

# Trends in Teenage Birth Rates in Wisconsin, 2011-2022: Continued Declines and Persistent Disparities

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## ABSTRACT

**Background:** Teenage pregnancy remains an important public health problem despite recent declines in teen births.

**Methods:** Teen (ages 15-19) birth rates (per 1000 females) in Wisconsin from 2011 through 2022 were compared by race/ethnicity and county using Wisconsin Interactive Statistics on Health data.

**Results:** Teen birth rates declined by 50% from 23.3 per 1000 teens in 2011-2013 to 11.5 per 1000 teens in 2020-2022, with the greatest decline among American Indian/Alaska Native teens (64%) and least among Black teens (40%), resulting in persistent 3-fold to 6-fold disparities between racial/ethnic groups. Teen birth rates by county had a 20-fold difference between Ozaukee (2.7 per 1000) and Menominee counties (54.5 per 1000).

**Discussion:** The remarkable decline in teen births suggests public health and health care interventions are working, but targeted effort is needed to reduce the growing disparities.

## BACKGROUND

Although overall teen birth rates are decreasing in the United States, it continues to be an important public health problem with significant economic, health-related, and social consequences.<sup>1</sup> Teen birth rates vary by geographic region in the US and range from a low of 4.6 teen births per 1000 in New Hampshire and high of 26.4 in Mississippi.<sup>2</sup> Research has demonstrated that social determinants of health at the family and community levels may contribute to high teen birth rates.<sup>3</sup> These differences may be due to variations in the demographic charac-

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teristics of communities as well as socioecological factors, such as the availability of health care resources and public health and cultural norms.

Early identification of teens at risk for becoming pregnant is key.<sup>1</sup> Public health programs designed to prevent teen pregnancy have demonstrated mixed findings for preventing teen pregnancies and births, but federally funded programs with more comprehensive sex education have resulted in overall decreases in the rate of teen births at the county level.<sup>4</sup> Common education provided in comprehensive sex education programs includes information on sex, contraception, and

reproductive health, and these are more comprehensive compared to abstinence-only programs.<sup>4</sup>

The purpose of this paper is to review trends in teen births in Wisconsin from 2011 through 2022, updating an analysis published in this journal in 2013.<sup>5</sup>

## METHODS

### Data Source

Data on teen (ages 15-19) birth rates per 1000 females in Wisconsin from 2011 through 2022 were obtained from the Wisconsin Interactive Statistics on Health (WISH) available at <https://www.dhs.wisconsin.gov/wish/index.htm>.

### Data Analysis

Teen birth rates were calculated by dividing the number of births by the population of female teenagers overall, by year, race, ethnicity, and county of residence. Race/ethnicity groups identified in this paper are based on WISH reporting standards, and all race groups are non-Hispanic.

For reliable trend analysis, 3-year average rates were calculated for 2011-2013 and 2020-2022. Rate ratios (RR) were calculated by dividing the rate of births among White female teens (the lowest rates in 2011-2013) by the rates in other race/ethnicity groups. Percent change was calculated by dividing the difference in rates by the rate at the baseline time period. Rates by Wisconsin counties were calculated and compared for the 12-year period 2011-2022.

The following was used to calculate the 95% Confidence Limits (CL):  $95\% \text{ CL} = 1.96 * \text{rate} / (\text{square root of } n)$ , where  $n = \text{number of births}$ .<sup>5</sup> The number of excessive teen births was calculated by multiplying the teen birth rate in 2011 (25.2 births/1000) by the population in each year (2012-2022) to get the “expected” number of teen births if the 2011 rate had not changed. The number of “observed” births during this 11-year period was then subtracted from this total to determine the number of teen births that were avoided.

This study performed a secondary analysis of existing data from WISH, which did not require institutional review board review since it did not fall within the regulatory definition of research involving human subjects.

## RESULTS

There were 34714 births to mothers 15 to 19 years of age in Wisconsin during 2011-2022, which corresponds to an annual rate of 17.1 teen births per 1000 females ages 15 to 19 years. The rate steadily declined from 23.4 per 1000 teens in 2011-2013 to 11.7 per 1000 teens in 2020-2022—a relative decline of 50% or about 4.5% per year (Table). If the teen birth rate had not declined from 2011, there would have been 16719 additional teen births during these 11 years than were actually observed.

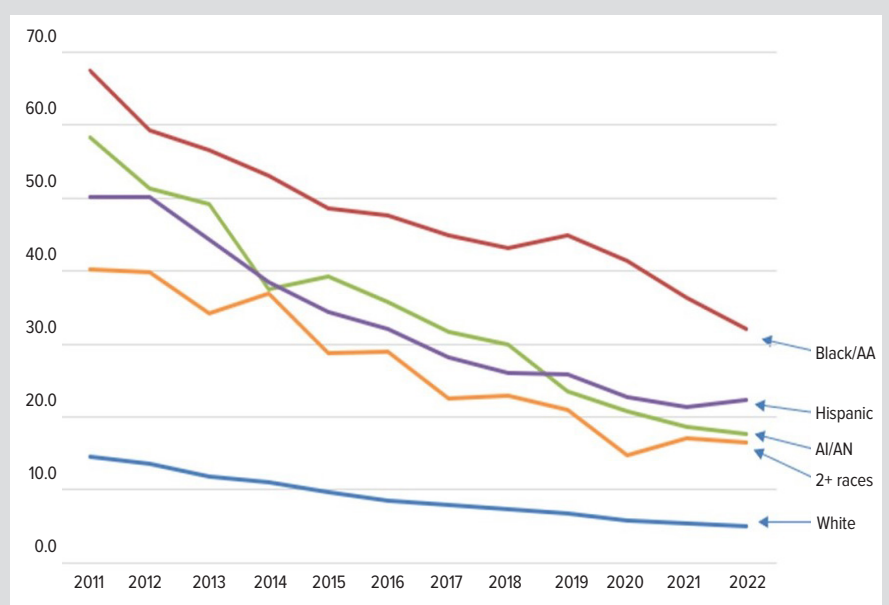
All racial/ethnic populations revealed declines in teen births; however, degrees of decline varied by race/ethnicity (Figure 1). During the 12-year period, teen birth rates were highest for American Indian/Alaska Native, Black, and Hispanic teens. The American Indian/Alaska Native female teenagers’ birth rate was 34.3 per 1000 per year. For Black teens, the birth rate was 48.3 per 1000 per year. The Hispanic teen birth rate was 31.7 per 1000 per year. For the population that identified with 2 or more races,

**Table.** Trends in Teen (ages 15-19) Birth Rates (per 1000 females) from 2011-2013 to 2020-2022, by Maternal Race and Ethnicity, Wisconsin.

Race/Ethnicity	Rate in 2011-13 (95% CI)	RR <sup>a</sup> 2011-13	Rate in 2020-22 (95% CI) <sup>b</sup>	RR <sup>a</sup> 2020-22	% Change (2011-13 to 2020-22)
White <sup>c</sup>	13.3 (13.3-13.4)	1.0 <sup>b</sup>	5.4 (5.4-5.5)	1.0 <sup>b</sup>	-59%
American Indian/Alaska Native <sup>c</sup>	52.9 (50.7-55.1)	4.0	19.0 (18.1-19.9)	3.5	-64%
Black <sup>c</sup>	61.1 (60.2-62.0)	4.6	36.6 (36.0-37.1)	6.7	-40%
Hispanic	48.2 (47.5-48.9)	3.6	22.1 (21.8-22.4)	4.1	-54%
Two or more races <sup>c</sup>	38.1 (36.9-39.3)	2.9	16.1 (15.6-16.6)	3.0	-58%
All <sup>d</sup>	23.4 (23.2-23.4)		11.5 (11.5-11.6)		-50%

<sup>a</sup>Relative risk.  
<sup>b</sup>Referent group.  
<sup>c</sup>Non-Hispanic.  
<sup>d</sup>Includes all races.

**Figure 1.** Trends in Teen (ages 15-19) Birth Rates (per 1000 females) by Race and Ethnicity in Wisconsin, 2011-2022.



Abbreviations: AA, African American; AI/AN, American Indian, Alaska Native.

the rate was 25.8 per 1000 per year. These rates are 3 to 5 times the White population rate of 9.1 per 1000 per year.

In examining percent differences of 3-year rate ratios of teen birth rates (2011-2013 vs 2020-2022) by race, it was found that over time American Indian/Alaska Native teens had a 64% decline, Black teens had a 40% decline, Hispanic teens had a 54% decline, White teens had a 59% decline, and those identifying with 2 or more races had a 58% decline. Nevertheless, when comparing 3-year periods to the reference group (White), Wisconsin’s Black teenage females had the greatest relative risk of giving birth during the 2011-2013 period and the 2020-2022 period (RR=4.6 and 6.7, respectively) when compared to the White population. Hispanic teen females also had a high relative risk of giving birth during the 2 periods (RR=3.6 and 4.1,

respectively) when compared to the reference group. American Indian/Alaskan Native was the only group that revealed a decrease in teen birth relative risk (RR=4.0 and 3.5, respectively) (Table). All overall and race/ethnic-specific trends were statistically significant, using  $\alpha=0.05$  as the cutoff.

Teen birth rates varied even greater by county, with over a 20-fold difference between the county with the lowest rate (Ozaukee County at 2.7/1000) and the county with the highest rate (Menominee County at 54.5/1000) (Figure 2).

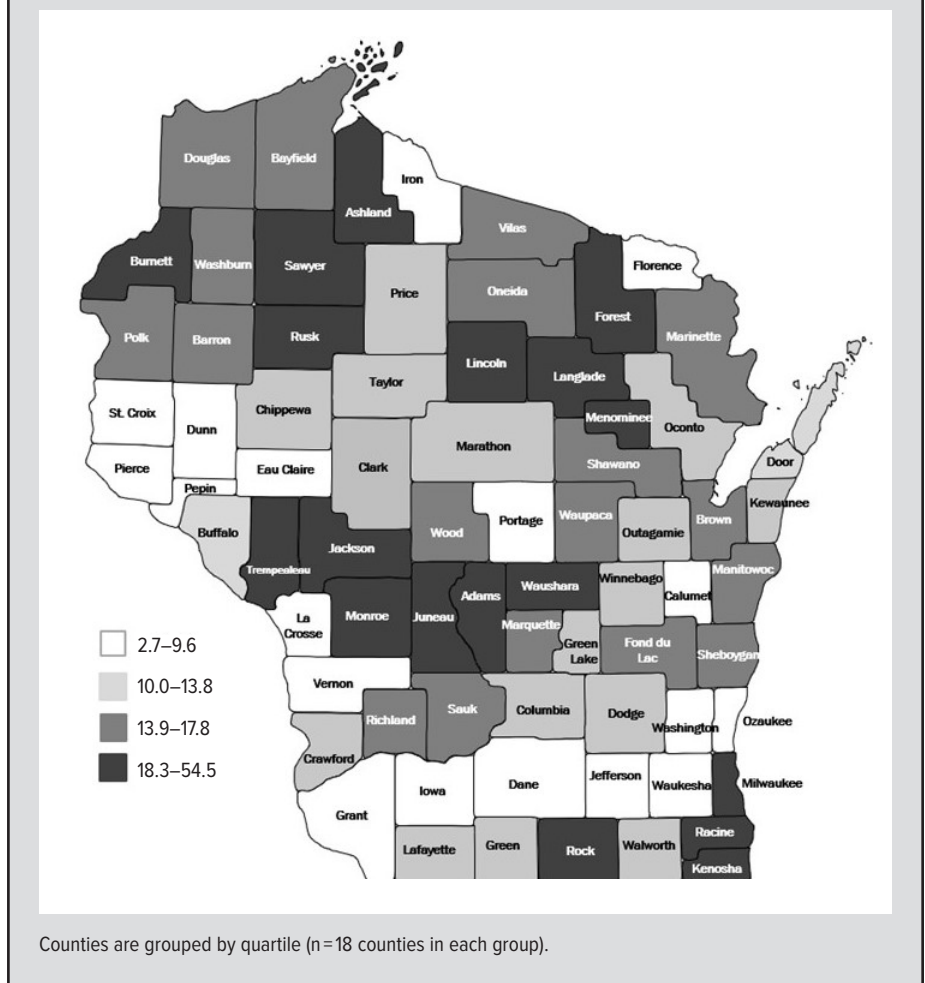
## DISCUSSION

This study found that Wisconsin birth rates among females ages 15-19 years old decreased by half from 2011-2022. Declines were seen in all racial/ethnic groups. However, American Indian/Native American, Black, and Hispanic teens did not experience as large a reduction in teen birth rates as their White counterparts.

Compared to national data from Osterman et al, Wisconsin birth rate trends in this paper aligned with national patterns.<sup>6</sup> Their study reported that since 2007, US birth rates for mothers 15 to 19 years old dropped 67%.<sup>6</sup> Though, when comparing 2020 to 2021 birth rates, Osterman et al revealed smaller differences between ethnic groups than this study demonstrated. For example, national birth rates for mothers 15 to 19 years old fell 7% for White, 8% for Black, 8% for Hispanic, and 9% for Asian teens.<sup>6</sup> In contrast, when comparing Wisconsin 2020 to 2021 birth rates, there were larger declines and unequal degrees of declines: 10% for American Indian, 12.5% for Black, and 5% for White teens.<sup>6</sup>

Wisconsin birth rates started declining as early as 2001, with an overall 20% reduction in birth rates during 2001-2010 for female Wisconsinites 15 to 19 years old.<sup>5</sup> This study also revealed that Menominee and Milwaukee counties had the 2 highest rates of live births to young mothers, which persists in the current study's results.<sup>5</sup> Ozaukee, Pierce, and Waukesha continued to have the lowest birth rates for females within the 15- to 19-year-old age group.<sup>5</sup> During 2001-2011, Menominee County had a 15-fold greater birth rate than Ozaukee County;<sup>5</sup> however, during 2011-2022, Menominee County's teen birth rate was 20-fold greater. This disparity increased due to Ozaukee's sharper birth decline during 2011-2022 compared with Menominee County (34% vs 7%).

**Figure 2.** Variation in Teen (Ages 15-19) Birth Rates (per 1000 females) in Wisconsin, 2011-2022, by County



Strengths of this study include the ability to analyze 12 years of birth rate data, which allows for a comprehensive understanding of statewide, countywide, and racial/ethnic trends for this population. This study also compared Wisconsin 2011-2022 teen birth rate trends to 2001-2010 trends.

Limitations of this study include that the WISH dataset only recorded live births; therefore, all pregnancies (eg, miscarriages, abortions, stillbirths) were not included. Another limitation is that birth rates were based on maternal characteristics, such as age and racial/ethnic identity. Maternal characteristics might not extrapolate to the identity or experiences of the father. Additionally, this study did not comment on whether live births are a result of unplanned versus planned or unintended versus intended pregnancies. This study also did not demonstrate data on teen sexual activity or access to contraceptives or other pregnancy prevention services. In addition, the teen birth estimates for some smaller counties may be unreliable due to the small number of teen births. Lastly, this study is limited to reflecting on the causes of birth rate declines or its subsequent impact on teen mothers or society. Nevertheless, the literature suggests that increases in contraceptive use, changes in teenage sexual activity

norms, socioeconomic status, sexual assault, school attendance, and educational attainment are all factors that impact teen birth rates.<sup>2,7-9</sup>

In Wisconsin, teen birth rates have declined significantly over the past 20 years. However, there is room for improvement. A review of the literature suggested that implementation of effective pregnancy prevention policies, methods, and strategies for all teens, such as removing barriers to effective birth control (eg, long-acting contraceptives), improving socioeconomic status, educational attainment, eliminating sexual violence, and school attendance may be utilized to reduce teen pregnancy rates.<sup>2,7-8</sup> In addition, encouraging norms that reduce sexual activity for all teens, such as delaying first sexual encounters and decreasing the number of sexual partners among adolescents may be considered.<sup>9</sup> Counties and populations with the highest rates should be prioritized when executing and supporting these pregnancy prevention methods, strategies, and norms.

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