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EXAMINING THE IMPACT OF TEENAGE PREGNANCY AND ITS ASSOCIATED FACTORS ON HIGH SCHOOL GRADUATION RATES IN OHIO

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Abstract

Objective: Our objective is to determine the impact of teen pregnancy, and its associated factors (e.g., child poverty, single-parent households, disconnected youth) on high school graduation rates in Ohio.

Introduction: Failure to complete high school often results due to a process known as educational disengagement. This process has been studied to include such factors like teenage pregnancy, which is often linked to increased absences and decreased participation in class. While studies indicate that programs should emphasize attendance and engagement, rather than teenage pregnancy prevention, we also examine factors that are commonly associated with teenage pregnancy. Such variables that contribute to this particular outcome include, but not limited to, insurance, poverty, single-parent households, and disconnected youth. Thus, we aim to analyze the impact of teenage pregnancy on high school graduation rates in Ohio and how associated factors can affect this process of educational disengagement.

Methods: County-level data from the states of Ohio, New York, California, and Texas in the years of 2016 and 2021 were used from the County Health Rankings (CHR) website. Statistical analysis utilized Pearson correlations, ANOVA tests, paired t-tests, and regression analyses.

Results: The data suggests a small, but significant, inverse relationship ($r = -0.31$, $p < 0.001$), indicating that as teen birth rate increases, the high school rate decreases in Ohio in 2021. The teen birth rates in Ohio decreased from 36.12% in 2016 to 24.96% in 2021 ($t = 2.16$, $p < 0.001$).

High school graduation rates in Ohio also decreased from 88.91% in 2016 to 86.53% in 2021 ($t = 0.19$, $p = 0.089$). Linear regression analysis which indicated that the best fitting model was significant ($F_{2,87} = 56.31$, $p < 0.001$), accounting for 85.32% of the variance in high school graduation rates, with percentage of children in poverty contributing the most ($B = 401.23$, $t = 4.78$, $p < 0.001$) impacting high school graduation rates the most.

Key Words: teenage pregnancy, truancy, disconnected youth, child poverty

Introduction

As a country, the United States has seen a decrease in teenage pregnancy rates within the past decade. Despite these falling rates, individuals who end up conceiving in their teenage years are placed at a socioeconomic and educational disadvantage compared to their non-childbearing peers¹⁻³. The effect of this disadvantage is long-lasting, leading to intergenerational cycles of poverty and poor health³. Studies have shown that individuals who give birth during the school year are 5.4% less likely to complete their high school education in comparison to their counterparts⁴. Teenage girls that become pregnant usually have much lower rates of educational attainment when compared to their non-pregnant peers. Studies show that less than half of teenage mothers receive a high school diploma by age 22, in contrast to the 90% of girls without children that do⁵. Lack of education can lead to decreased quality of life and even life expectancy for girls and women. Further, gaining education has come to be understood as one of the most primary factors in terms of upward mobility for individuals with lower socioeconomic statuses¹⁻³.

In 1991, the Truancy Intervention Project was created to work with at-risk children to make sure they can access education. Volunteers advocate for the child and make sure community agencies provide the family with educational services, housing resources, and

medical assistance⁶. The profile of an individual who is at greatest risk for teenage pregnancy are girls in their early teenage years (14-16) who display conduct issues, such as aggression, defiance, and violation of social norms, due to environmental exposure. This has led to young adolescents to engage in sexual risk-taking and deviant peer involvement⁷.

Teens who reported a history of skipping school, compared to those who do not, indicated a greater frequency in engaging in sexual behaviors and reported less knowledge towards STIs and abstinent behavior⁸. Teens that live in poverty are also more likely to contract sexually transmitted infections and engage in sexually risky behavior, with sexually risky behavior also being correlated with living in poverty, and with lower levels of sexual education⁹. Teen girls are especially vulnerable to these environmental exposures, as social constructs create societal norms that are likely to pressure them into repeating similar cycles that they may have been born into. Studies have shown that children born to teen mothers are increasingly likely to have children while teenagers themselves, indicating a vicious cycle of poverty and inability to acquire upward mobility¹⁰. These exposures also put teens at risk of becoming disconnected youth due to legal or medical troubles associated with these behaviors. Teen mothers also face social isolation and stigmatization, often leading them to become disconnected youth that are not employed or involved in any sort of educational training or development¹¹. Lastly, we term such groups of teenagers as disconnected youth, defined as individuals aged 16-24 that are not employed or engaged in any type of educational or skills-based training, have been identified as having increased rates of emotional, behavioral, and health-related problems, and are more likely to live in poverty as they age. Thus, they are also more likely to suffer from chronic under- or unemployment, and less likely to achieve further educational attainment and upward mobility¹².

Intervention programs rarely target children who participate in risky sexual behavior and thus there remains a gap on whether truancy and teenage pregnancy is related and how to help individuals navigate this. Thus, we wish to explore teenage pregnancy and high school graduation rates in depth to target community-based programs for individuals who are at-risk of falling behind in their educational career, otherwise termed as the “educational disengagement” process, and the involvement of associated factors defined in this section (e.g., disconnected youth, child poverty, single-parent households).

Research Questions

RQ1. What is the correlation between teen pregnancy and high school graduation rates in Ohio?

RQ2. How have the rates of teen pregnancy and high school graduation rates in Ohio changed from 2016 to 2021?

RQ3. How does the percentage of disconnected youth, percentage of children in poverty, and percentage of children in single-parent household affect high school graduation rates in Ohio in 2021?

Methods

Data Collection:

We analyzed data from the County Health Rankings (CHR) website. CHR is a program of the University of Wisconsin Population Health Institute, which compiles rankings by using county-level measures from national and data sources. We used data from the years 2016 and 2021 and county-level data in Ohio. Our variables are teen birth rate, disconnected youth, children in poverty, children in single-parent households, and high school graduation. Teen births is defined as the number of births per 1000 female population, ages 15-19. Disconnected youth is defined as the percentage of teenagers and young adults ages 16-19 who are neither working nor

in school. Children in poverty is defined as the percentage of people under age 18 in poverty, as defined by county and state measurements. Children in single-parent households is defined as the percentage of children that live in a household headed by a single parent. High school graduation is defined as the percentage of the ninth-grade cohort that graduates in four years¹³. Our inclusion criteria includes all teenagers, ages 15-19 years old, who are eligible to attend high school.

Data Analysis:

This project used IBM SPSS Statistics software for data analysis of variables explored within our research questions. Statistical analysis of the data occurred through Pearson correlations, ANOVA tests, paired t-tests, and regression analyses.

Results

For RQ1, the relationship between teen birth rate and high school graduation rate in Ohio in 2021 was investigated using a Pearson correlation. The data suggests a small, but significant inverse relationship ($r = -0.31$, $p < 0.001$), where, as the teen birth rate increases, the high school graduation rate decreases (Figure 1).

For RQ2, we compared the teen birth rates in Ohio counties in 2016 versus 2021. We found that the rate decreased from 36.12% in 2016 to 24.96% in 2021 ($t = 2.16$, $p < 0.001$) (Table 1). Additionally, we also compared the high school graduation rates in Ohio counties in 2016 versus 2021. We found that the rate decreased from 88.91% in 2016 to 86.53% in 2021 ($t = 0.19$, $p = 0.089$) (Table 2).

For RQ3, we investigated how factors such as percentage of disconnected youth, percentage of children in poverty, and median household income in Ohio counties in 2021 could affect the high school graduation rates. We utilized a stepwise linear regression analysis which

indicated that the best fitting model was significant ($F_{2,87} = 56.31, p < 0.001$). This accounts for 85.32% of the variance in high school graduation rates. We found that all three factors contributed to the model, with percentage of children in poverty contributing the most ($B = 401.23, t = 4.78, p < 0.001$) while percentage of disconnected youth ($B = 320.15, t = 1.17, p = 0.031$) and percentage of children in single-parent household homes ($B = 503.25, t = 5.42, p = 0.002$) also impacting high school graduation rates significantly.

Figure 1: Correlation Between Teen Birth Rate and High School Graduation Rate in Ohio in 2021

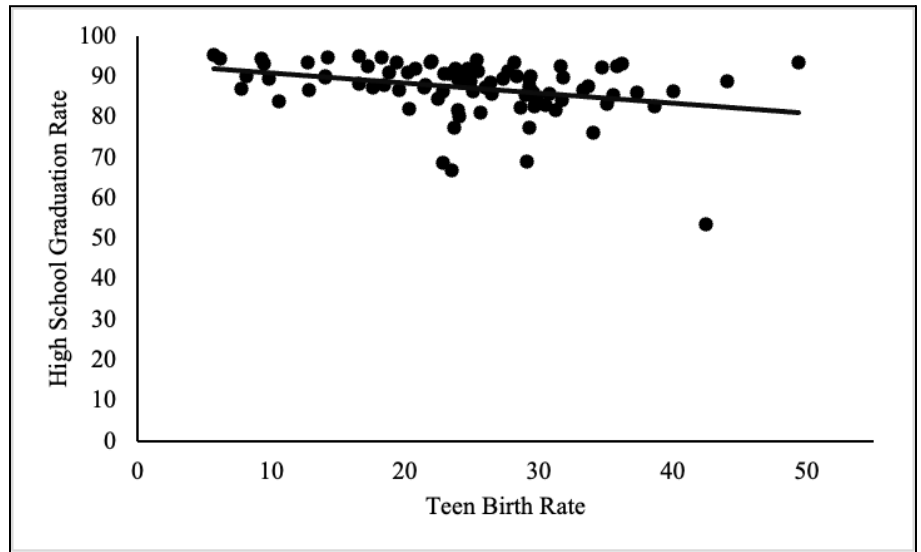


Table 1: Teen Birth Rates in Ohio

Year	n	Mean	SD
2016	88	36.12%	10.93%
2021	88	24.96% ^a	8.69%

Abbreviation: SD, Standard Deviation

Table 2: High School Graduation Rates in Ohio

Year	n	Mean	SD
2016	88	88.91%	7.35%
2021	88	86.53%	6.73%

Abbreviation: SD, Standard Deviation

Discussion

There is a strong association between non-childbearing teenagers and earning a high school diploma¹⁴. We hypothesized that there is an inverse relationship between teenage pregnancy and high school graduation rates. When examining county-level data in Ohio, it was found that counties with greater teen birth rates, experienced lower high school graduation rates, supporting our hypothesis.

Since the 1994 International Conference on Population and Development, there has been significant changes in the factors involved in adolescent sexual and reproductive health and rights (ASRHR). Compared with 25 years ago, trend analysis of ASRHR indicators show that adolescent girls are more likely to delay their first sexual experience and delay their first childbirth¹⁵. Based on this, we hypothesized that teenage pregnancy has decreased in Ohio from 2016 to 2021. Additionally, previous studies show that the primary reason for increased college enrollments in the twentieth century was the growth in high school graduation rates. The growth is attributed to rising wage premiums, due to secondary education completion. Moreover, post-1970, high school graduation rate has declined rapidly, due to the skills required to attain high-paying jobs. Many individuals have opted for trade or vocational school and websites such as Coursera and Khan Academy allow for educational attainment, without the added cost of a high school diploma or college tuition¹⁶. With these factors, we hypothesized that high school graduation rates have decreased in Ohio from 2016 to 2021. Thus, our results support our hypothesis, stating that both teen birth rates and high school graduation rates have decreased. However, this also leads to a puzzle: if teenage pregnancy rates are decreasing, but high school graduation rates are also decreasing, is it possible that other factors, that attribute to teenage pregnancy, are resulting in lower rates of high school completion rates?

To understand factors that are associated with teenage pregnancy and their impact on lowering of high school graduation rates, we examined factors which includes children in poverty, single-parent households, and disconnected youth, which share an association with teenage pregnancy, and may in turn affect high school graduation rates. Previous studies have shown that adolescent pregnancy is a determining factor in the incidence of poverty. Additionally, a pregnant teenager is generally considered a high risk patient due to implications for improper prenatal care and inadequate nutrition, which causes suffering of the offspring in terms of sociopsychological and mental development. As a result, this perpetuates intergenerational poverty. In order to interrupt the poverty cycle, prevention should be taken through either: 1) preventing intercourse, 2) preventing conception, and/or 3) terminating pregnancy¹⁷. Furthermore, in relation to high school graduation rates, it has been found that low-income students are at increased risk for grade retention and suspension. Poverty is labeled as a “toxic stressor”, such that when a child is exposed to from school entry throughout high school graduation, academic and behavior risks are increased. Thus, potentiating educational settings to be conducive to the growth of low-income children, can fulfill readiness and boost completion rates, beyond secondary education¹⁸.

Evidence supports that teenage pregnancy in a mother perpetuates the cycle of a greater likelihood of the daughter being childbearing during her teenage years. At a young age, the principles of socialization play a role in exposing individuals to norms that reinforce the ideology for early parenthood. Furthermore, only a quarter of individuals who are pregnant during their teenage years still remain with their partners. Family history contributes to this cycle of teenage pregnancy because such characteristics like marital instability, socioeconomic instability, and lower educational attainment are involved¹⁹. Young mothers tend to lack emphasis on their

children's schooling and adopt a lenient parenting style due to less experience, leading to daughters being brought up in a disadvantaged home environment, resulting in educational disengagement²⁰.

Disconnected young people (i.e. opportunity youth) are at high risk for long-term emotional, behavioral, and health problems. The period between the late teens and early 20s is important for development, as during this time, youth will obtain the education necessary to further their careers. These individuals, termed disconnected youth, do not obtain adequate levels of education to support independence, financial stability, and an engaging career. Opportunity youth is therefore seen as a more positive term, by showcasing the need for individuals to be involved in educational attainment and the workforce. Opportunity youth also have a disproportionate amount of problems that have led to their situation, including poverty, poor health, and teenage pregnancy. Thus, it is important to implement strategies using public health knowledge, to mitigate the risk factors that contribute to reducing the number of opportunity youth, leading to an intervention strategy that ultimately allows for them to transition to re-engaging in education, job training, and employment¹².

Overall, our research project showcases that there is an inverse relationship between teenage pregnancy and high school graduation rates. However, with both teenage pregnancy and high school graduation rates falling, it seems like factors that are confounded with teenage pregnancy may account for lower educational attainment. Such factors include single-parent households, disconnected youth, and children in poverty, which showcase that associations between two variables are in fact multifaceted in nature. Thus, to increase high school completion among individuals who have had a teenage pregnancy, it is important to create

prevention strategies that target risk factors underlying teenage pregnancy, rather than promoting an abstinence-based strategy.

Conclusion

Although we have made great strides in the amount of teenage girls having babies in the 21st century, we have made little progress regarding the disparities that exist between socioeconomic status and upward mobility-- and thus health and life expectancy-- between many teenage mothers and other girls⁷. In the future, we must continue to invest our resources toward policies and programs that promote educational attainment for teenage mothers, as it is one of the single-most important predictors of future socioeconomic status for not only them, but also for their own children¹⁴. Studies have also shown that these interventions must be culturally competent and relevant, as family-related factors such as maternal education, father presence in youth, and mother's age at first birth are all major factors that influence the educational attainment of teenage girls, and should be taken into consideration when designing comprehensive and inclusive interventions that promote educational attainment among girl¹¹.

In continued terms of cultural relevance, limitations to our study include outside factors that have likely affected rates of disconnected youth, and children living in poverty over the last several years, such as the COVID-19 pandemic. Other limitations could include possible unavailability of resources to accurately report by reporting agencies, or unknown confounding factors such as erroneous reporting that may include individuals that are not within the age parameters for our study regarding pregnancy but fit the criteria as high school graduates or disconnected youth. We also must consider the possibility of other confounding factors such as there being differences in the definitions of measures that were used as variables to compare different variables across states, such as poverty.

Teenage pregnancy has been shown to limit societal advancement in a myriad of ways, particularly in regard to educational attainment, and our findings regarding graduation rates of teen mothers here in Ohio have validated our hypotheses. Further, we now have additional insight regarding how different aspects of socioeconomic situations significantly impact high school graduation rates. Unfortunately, the data illustrates with striking clarity that socioeconomic status and household income-related factors, outside of a young person's control, are the factors that are likely to impact their likelihood of graduating from high school the most.

This is a continued call to action to invest in not only our teenage girls, but in all of our youth. The data is clear regarding the negative lifetime outcomes associated with growing up without access to adequate resources, and a society that maintains this is not giving every child the same opportunity for success. In conclusion, we must continue to center efforts toward advocating for education for teen girls while continuing to work fervently toward a more equitable future for all youth in America.

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