Florida Actual versus Expected Teen Births and Repeat Teen Births By County 2017 through 2019

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Introduction

In the United States, teen birth rates have reached historic lows [1]. In Florida, a total of 9,541 babies were born to teens aged 15-19 years in 2019 for a live birth rate of 16.2 per 1,000 teens in this age group. Furthermore, the 2019 birth rates fell by 10.4% for teens aged 15-17 years and increased by 2.2% for teens aged 18-19 years with an overall decrease of 3.0% for all teens (aged 15-19 years old) when compared to 2018 rates [2]. Although reasons for the decline cannot be fully explained, according to the Centers for Disease Control and Prevention (CDC), teens appear to be less sexually active, and those teens who are sexually active seem to be using birth control more effectively [3].

While teen birth rates have declined, teen pregnancy prevention continues to be a public health priority. Studies indicate pregnant teens are more likely to receive late or no prenatal care, have gestational hypertension and anemia and have inadequate maternal weight gain [4]. Teens are also more likely to have a pre-term delivery and a low birthweight baby, increasing the risk of child developmental delay, illness and mortality [5,6]. Additionally, teen mothers are less likely than their peers to complete high school and more likely to live below the poverty level and rely on public assistance [7].

The purpose of this annual analysis is to identify geographic areas in Florida where teen birth rates and repeat teen birth rates are statistically significantly higher than would be expected considering the unique demographics of each area. This information may be used to encourage further, more detailed analyses to investigate factors that contribute to the higher than expected rates and to develop intervention strategies for improving outcomes.

Methods

In this analysis, the actual number of teen births and repeat teen births are compared to the expected number for each county. The expected numbers are calculated by applying the state rates to the data for each county. The assumption is the expected rates for the counties are equal to the statewide rates. The difference between the number of actual and expected births is also tested for statistical significance. In the following tables, the word “Higher” appears for the counties where the number of actual births is statistically significantly higher than the expected number of births and the word “Lower” appears for the counties where the number of actual births is statistically significantly lower than the expected number of births. For counties without the words “Higher” or “Lower” the number of actual births is not statistically significantly different from the expected number of births. An alpha level of 0.05 is used for this test, which means that for the counties marked as “Higher” or “Lower” there is a 5% chance that the difference between the actual and expected number is due to random variation.

Note that for larger counties, smaller differences between the statewide rate and the county rate may be statistically significant while the same or greater differences may not be statistically significant in smaller counties. This is because statistical significance depends in part on the magnitude of the numbers used in the calculations. Since the larger counties will have larger female teen populations and more teen births, the differences between the statewide rate and county rates are more likely to be statistically significant. In statistical testing, this is called statistical power. All of the data for the following tables are from the Florida Department of Health's (FDOH) FLHealthCHARTS website at: http://www.flhealthcharts.com/charts/default.aspx. The Poisson function in Excel was used for the statistical testing.

Results

In the following tables, actual statistics are compared to expected statistics. Counties with statistically significantly higher than expected statistics are indicated in the tables as "Higher." Counties with statistically significantly lower than expected statistics are indicated in the tables as "Lower." Counties not marked as "Higher" or "Lower" had rates that were not statistically significantly different from the expected rates.

Teen births among females aged 15-17 (Table 1)
As shown in Table 1, teen births among females aged 15-17 was statistically significantly higher in 25 counties (Baker, Bay, Bradford, Citrus, Desoto, Duval, Escambia, Franklin, Gadsden, Hamilton, Hardee, Hendry, Holmes, Jackson, Lee, Levy, Manatee, Marion, Polk, Putnam, Sumter, Suwannee, Taylor, Walton, and Washington) and statistically significantly lower in 11 counties (Brevard, Broward, Clay, Dade, Hernando, Orange, Osceola, Saint Johns, Santa Rosa, Sarasota and Seminole).

Teen births among females aged 15-19 (Table 2)
As shown on Table 2, teen births among females aged 15-19 was statistically significantly higher in 41 counties (Baker, Bay, Bradford, Calhoun, Citrus, Columbia, Desoto, Dixie, Duval, Escambia, Franklin, Gadsden, Gilchrist, Gulf, Hamilton, Hardee, Hendry, Highlands, Hillsborough, Holmes, Indian River, Jackson, Lake, Lee, Levy, Liberty, Manatee, Marion, Nassau, Okaloosa, Okeechobee, Polk, Putnam, Sumter, Suwannee, Taylor, Union, Volusia, Wakulla, Walton, and Washington) and statistically significantly lower in 14 counties (Alachua, Brevard, Broward, Clay, Dade, Leon, Martin, Monroe, Orange, Palm Beach, Pinellas, Saint Johns, Sarasota and Seminole).

Repeat births to teens aged 15-17 (Table 3)
As shown on Table 3, repeat births to teens aged 15-17 was statistically significantly higher in four counties (Desoto, Manatee, Marion and Okeechobee) and statistically significantly lower in one county (Collier).

Repeat births to teens aged 15-19 (Table 4)
As shown on Table 4, repeat births to teens aged 15-19 was statistically significantly higher in seven counties (Columbia, Desoto, Franklin, Holmes, Marion, Okeechobee and Suwannee) and statistically significantly lower in three counties (Alachua, Dade and Osceola).

Discussion

One limitation of this analysis is the comparatively high level of variability of rates in smaller counties. Consequently, larger differences in rates for small counties may not be statistically significant while the same or smaller differences may be statistically significant in larger counties. Actual rates that are statistically significantly higher than the expected rates are most likely not a result of random fluctuations and are cause for concern; however, higher rates that are not statistically significant may also warrant further investigation. Additionally, smaller counties with higher than expected rates for a period of several years may also be cause for concern.

This analysis may be used as a basis for establishing priorities and to inform strategies developed to reduce both teen births and repeat teen births in Florida. The rationale is to use the results of this analysis to focus further analysis and efforts on the counties where the risks are significantly high and also analyze factors that contribute to the lower risks seen in some counties.

Current FDOH Teen Pregnancy Prevention Initiatives and Activities

Teen pregnancy prevention is one of the CDC's top six priorities and is considered a "winnable battle" in public health. Moreover, one of the Healthy People 2030 objectives is to reduce pregnancy among adolescent females.

- Prevention of initial or repeat teen births is a Family Planning program objective which aligns with the federal Title X Program priorities and key issues.
- Teen birth rate goals are included in FDOH's Long-Range Program Plan (LRPP).
- A county health department (CHD) snapshot measure was developed in 2013 to track the number of teens who adopt an effective or higher method of contraception. Effective or higher contraception use increased from 84.4% in 2018 to 85.5% in 2019 [8].
- CHDs are encouraged to increase reproductive health education including the provision of educational materials describing contraceptive methods to teens in schools and communities.
- CHDs are encouraged to make their family planning clinics teen friendly. Teen-friendly services are critical to reaching teens and to promote adolescent health. Adolescents face barriers to services that are unique to their age group, such as transportation difficulties and school/work schedules that conflict with appointments. As such, it is important to make family planning clinics teen friendly.
- Long-acting reversible contraception (LARC) use among teens aged 15-19 decreased from 12.1% in 2018 to 10.4% in 2019 (excluding teens who were pregnant, seeking pregnancy, or abstinent) [8]. LARC methods are highly effective in preventing pregnancy and are seen as a significant tool in reducing unplanned or unwanted pregnancies.
- The State Sexual Risk Avoidance Education Grant allows youth aged 11-19 across multiple counties in the state to receive instruction on healthy relationships and avoiding risky sexual behavior via an evidenced-informed curriculum administered by CHDs and community organizations.
- The Positive Youth Development Initiative (PYD) provides CHDs with resources to enhance the strengths and assets of youth while mitigating risky behaviors through community service activities.

References:

1. Centers for Disease Control and Prevention. National and State Patterns of Teen Births in the United States, 1940-2013. National Vital Statistics Reports. 2014; 63 (4). http://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63_04.pdf. Accessed: September 10, 2015.
2. FLHealthCHARTS. http://www.flhealthcharts.com/. Accessed: July 26, 2019.
3. Centers for Disease Control and Prevention. Reproductive Health: Teen Pregnancy. http://www.cdc.gov/teenpregnancy/. Accessed on July 26, 2019.
4. Scholl, TO, Hediger, ML, Belsky, DH. Prenatal care and maternal health during adolescent pregnancy - A review and meta-analysis. Journal of Adolescent Health. 1994; 15:444-456.
5. Chandra, PC, Schiavello, HJ, Ravi, B, Weinstein, AG, Hook, FB. Pregnancy outcomes in urban teenagers. International Journal of Gynecology and Obstetrics. 2002; 79:117-122.
6. Chen, XK, Wen, SW, Fleming, N, Demissie, K, Rhoads, GG, Walker, M. Teenage pregnancy and adverse birth outcomes: A large population based retrospective cohort study. International Journal of Epidemiology. 2007; 36:368-373.
7. National Campaign to Prevent Teen Pregnancy. Why it Matters: Teen childbearing, education, and economic well-being. July 2012.
8. Family Planning Annual Report (FPAR) Database. Accessed July 10, 2020.

Table 1: Florida Teen Birth Rates for Mothers Ages 15-17
2017 - 2019

County	2017 - 2019 Number of Females 15-17	2017 - 2019 Actual Number of Births to Mothers 15-17	2017 - 2019 Expected Number of Births to Mothers 15-17	2017 - 2019 Number of Births per 1,000 Females 15-17	Statistical Significance*
Statewide	1,063,869	7,076	7,076	6.7	
Alachua	10,923	64	73	5.9	
Baker	1,519	19	10	12.5	Higher
Bay	8,539	109	57	12.8	Higher
Bradford	1,301	19	9	14.6	Higher
Brevard	28,278	162	188	5.7	Lower
Broward	102,854	466	684	4.5	Lower
Calhoun	798	3	5	3.8	
Charlotte	6,106	33	41	5.4	
Citrus	5,934	67	39	11.3	Higher
Clay	14,129	58	94	4.1	Lower
Collier	16,620	122	111	7.3	
Columbia	3,515	40	23	11.4	
Dade	142,522	723	948	5.1	Lower
Desoto	1,563	28	10	17.9	Higher
Dixie	792	8	5	10.1	
Duval	50,744	481	338	9.5	Higher
Escambia	16,319	190	109	11.6	Higher
Flagler	5,149	25	34	4.9	
Franklin	393	8	3	20.4	Higher
Gadsden	2,569	32	17	12.5	Higher
Gilchrist	953	7	6	7.3	
Glades	547	5	4	9.1	
Gulf	715	5	5	7.0	
Hamilton	645	10	4	15.5	Higher
Hardee	1,704	24	11	14.1	Higher
Hendry	2,324	35	15	15.1	Higher
Hernando	9,572	42	64	4.4	Lower
Highlands	4,427	34	29	7.7	
Hillsborough	80,489	553	535	6.9	
Holmes	889	18	6	20.2	Higher
Indian River	6,511	52	43	8.0	
Jackson	2,222	23	15	10.4	Higher
Jefferson	587	7	4	11.9	
Lafayette	433	2	3	4.6	
Lake	16,074	120	107	7.5	
Lee	33,829	265	225	7.8	Higher
Leon	17,550	109	117	6.2	
Levy	1,674	18	11	10.8	Higher
Liberty	414	4	3	9.7	
Madison	892	9	6	10.1	
Manatee	17,582	168	117	9.6	Higher
Marion	16,231	186	108	11.5	Higher
Martin	7,127	42	47	5.9	
Monroe	2,640	16	18	6.1	
Nassau	4,484	27	30	6.0	
Okaloosa	9,260	65	62	7.0	
Okeechobee	2,050	17	14	8.3	
Orange	76,885	458	511	6.0	Lower
Osceola	22,924	119	152	5.2	Lower
Palm Beach	72,886	470	485	6.4	
Pasco	26,887	175	179	6.5	
Pinellas	41,328	257	275	6.2	
Polk	37,955	362	252	9.5	Higher
Putnam	3,605	43	24	11.9	Higher
Saint Johns	13,701	37	91	2.7	Lower
Saint Lucie	15,600	111	104	7.1	
Santa Rosa	10,287	50	68	4.9	Lower
Sarasota	16,542	79	110	4.8	Lower
Seminole	26,139	71	174	2.7	Lower
Sumter	2,101	22	14	10.5	Higher
Suwannee	2,253	30	15	13.3	Higher
Taylor	970	16	6	16.5	Higher
Union	732	9	5	12.3	
Volusia	24,616	183	164	7.4	
Wakulla	1,729	12	11	6.9	
Walton	3,015	37	20	12.3	Higher
Washington	1,322	15	9	11.3	Higher

***Higher** - county rate is statistically significantly higher than the state rate (alpha=0.05)*
***Lower** - county rate is statistically significantly lower than the state rate (alpha= 0.05)*
***Blank** - no statistically significant difference between the county rate and the state rate*

Table 2: Florida Teen Birth Rates for Mothers Ages 15-19
2017 - 2019

County	2017 - 2019 Number of Females 15-19	2017 - 2019 Actual Number of Births to Mothers 15-19	2017 - 2019 Expected Number of Births to Mothers 15-19	2017 - 2019 Number of Births per 1,000 Females 15-19	Statistical Significance*
Statewide	1,754,523	30,077	30,077	17.1	
Alachua	33,471	333	574	9.9	Lower
Baker	2,586	113	44	43.7	Higher
Bay	13,913	404	239	29.0	Higher
Bradford	2,125	74	36	34.8	Higher
Brevard	44,758	669	767	14.9	Lower
Broward	162,384	1,922	2,784	11.8	Lower
Calhoun	1,196	36	21	30.1	Higher
Charlotte	9,406	166	161	17.6	
Citrus	8,763	220	150	25.1	Higher
Clay	21,447	314	368	14.6	Lower
Collier	25,774	447	442	17.3	
Columbia	5,579	189	96	33.9	Higher
Dade	234,580	2,967	4,021	12.6	Lower
Desoto	2,539	109	44	42.9	Higher
Dixie	1,189	47	20	39.5	Higher
Duval	81,130	2,023	1,391	24.9	Higher
Escambia	29,320	785	503	26.8	Higher
Flagler	8,136	120	139	14.7	
Franklin	641	35	11	54.6	Higher
Gadsden	4,263	153	73	35.9	Higher
Gilchrist	1,514	44	26	29.1	Higher
Glades	870	11	15	12.6	
Gulf	1,072	31	18	28.9	Higher
Hamilton	993	50	17	50.4	Higher
Hardee	2,763	99	47	35.8	Higher
Hendry	3,792	141	65	37.2	Higher
Hernando	14,629	261	251	17.8	
Highlands	6,822	170	117	24.9	Higher
Hillsborough	132,344	2,367	2,269	17.9	Higher
Holmes	1,481	57	25	38.5	Higher
Indian River	10,133	208	174	20.5	Higher
Jackson	4,007	122	69	30.4	Higher
Jefferson	990	18	17	18.2	
Lafayette	755	12	13	15.9	
Lake	26,346	516	452	19.6	Higher
Lee	54,367	1,070	932	19.7	Higher
Leon	41,563	440	712	10.6	Lower
Levy	3,097	88	53	28.4	Higher
Liberty	627	19	11	30.3	Higher
Madison	1,358	29	23	21.4	
Manatee	27,777	626	476	22.5	Higher
Marion	25,958	782	445	30.1	Higher
Martin	11,010	163	189	14.8	Lower
Monroe	4,219	55	72	13.0	Lower
Nassau	6,640	144	114	21.7	Higher
Okaloosa	14,862	354	255	23.8	Higher
Okeechobee	3,326	121	57	36.4	Higher
Orange	135,322	1,956	2,320	14.5	Lower
Osceola	36,519	635	626	17.4	
Palm Beach	116,992	1,783	2,006	15.2	Lower
Pasco	43,127	762	739	17.7	
Pinellas	66,200	1,057	1,135	16.0	Lower
Polk	62,740	1,524	1,076	24.3	Higher
Putnam	5,860	191	100	32.6	Higher
Saint Johns	22,360	174	383	7.8	Lower
Saint Lucie	24,654	426	423	17.3	
Santa Rosa	15,451	272	265	17.6	
Sarasota	26,203	379	449	14.5	Lower
Seminole	41,505	403	712	9.7	Lower
Sumter	3,276	133	56	40.6	Higher
Suwannee	3,660	126	63	34.4	Higher
Taylor	1,512	60	26	39.7	Higher
Union	1,130	36	19	31.9	Higher
Volusia	42,124	777	722	18.4	Higher
Wakulla	2,717	63	47	23.2	Higher
Walton	4,725	136	81	28.8	Higher
Washington	1,931	60	33	31.1	Higher

***Higher** - county rate is statistically significantly higher than the state rate (alpha=0.05)*
***Lower** - county rate is statistically significantly lower than the state rate (alpha= 0.05)*
***Blank** - no statistically significant difference between the county rate and the state rate*

Table 3: Florida Repeat Birth Rates for Mothers Ages 15-17
2017 - 2019

County	2017 - 2019 Number of Births to Females 15-17	2017 - 2019 Actual Number of Repeat Births to to Mothers 15-17	2017 - 2019 Expected Number of Repeat Births to to Mothers 15-17	2017 - 2019 Actual Percent Repeat Births to to Mothers 15-17	Statistical Significance*
Statewide	7,076	489	489	6.9%	
Alachua	64	4	4	6.3%	
Baker	19	2	1	10.5%	
Bay	109	7	8	6.4%	
Bradford	19	1	1	5.3%	
Brevard	162	6	11	3.7%	
Broward	466	29	32	6.2%	
Calhoun	3	0	0	0.0%	
Charlotte	33	1	2	3.0%	
Citrus	67	5	5	7.5%	
Clay	58	3	4	5.2%	
Collier	122	2	8	1.6%	Lower
Columbia	40	4	3	10.0%	
Dade	723	41	50	5.7%	
Desoto	28	5	2	17.9%	Higher
Dixie	8	0	1	0.0%	
Duval	481	31	33	6.4%	
Escambia	190	11	13	5.8%	
Flagler	25	0	2	0.0%	
Franklin	8	0	1	0.0%	
Gadsden	32	2	2	6.3%	
Gilchrist	7	0	0	0.0%	
Glades	5	1	0	20.0%	
Gulf	5	0	0	0.0%	
Hamilton	10	1	1	10.0%	
Hardee	24	2	2	8.3%	
Hendry	35	2	2	5.7%	
Hernando	42	1	3	2.4%	
Highlands	34	1	2	2.9%	
Hillsborough	553	43	38	7.8%	
Holmes	18	2	1	11.1%	
Indian River	52	3	4	5.8%	
Jackson	23	2	2	8.7%	
Jefferson	7	2	0	28.6%	
Lafayette	2	1	0	50.0%	
Lake	120	8	8	6.7%	
Lee	265	19	18	7.2%	
Leon	109	9	8	8.3%	
Levy	18	2	1	11.1%	
Liberty	4	0	0	0.0%	
Madison	9	0	1	0.0%	
Manatee	168	20	12	11.9%	Higher
Marion	186	24	13	12.9%	Higher
Martin	42	1	3	2.4%	
Monroe	16	0	1	0.0%	
Nassau	27	3	2	11.1%	
Okaloosa	65	7	4	10.8%	
Okeechobee	17	4	1	23.5%	Higher
Orange	458	33	32	7.2%	
Osceola	119	4	8	3.4%	
Palm Beach	470	32	32	6.8%	
Pasco	175	15	12	8.6%	
Pinellas	257	17	18	6.6%	
Polk	362	26	25	7.2%	
Putnam	43	2	3	4.7%	
Saint Johns	37	2	3	5.4%	
Saint Lucie	111	8	8	7.2%	
Santa Rosa	50	2	3	4.0%	
Sarasota	79	7	5	8.9%	
Seminole	71	4	5	5.6%	
Sumter	22	2	2	9.1%	
Suwannee	30	2	2	6.7%	
Taylor	16	1	1	6.3%	
Union	9	0	1	0.0%	
Volusia	183	15	13	8.2%	
Wakulla	12	0	1	0.0%	
Walton	37	4	3	10.8%	
Washington	15	1	1	6.7%	

***Higher** - county percentage is statistically significantly higher than the state rate (alpha=0.05)*
***Lower** - county percentage is statistically significantly lower than the state rate (alpha= 0.05)*
***Blank** - no statistically significant difference between the county rate and the state rate*

Table 4: Florida Repeat Birth Rates for Mothers Ages 15-19
2017 - 2019

County	2017 - 2019 Number of Births to Females 15-19	2017 - 2019 Actual Number of Repeat Births to to Mothers 15-19	2017 - 2019 Expected Number of Repeat Births to to Mothers 15-19	2017 - 2019 Actual Percent Repeat Births to to Mothers 15-19	Statistical Significance*
Statewide	30,077	4,445	4,445	14.8%	
Alachua	333	32	49	9.6%	Lower
Baker	113	15	17	13.3%	
Bay	404	65	60	16.1%	
Bradford	74	13	11	17.6%	
Brevard	669	85	99	12.7%	
Broward	1,922	290	284	15.1%	
Calhoun	36	7	5	19.4%	
Charlotte	166	17	25	10.2%	
Citrus	220	32	33	14.5%	
Clay	314	44	46	14.0%	
Collier	447	55	66	12.3%	
Columbia	189	41	28	21.7%	Higher
Dade	2,967	398	438	13.4%	Lower
Desoto	109	26	16	23.9%	Higher
Dixie	47	6	7	12.8%	
Duval	2,023	328	299	16.2%	
Escambia	785	122	116	15.5%	
Flagler	120	14	18	11.7%	
Franklin	35	11	5	31.4%	Higher
Gadsden	153	27	23	17.6%	
Gilchrist	44	6	7	13.6%	
Glades	11	2	2	18.2%	
Gulf	31	2	5	6.5%	
Hamilton	50	10	7	20.0%	
Hardee	99	18	15	18.2%	
Hendry	141	29	21	20.6%	
Hernando	261	31	39	11.9%	
Highlands	170	22	25	12.9%	
Hillsborough	2,367	358	350	15.1%	
Holmes	57	16	8	28.1%	Higher
Indian River	208	26	31	12.5%	
Jackson	122	16	18	13.1%	
Jefferson	18	4	3	22.2%	
Lafayette	12	4	2	33.3%	
Lake	516	71	76	13.8%	
Lee	1,070	164	158	15.3%	
Leon	440	67	65	15.2%	
Levy	88	14	13	15.9%	
Liberty	19	3	3	15.8%	
Madison	29	3	4	10.3%	
Manatee	626	105	93	16.8%	
Marion	782	137	116	17.5%	Higher
Martin	163	31	24	19.0%	
Monroe	55	6	8	10.9%	
Nassau	144	19	21	13.2%	
Okaloosa	354	62	52	17.5%	
Okeechobee	121	26	18	21.5%	Higher
Orange	1,956	292	289	14.9%	
Osceola	635	72	94	11.3%	Lower
Palm Beach	1,783	252	264	14.1%	
Pasco	762	103	113	13.5%	
Pinellas	1,057	163	156	15.4%	
Polk	1,524	231	225	15.2%	
Putnam	191	27	28	14.1%	
Saint Johns	174	22	26	12.6%	
Saint Lucie	426	58	63	13.6%	
Santa Rosa	272	35	40	12.9%	
Sarasota	379	51	56	13.5%	
Seminole	403	48	60	11.9%	
Sumter	133	23	20	17.3%	
Suwannee	126	27	19	21.4%	Higher
Taylor	60	5	9	8.3%	
Union	36	2	5	5.6%	
Volusia	777	112	115	14.4%	
Wakulla	63	12	9	19.0%	
Walton	136	19	20	14.0%	
Washington	60	11	9	18.3%	

***Higher** - county percentage is statistically significantly higher than the state rate (alpha=0.05)*
***Lower** - county percentage is statistically significantly lower than the state rate (alpha= 0.05)*
***Blank** - no statistically significant difference between the county rate and the state rate*