critical and necessary as higher levels of education are associated with higher levels of income (Ma et al., 2019; Gunderson & Oreopolous, 2020). A recent analysis and study by Gault et al. (2018) find that single mothers with only high school diplomas are more than three times more likely to live in poverty than single mothers with bachelor's degrees. This same analysis finds that single mothers with associate degrees are 38 percent less likely to live in poverty and earn almost $330,000 more over their lifetime than single mothers with only high school diplomas (Gault et al., 2018).

Teen mothers cannot simply attend college settings on the simple want of will. Teen mothers face barriers that prevent them from merely attending higher educational settings as they must have an income to support their children—if they work during the day, they cannot participate in classes. Moreover, if teen mothers want to attend college, in most college settings, they must have childcare.

Long (2017) suggests more support for adequate childcare in educational settings. Gault and Zeisler (2019) push this idea further with more suggestions on how to make college accessible to teenage mothers: colleges should consider parenting costs as a part of financial aid; colleges can give Graduate Assistant positions to mothers without the 20-hour

work requirement; and they imply policies to be more proactive for eligible, low-income parents pursuing degrees (Gault & Zeisler, 2019).

Spilovoy (2021) reports on simple modifications for higher education institutions. For example, colleges like Cal State provide lactation rooms for mothers and child-friendly courses. In addition, United Tribes Technical College has a K-6 school and daycare provided on campus for enrolled students (Spilovoy, 2021). If all American colleges and universities became more accommodating to mothers obtaining their degrees, our higher education system would put our country on the proper steps toward helping all mothers.

Overall, the present study provides evidence of the potential long-term consequences of teen motherhood, particularly in terms of educational and economic outcomes. The findings highlight the need for policies and programs that support educational attainment and financial stability for young mothers beyond high school years. Providing support to teen mothers can reduce the negative consequences of early motherhood and promote positive outcomes for both mothers and their children.

Limitations

Some initial challenges to the data are human inputting errors for making some of their children exorbitant years older than them, making their ages negative when they gave birth. I had to drop these instances from the sample. Another limitation is that having a child in the UAS data does not necessarily mean that the female gave birth. The female mother could have given birth, had a step-child, or had an adopted child—there is no way to distinguish these differences in the data.

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