

Geographic and Racial Variation in Teen Pregnancy Rates in Wisconsin

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ABSTRACT

Background: Despite recent declines in teen birth rates, teenage pregnancy remains an important public health problem in Wisconsin with significant social, economic, and health-related effects.

Objective: Compare and contrast teen birth rate trends by race, ethnicity, and county in Wisconsin.

Methods: Teen (ages 15-19 years) birth rates (per 1000 teenage females) in Wisconsin from 2001-2010 were compared by race/ethnicity and county of residence using data from the Wisconsin Interactive Statistics on Health.

Results: Teen birth rates in Wisconsin have declined by 20% over the past decade, from 35.5/1000 teens in 2001 to 28.3/1000 teens in 2010—a relative decline of 20.3%. However, trends vary by race, with declines among blacks (-33%) and whites (-26%) and increases among American Indians (+21%) and Hispanics (+30%). Minority teen birth rates continue to be 3 to 5 times greater than birth rates among whites. Rates varied even more by county, with an over 14-fold difference between Ozaukee County (7.8/1000) and Menominee County (114.2).

Conclusion: Despite recent declines, teen pregnancy continues to be an important public health problem in Wisconsin. Pregnancy prevention programs should be targeted toward the populations and counties with the highest rates.

INTRODUCTION

Teenage pregnancy is an important public health problem in Wisconsin with significant social, economic, and health-related effects. Researchers have identified risk factors for teen pregnancy, including socioeconomic status, family support, as well as race and ethnicity.^{1,2} Teen pregnancy rates also vary substantially among states, from a high of 65.7 per 1000 in Mississippi to a low of 19.8 in New Hampshire,³ with even greater variation from county to county within states.⁴ The geographic differences

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in teen pregnancy rates may be due to differences in demographic characteristics between communities, but they also are determined by complex social-environmental factors such as peer norms and the availability of public health and health care resources.

Identification of teens at high risk of becoming pregnant is important. Children born to teen mothers are at an increased risk of adverse pregnancy outcomes, including preterm delivery, low birth weight, and neonatal mortality.⁵ Effective teen pregnancy prevention programs can be targeted to high-risk teens. Common interventions of such programs include delaying the onset of sexual activity, educating teenagers about how pregnancy can occur, increasing motivation for pregnancy prevention, and encouraging use of higher-effectiveness birth control methods.⁶ In

addition, identification of high-risk teens can provide an opportunity to reduce adverse outcomes by promoting early prenatal care in those who do become pregnant.

Ashby and colleagues⁷ reviewed patterns of teen pregnancy in Wisconsin from 1995 to 2002. This paper updates that earlier analysis with recent data on teen births in Wisconsin and further explores the influence of geographic residence on teen birth rates.

METHODS

We studied births in Wisconsin from 2001 to 2010. Teen birth rates were calculated by dividing the number of births among teens ages 15 to 19 years by the population of teenage girls ages 15 to 19 years. Data on both births and population were taken from the Wisconsin Interactive Statistics on Health (WISH) database available at: <http://www.dhs.wisconsin.gov/wish/>. Data were collated for each year by maternal age, county, race, and ethnicity.

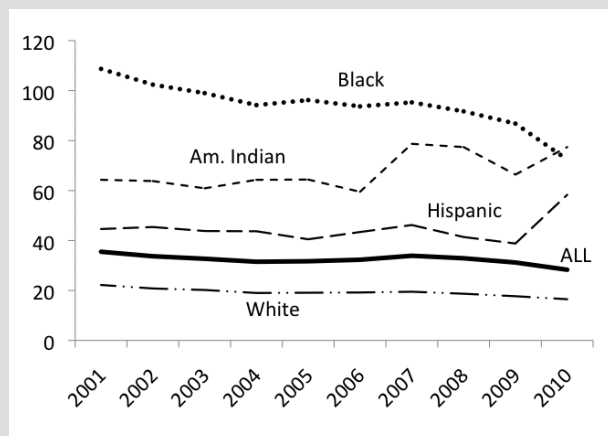
We evaluated patterns in teen births by race/ethnicity and county of residence. We analyzed race/ethnicity data using the following groups: non-Hispanic white, non-Hispanic black,

Table 1. Birth Rate per 1000 Teens 15 to 19 Years Old by Year, Race, and Ethnicity for Wisconsin, 2001-2010

Race/Ethnicity	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	All Years	95% CI	
												Lower	Upper
Non-Hispanic White	22.2	20.8	20.2	19.0	19.1	19.2	19.5	18.7	17.7	16.5	19.3	17.3	21.4
Non-Hispanic Black	108.7	102.4	99	94.2	96.2	93.7	95.3	91.7	86.8	72.4	93.5	90.7	96.2
American Indian	64.3	63.8	60.9	64.3	64.4	59.5	78.7	77.4	66.4	77.4	67.5	64.0	71.0
Hispanic	44.6	45.4	43.8	43.7	40.5	43.4	46.2	41.4	38.8	58.3	44.0	41.6	46.4
All Selected ^a	35.5	33.7	32.7	31.5	31.7	32.3	33.9	32.9	31.2	28.3	32.4	30.3	34.5

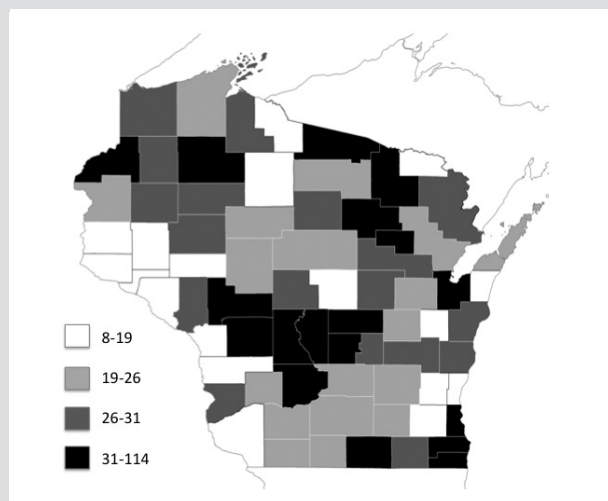
^a All Selected rates includes only the racial/ethnic groups specified.

Figure 1. Trends in Teen Birth Rates in Wisconsin, 2001-2010^a



^aPer 1000 females ages 15-19 years by year and race/ethnicity.

Figure 2. Variation in Teen Birth Rates in Wisconsin, 2001-2010^a



^a Per 1000 females ages 15-19 years, by county. Counties are grouped by quartile (n=18 counties in each group).

Hispanic, and non-Hispanic American Indian (American Indian). We did not include Laotian/Hmong separately because population data were not available. To provide more reliable estimates for counties, birth rates were calculated and compared for the 10-year period from 2001 to 2010. Rate ratios were calculated by

dividing the rate of births in different race/ethnicity groups and counties of residence minority teens by the rate in the appropriate referent groups. To estimate the 95% confidence limits (CL) for the rates, we used the following formula: $95\% \text{ CL} = 1.96 * \text{rate} / (\text{square root of } n)$, where n = the number of births.⁸

RESULTS

There were 60,581 births to mothers 15 to 19 years of age in Wisconsin from 2001 to 2010, which corresponds to an annual rate of 32.4 teen births per 1000 girls ages 15 to 19 years. The rate declined steadily, from 35.5 in 2001 to 28.3 in 2010—a relative decline of 20.3%, or about 2.5% per year (Table 1). If the birth rate among teenage girls had not declined during this decade, there would have been more than 1590 additional teen births in 2010 in Wisconsin.

Birth rates varied substantially by race and ethnicity (Table 1). The rate of teen births in non-Hispanic blacks of 93.5 per 1000 per year was almost 5 times the rate of 19.3 in non-Hispanic whites. Among American Indians, the rate was 67.5 per 1000 per year, and among Hispanics the rate was 44.0 per 1000 per year.

The decline in the teen birth rate over the past decade varied by race and ethnicity (Figure 1). The rates declined the most for non-Hispanic blacks (relative decline of 33%) followed by non-Hispanic whites (relative decline of 26%). In contrast, birth rates increased by 20% among American Indian teens and by 31% among Hispanic teens.

While there was considerable variability of rates among racial and ethnic groups, there was even more variability by county of residence. The teen birth rate varied more than 14-fold, ranging from a low of 7.8 per 1000 in Ozaukee County to a high of 114.2 in Menominee County (Table 2). While rates tend to be lowest in suburban areas, there was dramatic variability among rural areas, with rural counties among both the highest and the lowest ranked counties in the state (Figure 2).

DISCUSSION

Our study shows that progress has been made in reducing rates of teen pregnancy in Wisconsin, dropping over 20% in the decade from 2001 to 2010. The trend in Wisconsin is similar to the trends observed in the United States, where teen birth rates have declined almost continuously since the early 1990s—including

Table 2. Number of Births and Rate for Teens 15-19 Years Old by County for Wisconsin, 2001-2010

County of Residence	Rank (Rate)	No. Births	Rate/1,000/year	95%	CI	County of Residence	Rank (Rate)	No. Births	Rate/1,000/year	95%	CI
Ozaukee	1	238	7.8	6.8	8.8	Manitowoc	38	773	26.7	24.8	28.6
Pierce	2	203	9.9	8.6	11.3	Crawford	39	156	27.1	22.9	31.4
Waukesha	3	1,365	10.7	10.1	11.2	Marinette	40	400	27.2	24.5	29.8
Iron	4	23	11.4	6.8	16.1	Chippewa	41	551	27.2	25.0	29.5
St Croix	5	384	14.8	13.4	16.3	Walworth	42	930	27.3	25.6	29.1
Florence	6	21	14.9	8.5	21.3	Shawano	43	386	28.0	25.2	30.8
Washington	7	632	15.5	14.3	16.7	Wood	44	717	28.1	26.0	30.1
Calumet	8	249	15.6	13.7	17.6	Trempealeau	45	256	28.1	24.6	31.5
Price	9	78	15.9	12.4	19.4	Waupaca	46	500	28.1	25.7	30.6
Dunn	10	342	16.3	14.5	18.0	Green Lake	47	168	28.2	23.9	32.5
Pepin	11	45	16.3	11.5	21.1	Barron	48	460	29.0	26.3	31.6
Eau Claire	12	802	17.3	16.1	18.4	Lincoln	49	281	29.4	26.0	32.8
Portage	13	550	17.3	15.9	18.8	Washburn	50	153	30.0	25.3	34.8
Kewaunee	14	125	17.6	14.5	20.7	Douglas	51	442	30.3	27.5	33.1
Buffalo	15	86	18.4	14.5	22.3	Sheboygan	52	1,179	30.6	28.8	32.3
La Crosse	16	933	18.6	17.4	19.8	Rusk	53	161	30.6	25.9	35.4
Grant	17	408	18.9	17.1	20.8	Ashland	54	191	31.3	26.8	35.7
Vernon	18	206	19.4	16.7	22.0	Vilas	55	191	31.8	27.3	36.4
Dane	19	3,212	19.4	18.7	20.1	Brown	56	2,839	33.3	32.1	34.5
Door	20	165	20.4	17.2	23.5	Sauk	57	652	33.7	31.1	36.3
Bayfield	21	98	20.5	16.4	24.6	Marquette	58	171	35.6	30.2	40.9
Iowa	22	166	20.5	17.4	23.6	Langlade	59	248	35.8	31.4	40.3
Lafayette	23	126	20.7	17.1	24.3	Monroe	60	561	36.3	33.3	39.4
Taylor	24	147	20.8	17.4	24.2	Burnett	61	180	36.7	31.4	42.1
Jefferson	25	657	21.5	19.8	23.1	Jackson	62	232	37.8	32.9	42.7
Winnebago	26	1,338	21.9	20.8	23.1	Juneau	63	315	37.9	33.7	42.1
Oneida	27	253	22.4	19.6	25.1	Waushara	64	286	38.0	33.6	42.4
Richland	28	146	22.5	18.8	26.1	Kenosha	65	2,183	38.1	36.5	39.7
Columbia	29	407	22.8	20.6	25.0	Rock	66	2,306	42.3	40.6	44.0
Outagamie	30	1,398	22.9	21.7	24.1	Forest	67	153	43.0	36.1	49.8
Oconto	31	317	24.3	21.6	26.9	Racine	68	2,888	44.1	42.5	45.7
Clark	32	326	24.6	22.0	27.3	Sawyer	69	247	45.7	40.0	51.4
Dodge	33	692	24.6	22.8	26.5	Adams	70	261	51.4	45.2	57.6
Marathon	34	1,165	25.0	23.5	26.4	Milwaukee	71	20,009	60.5	59.6	61.3
Polk	35	393	25.9	23.4	28.5	Menominee	72	241	114.2	99.8	128.6
Green	36	307	26.0	23.1	29.0						
Fond du Lac	37	911	26.1	24.4	27.8						
						Total		60,581	30.6	30.4	30.9

an 8% drop from 2010 to 2011—and as of 2011 were at historic lows. This decline was not experienced by all groups, however, and substantial variability remains in the risk for teenage births in different racial and ethnic groups and in different counties of residence within the state.

We found large racial and ethnic disparities in the teen birth rates in Wisconsin. The rate of births to black teenagers was over 4 times that of white teenagers. While both black and white teenagers experienced substantial reductions in their risk for teen birth over the past decade, the risk actually increased in American Indian and Hispanic populations. The racial and ethnic disparities may be accounted for by differences in the underlying causes of teen births, such as poverty, sexual abuse, and having a pregnant or parenting older teenage sister.⁹ Studies also indicate that low contraceptive use rates¹⁰ and a social norm stressing the desirability of giving birth as a teen¹¹ may contribute to high rates of teen births in certain groups. High-risk groups may particularly

benefit from programs designed to prevent teen pregnancy.

Although the variability in teen birth rates was substantial among different racial and ethnic groups, there was even wider variability based on a teenager's county of residence. Compared to Ozaukee County, which had the lowest teen birth rate, the rate in Menominee County was over 14 times greater. While that difference was extreme, there was also major variability among rural counties in the state, some of which had among the lowest teen birth rates in the state and some among the highest. This suggests that there may be differences in social norms, prevention programs, and the availability of family planning and reproductive services, such as contraceptive services. If all counties could achieve the teen pregnancy rate observed in the counties with the lowest rates, thousands of births to teenagers could be prevented in Wisconsin each year.

Several limitations need to be considered when interpreting the results of this study. First, these data include only live births

to teenage girls. No information is available on differences in teenage sexual activities, use of contraception, pregnancy rates, or rates of pregnancy termination. In addition, we did not consider differences in availability of prevention services across the state. Differences in these factors could account for the observed differences in teen birth rates, and would have important implications on future program and policy considerations. In addition, differences in the teen birth rates for some smaller counties may be due to chance due to the smaller population of teenage girls with fewer observed births.

CONCLUSION

Given the results from this study and the important impact of teen births, greater attention needs to be given to evidence-based programs to prevent teen pregnancy. The Guide to Community Preventive Services website recommends comprehensive risk reduction interventions for adolescents and states that there is insufficient evidence to support abstinence education interventions alone.¹² Some work suggests that promoting condom use for protection against sexually transmitted infections (STIs), including human immunodeficiency virus, may be a useful way to increase contraceptive use and reduce teen birth rates in addition to STIs.⁶ Given the significant variability among teen birth rates by race, ethnicity, and place of residence in Wisconsin, physicians and other health care professionals should engage with community partners to assess their own community needs and resources and develop community health improvement plans that include preventing teen pregnancies.

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