Iowa Adolescent Pregnancy Risk Index

Prepared for the Iowa Department of Human Services
Prepared by the Center for Social and Behavioral Research, University of Northern Iowa

Introduction

As part of ongoing efforts to improve the Community Adolescent Pregnancy Prevention (CAPP) program, the Iowa Department of Human Services (IDHS) contracted with the Center for Social and Behavioral Research (CSBR) at the University of Northern Iowa to develop a county-level risk index for adolescent pregnancy in Iowa. The goal of the risk analysis and index is to determine key risk factors for adolescent pregnancy and identify counties in Iowa with a higher versus lower risk of adolescent pregnancy. This risk index will assist IDHS and CAPP administration staff in their planning and decision-making moving forward.

Risk Index

The map in Figure 1 shows the distribution of the low, medium, and high risk counties across the state:

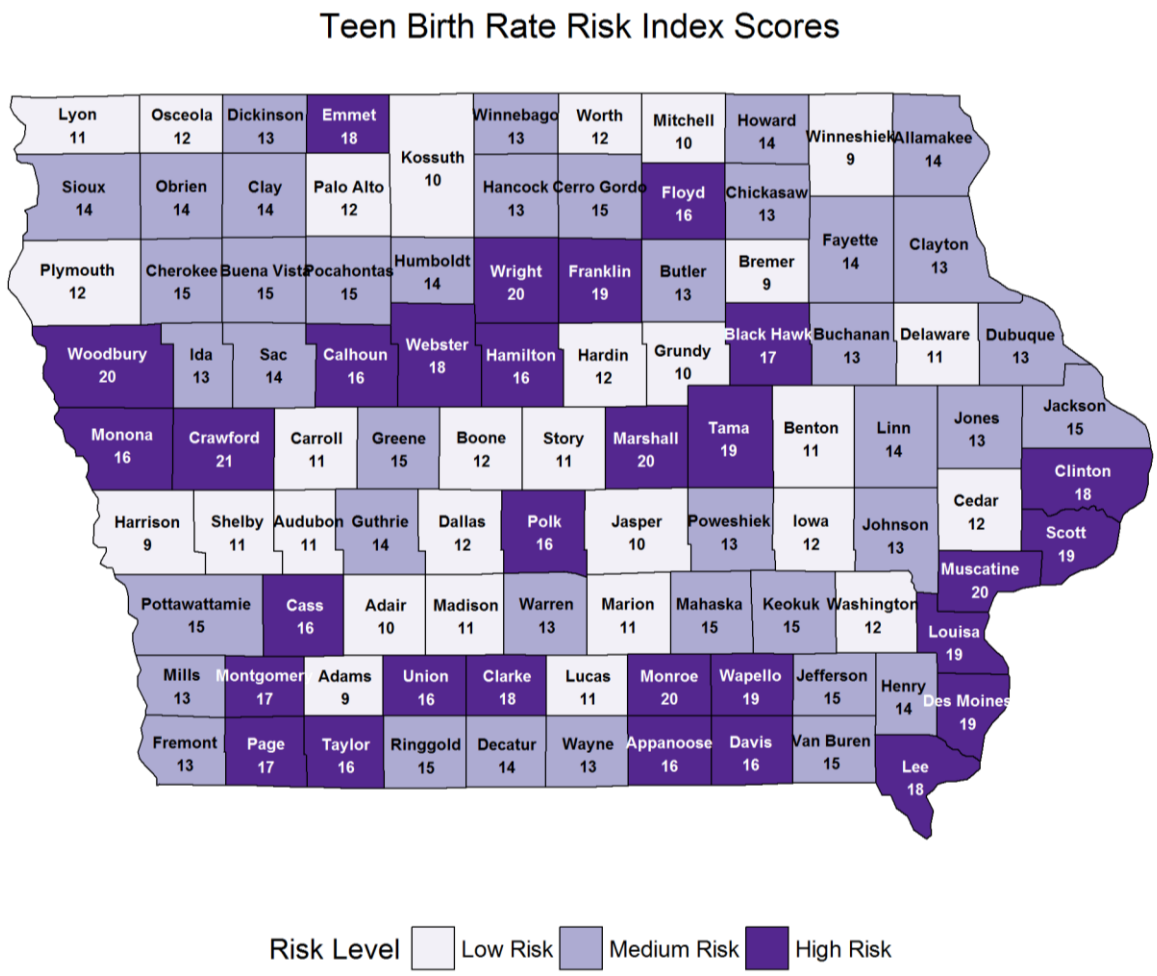

Figure 1: Teen Birth Rate Risk Index Scores

Attachment J: Iowa Adolescent Pregnancy Risk Index

Table 1: Summary of Counties by Risk

Low Risk		Medium Risk		High Risk	
County	Index Score	County	Index Score	County	Index Score
Adams	9	Buchanan	13	Appanoose	16
Bremer	9	Butler	13	Calhoun	16
Harrison	9	Chickasaw	13	Cass	16
Winneshiek	9	Clayton	13	Davis	16
Adair	10	Dickinson	13	Floyd	16
Grundy	10	Dubuque	13	Hamilton	16
Jasper	10	Fremont	13	Monona	16
Kossuth	10	Hancock	13	Polk	16
Mitchell	10	Ida	13	Taylor	16
Audubon	11	Johnson	13	Union	16
Benton	11	Jones	13	Black Hawk	17
Carroll	11	Mills	13	Montgomery	17
Delaware	11	Poweshiek	13	Page	17
Lucas	11	Warren	13	Clarke	18
Lyon	11	Wayne	13	Clinton	18
Madison	11	Winnebago	13	Emmet	18
Marion	11	Allamakee	14	Lee	18
Shelby	11	Clay	14	Webster	18
Story	11	Decatur	14	Des Moines	19
Boone	12	Fayette	14	Franklin	19
Cedar	12	Guthrie	14	Louisa	19
Dallas	12	Henry	14	Scott	19
Hardin	12	Howard	14	Tama	19
Iowa	12	Humboldt	14	Wapello	19
Osceola	12	Linn	14	Marshall	20
Palo Alto	12	O'Brien	14	Monroe	20
Plymouth	12	Sac	14	Muscatine	20
Washington	12	Sioux	14	Woodbury	20
Worth	12	Buena Vista	15	Wright	20
		Cerro Gordo	15	Crawford	21
		Cherokee	15		
		Greene	15		
		Jackson	15		
		Jefferson	15		
		Keokuk	15		
		Mahaska	15		
		Pocahontas	15		
		Pottawattamie	15		
		Ringgold	15		
		Van Buren	15		

While not provided here, maps for each individual factor with the score and rankings of each county are available upon request. The 2013 - 2016 teen birth rates are provided in Figure 2.

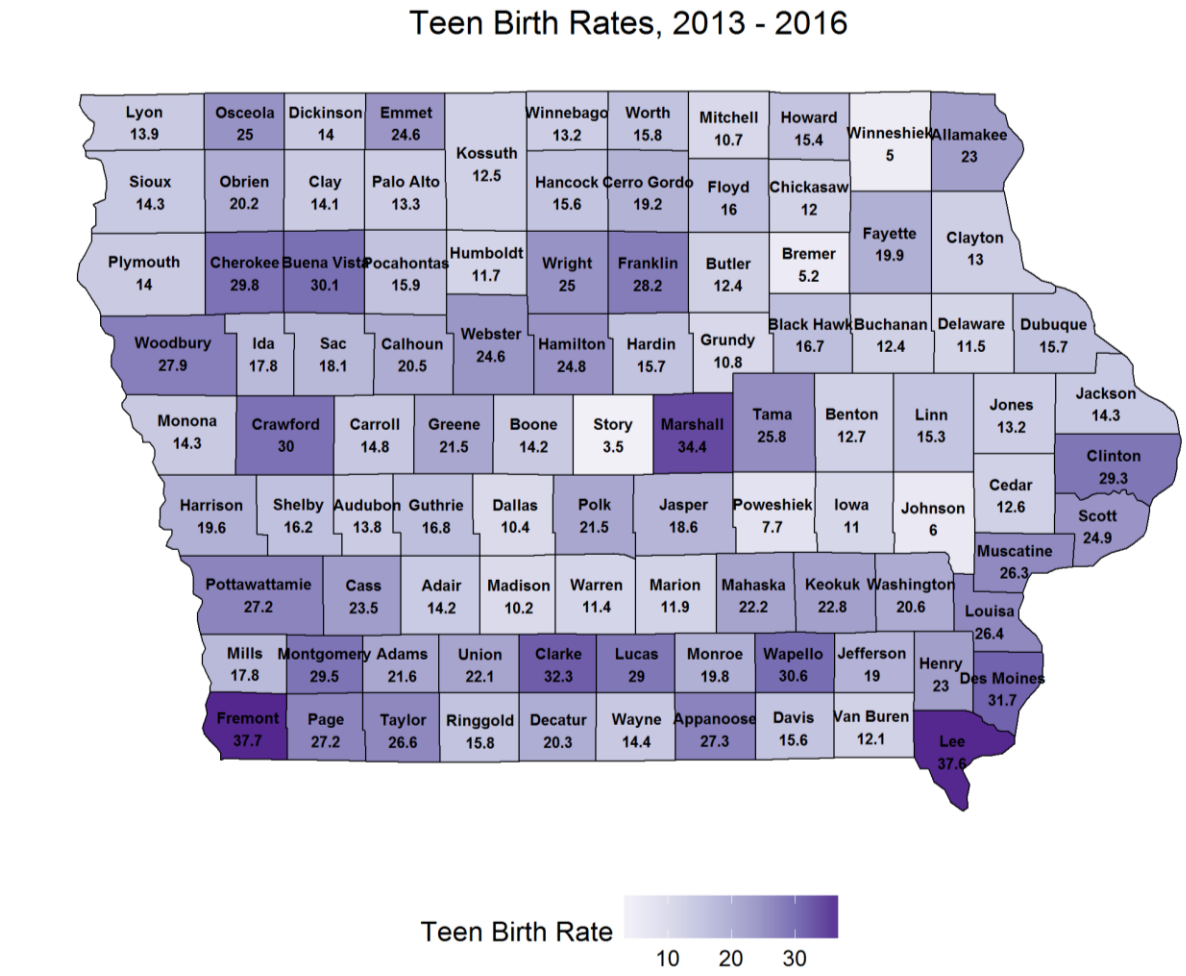

Figure 2: Teen Birth Rates - 2016

Creating the Risk Factor Index

Identifying the Risk Factors

CSBR staff conducted a review of the current literature on individual- and community-level risk and protective factors for adolescent pregnancy. Based on that review, CSBR staff then considered reliable, publically available, county-level data that measured or was deemed to be a reasonable proxy for potential risk factors. CSBR staff then combined the disparate data points, described in more detail below, into one overall dataset used to create the final model.

CSBR conducted a correlation analysis to determine the overall correlation between the potential factors and the outcome of interest: teen birth rates. Given the number of possible predictive factors/variables included, there were insufficient numbers of data points to conduct a separate linear model for each county in Iowa; therefore, CSBR combined the county information across the years and conducted the risk analysis at the state level. CSBR built the linear model using one risk factor at a time

and considered many combinations of factors before deciding on the final model with the goal of maximizing tolerances, minimizing VIF values, and maximizing the R^2 to provide the most robust and powerful model. The final model contains six risk factors: whether a county is defined as metropolitan, the percent of unemployment, the percent of the under 18 population that is Hispanic, the percent of citizens living in poverty, the rate of child abuse, and the percent of the population that is under 18. The R^2 of the final model was 0.404, indicating that approximately 40% of the variance of the dependent variable, Teen Birth Rates, is predicted by the independent variables (the risk factors).

Risk Index Scoring

Once the model was finalized, index scores were computed on 2016 data in order to capture the most up-to-date information available. Percent poverty, percent of the under 18 population that is Hispanic, percent unemployment, child abuse rate, and percent of the population that is under 18, were broken into approximate quartiles and given a score of 1 to 4 based on the frequency distribution with 1 indicating low-risk and 4 indicating the high-risk. The dichotomous "metropolitan" factor was scored 1 indicating metropolitan counties and 2 indicating non-metropolitan counties, the model indicating that non-metropolitan counties are at higher risk. CSBR summed these scores to compute the final score for each county.

The final index scores ranged from a low of 9 to a high of 21. CSBR grouped the scores into three groups with approximately one-third of counties in each group. The low-risk group scores ranged from 9 to 12 (29%), medium-risk group scores ranged from 13 to 15 (40%), and high-risk group scores ranged from 16 to 21 (30%).

Limitations

Although the data collected are of high quality from reputable sources, the biggest limitation when creating a predictive model is the information not available for inclusion in the model. Given the availability of data, CSBR limited the years of data included in the model to 2013 to 2016 and were only able to conduct the analysis at the state-level, not at the county-level. It is possible that the state-level model does not hold at the county-level. Some data were not collected at intervals regular enough to warrant inclusion in the model. It is also possible that better proxies for the concepts measured exist. Data on non-CAPP programs and services to adolescents in each county (measured through type, funding, reach, or number of programs) are not represented. It is possible that community-level programming could be a protective factor for adolescents.

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