Association of Access to Publicly Funded Family Planning Services & Teen Birth Rates Across California Counties

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Abstract

Teen birth rates (TBR) have been declining nationwide, including a dramatic decline in California. However, a large disparity in TBR exists across California counties. Access to publicly funded family planning services plays a critical role in avoiding unintended pregnancy and early childbearing. In California, both Medi-Cal and Family PACT, Medicaid's family planning extension program, provide comprehensive family planning and related reproductive health services to eligible residents including teens. We conducted regression analyses to determine the relationship between TBR and access while controlling for county-level social, economic, and demographic covariates. The bivariate correlation coefficient *(r=-.27, p=.04)* and standardized regression coefficient *(β=-.19, p=.005)* indicated the importance of access to publicly funded family planning services in reducing TBR across California counties. Additionally, we identified potential priority areas for intervention by using quartiles, a measure in which four equal groups of counties using the values of TBR and the proportion of access were calculated.

Background

Unintended pregnancy remains a public health challenge and is an important issue for women of all ages. However, there are distinct risks and concerns for teens in particular. Early childbearing has long been a concern because of the negative consequences for the teen mothers and their children, and the overall cost to society.[1,2,3] In California, the teen birth rate declined from a high of 70.9 per 1,000 teens in 1991 to a low 29.0 per 1,000 in 2010.[4] California's progress in reducing the teen birth rate (TBR) is exceptional, but disparity still exists across the state's 58 counties. Moreover, there is no single explanation for why teen birth rates are much higher in some geographic areas while lower in others. Numerous factors are shown to be associated with early childbearing, but the association of access to publicly funded family planning services and TBR across California counties when controlling for other factors known to influence birth rate has not been assessed.

The literature has shown that not only individual characteristics have an impact on early childbearing and unintended births, but likewise community characteristics have been found to play important roles concerning these issues.[5,6] There is a widespread consensus that community attributes such as the percent of population in poverty, unemployment rate, education level, marital status, high school graduation rate, race-ethnic and nativity compositions of the community each play a role in influencing teen childbearing and unintended births.[7,8,9]

Access to publicly funded family planning services plays a critical role in avoiding unintended pregnancy and early childbearing. It is also vital in reaching one of the goals of the Healthy People 2020,[10] which is to improve pregnancy planning and spacing, and prevent unintended pregnancy. In California, both Medi-Cal (California's Medicaid Program) and Medicaid's family planning extension program, Family PACT (Planning, Access, Care, and Treatment) provide comprehensive family planning and related reproductive health services to eligible low-income residents including teens. Access to publicly funded family planning services through Family PACT has been gradually increasing and the teen birth rates have been declining; however, even with a dramatic decline in TBR in California a large disparity in access and TBR exists across California counties.[11]

The principal goal of this study is to investigate the associations between access to publicly funded family planning services (referred to as "access" in this study) and birth rates among teens age 15-19 at the county level when controlling for aggregate level characteristics of each county. Additionally, we develop a simple measure to identify which counties can be potentially targeted for specific intervention by program administrators so that limited resources can be maximized.

Data and Methods

Access to family planning is measured by comparing the number of women who received a family planning service at least once during Fiscal Year (FY) 2006-07 to the total number of women who were in need of these services. Several data sources were used to estimate access by county level. The main data sources included the California Health Interview Survey and California Women's Health Survey, which together provided the data on teens' sexual behavior and their need for family planning services.

The Family PACT and Medi-Cal administrative data provided the number of teens that accessed publicly funded family planning services. A detailed description of the methodology that was used in the county estimation of access can be found elsewhere.[12]

The teen birth rate is the number of births per 1,000 females age 15-19. We used California's Birth Statistical Master Files[13] and population data published by the California Department of Finance to calculate the TBR by county. The number of births by county is an average derived by aggregating the birth events from three consecutive years of birth data, 2005 through 2007. Aggregating three years of birth events allowed us to have stable estimates of TBR by county. Data about the counties' demographic, social, and economic characteristics were collected from various proprietary data sources and published tables.

We calculated the proportion of teens in different race-ethnic backgrounds by county using the population data published by the California Department of Finance[14] because Hispanic and Black teens have teen birth rates that are historically higher as compared to teens of other race-ethnic backgrounds.[15]

We conducted simple correlation analyses between TBR, access and other independent variables shown to be associated with the birth rate of teens. We then conducted regression analyses to determine the relationship between TBR and access while controlling for county-level social, economic, and demographic covariates. The list of covariates was limited to variables that can be determined through available secondary data sources and is by no means exhaustive.

Lastly, to identify potential priority areas of intervention, we used quartiles, a measure in which we calculated four equal groups of counties using the values of TBR and the proportion of access to publicly funded family planning services. These groupings were presented utilizing a map that shows California counties.

Results

California's 58 counties demonstrated substantial variability in TBR. We found 18 counties showing a statistically significant higher TBR than the State[a] rate, of which eight counties are located in the Central Valley region of California. Kings County (63.6 per 1,000) had the highest TBR, followed by Madera (63.3 per 1,000), Kern (62.5 per 1,000), and Tulare (61.0 per 1,000) with TBR of more than 60 births per 1,000 teens. In addition to having a high TBR, these four counties showed a high proportion of teens that have had live births previously. Statewide, 18 percent of teens had a second birth or higher birth order. The percent of teens that had a second birth or higher birth order for these four counties was 19 percent in Madera, 21 percent in Tulare, and 22 percent each for Kings and Kern.

[a] State teen birth rate was calculated after subtracting the counts from a given county with which the State was being compared. For example, when Kings County birth rate is compared to the State birth rate, the State birth rate excluded the numbers from Kings. The 18 counties with statistically higher TBRs than the State are Kings, Madera, Kern, Tulare, Monterey, Fresno, Imperial, Merced, Yuba, San Joaquin, San Bernardino, Glenn, Stanislaus, Santa Barbara, Tehama, Sutter, Riverside, and Los Angeles.

Noticeable differences in access to publicly funded family services were also observed across California. Among the 18 counties with statistically significant higher TBRs than the statewide TBR, 10 counties showed low access to publicly funded family planning services, ranging from 29 percent in Imperial to 51 percent each in San Joaquin and Yuba.

Table 1 shows the correlation coefficients between all pairs of variables, both dependent and independent and their level of significance. Not surprisingly, we found that poverty rate and other measures of poverty such as the unemployment rate and percent of adults living in the county with less than high school education were all statistically significantly correlated with TBR. The correlation coefficient indicated that access to Family PACT was inversely associated with TBR (r=-.27, p=.04). The proportion of White teens in a county appeared to be negatively associated with TBR (r=-.59, p=<.001) as well as the graduation rate (r=-.25, p=.06).

County characteristics such as the proportion of Hispanic teens and the proportion of low-income births among adults emerged as significantly correlated with TBR (r=.72, p=<.001 for both). Notably, however, we observed a high correlation between the proportion of Hispanic teens and the proportion of foreign-born teens. Thus, to avoid multicollinearity in the regression model we selected the latter variable, which seemed to capture not only the nativity of Hispanic teens but also of other racial-ethnic groups such as Asian and Pacific Islander teens.

While holding the other variables in the model constant, the standardized regression coefficient suggested that the county's proportion of births to low-income adult women demonstrated the greatest influence on TBR (*β=.71),* followed by the proportion of foreign-born teens (*β=.44).* See Table 2. The variance in teen birth rate that was explained by these two variables combined (R^2=.75) was not much smaller than the variance accounted for by the final full model (R^2=.79). Access to Family PACT across counties was inversely significantly related to counties' TBRs; a higher access rate to Family PACT was associated with a lower TBR when controlling for the other covariates in the model.

The map displayed in Figure 1 aims to identify potential counties that could be targeted for specific intervention by program administrators. It shows that inland counties[b] exhibited high TBRs and low access, while low TBRs and high access were mostly observed in northern and central coastal counties of California. Among the top ten counties with the largest share of teens in need of publicly funded family planning services, Riverside County had the lowest proportion that accessed these services (35%), while San Diego County had the highest (59%) in FY 2006-07. Moreover, San Diego County also demonstrated a far lower teen birth rate compared with Riverside (34.6 vs. 42.2 births per 1,000 female ages 15-19).

[b] Inland counties constitute San Bernardino and Riverside.

Discussion

California has a long history of providing services that help low-income state residents including teens avoid unintended pregnancy and early childbearing. The State has made teen pregnancy prevention efforts a high public health priority spanning the administration of two Republican and two Democrat governors. These efforts led to the State achieving a considerable success in implementing programs targeting teens who were at high risk of unintended pregnancy. Our main goal was to investigate if an association exists between access to publicly funded family planning services, in particular through Family PACT, and teen birth rates across California counties.

This study showed the contribution of the Family PACT Program in reducing the teen birth rate across California counties. Counties with higher access rates to the program among teens showed lower teen birth rates while controlling for other factors that potentially influence teen childbearing. Consistent with this finding is the result of a study that showed more than 80,000 estimated teen pregnancies were averted by Family PACT in 2007 through the provision of contraceptive methods.[16]

We found that two variables, the proportion of births to low-income adult women and the proportion of foreign-born teens, were highly significant predictors of a county's TBR. These variables may represent proxy characteristics of community norms and fertility behaviors that were not assessed in this study. The high TBR in counties with high proportion of foreign-born teens was largely influenced by the high proportions of Hispanic teens. The data demonstrated a strong association between the proportion of Hispanic teens and the proportion of foreign-born teens. For example, Kings County, with more than half of its teen population of Hispanic ethnicity, exhibited the highest proportion of foreign-born teens and the highest TBR.

Our findings showing the association of community characteristics including widespread high unemployment and poverty to the high teen birth rate are consistent with other studies.[17] However, we acknowledge several limitations with our study. For very small counties, aggregated data by region are used to provide more stable estimates and may not necessarily reflect the characteristics of very small counties. Additionally, using aggregated county data or ecological analysis is useful but may have potentially generated results that were affected by "ecological fallacy." Finally, our study did not control for other family planning services that may be available to teens other than Family PACT and Medi-Cal and county characteristics that may signify potential protective factors for teens to avoid early childbearing.

Increasing access to family planning services and related reproductive health care for teens is a major goal of the Family PACT Program. Critical to reaching teens is the collaborative partnership ("clinical linkages") with the State's Teen Pregnancy Prevention Program (TPP). The TPP requirement to develop clinical linkages with at least one Family PACT provider in their communities led to reaching new teen clients and to more understanding of issues important to teens.[18] This collaborative partnership facilitates not only access to family planning services but also access to important education and counseling among teens. Less than half of California's teen population is Hispanic; however, Hispanic teens accounted for more than half of Family

PACT teen clients in FY 2006-07, demonstrating that the program has been successful in reaching out to Hispanic teens who have the highest TBR across all race-ethnic groups.

Reducing the TBR particularly in counties where persistent high rate continues is critical to achieving a healthy future for the state overall. Failure to address geographic disparity could hinder the overall progress towards overall effort to reduce unintended pregnancy and early childbearing. Not only emphasis on the individual behavior is needed but emphasis on the improvement of community-level social and economic determinants of early childbearing should be considered necessary.

In many states, including California, budget cuts are being imposed that could potentially hurt the most vulnerable teens. These budget pressures led to elimination of some programs, thus it is critical that the limited resources available are optimally allocated by identifying areas that need the services most. These analyses can be replicated in other states to identify geographic gaps with high need and inform planning and investment to align the needs of the communities and health outcomes with the limited resources that are available.

Table 1: Simple correlation coefficients between teen birth rates and selected covariates in California Counties, 2006-07

	Teen birth rate	Access to FPACT	Access to Medi-Cal	Poverty rate	Unemp-loyment rate	% Hisp-anic teens	% API teens	% Black teens	% Foreign-born teens	% Adult with < HS	% Teens with previous live birth	% of births among low-income adult	High School Grad-uation rate	Foster care rate
Teen birth rate	1.000													
Access to FPACT	-0.270*													
Access to Medi-Cal	0.425**	-0.015												
Poverty rate	0.661***	-0.149	0.622***											
Unemployment rate	0.549***	-0.279*	0.381*	0.655***										
% Hispanic teens	0.721***	-0.297*	0.008	0.256	0.404**									
% API teens	-0.099	0.034	-0.081	-0.226	-0.271*	0.079								
% Black teens	0.106	-0.156	0.021	-0.128	-0.228	0.190	0.639***							
% Teens foreign-born	0.429**	-0.198	-0.064	-0.032	0.012	0.705***	0.523***	0.487***						
% Adult with < High School (HS)	0.790***	-0.263*	0.361	0.495***	0.482***	0.815***	-0.127	0.022	0.508***					
% Teens with previous live birth	0.540***	0.035	0.459***	0.465***	0.329*	0.478**	0.072	0.160	0.350*	0.558***				
% Low-income adult births	0.721***	-0.002	0.555***	0.766***	0.587***	0.379*	-0.420**	-0.271*	-0.071	0.645***	0.456***			
High school graduation rate	-0.248	-0.071	-0.172	-0.210	-0.004	-0.075	-0.082	-0.218	-0.023	-0.105	-0.294*	-0.970		
Foster care rate	0.092	0.078	0.558***	0.554***	0.295*	-0.325*	-0.063	-0.028	-0.357*	-0.074	0.109	0.386*	-0.014	1.000

A variable's correlation with itself is 1.
*p < .05; **p < .01; ***p < .001

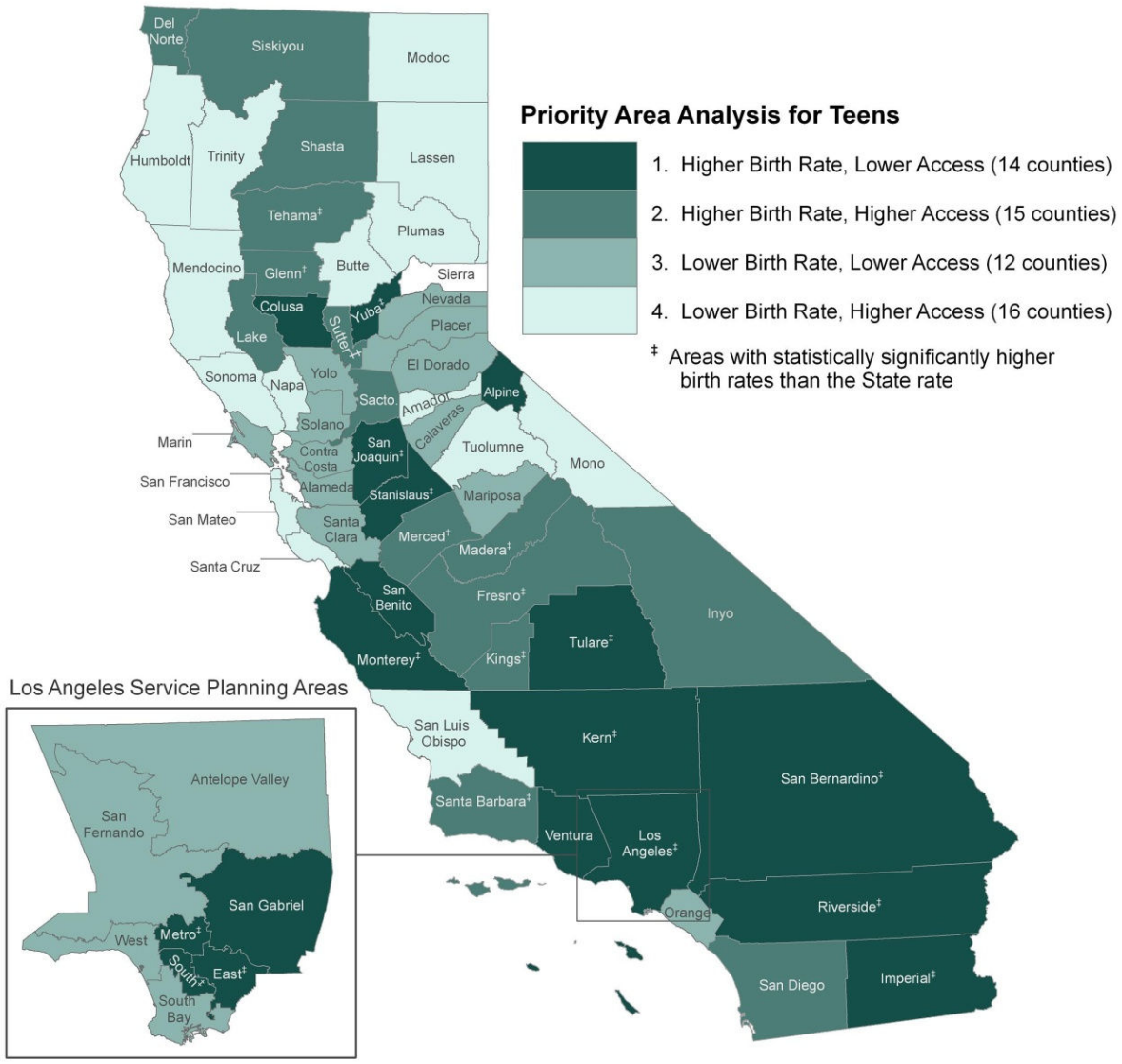
Table 2: Summary of Regression Analysis Predicting Teen Birth Rates in California Counties, 2006-07

County Characteristics	*B*	*SE B*	*β*	*t Value*	*P*
Intercept	6.2	11.3		0.55	.583
Access rate to Family PACT	-17.9	6.2	-.188	-2.9	.005
Access rate to Medi-Cal	10.7	21.2	.039	0.5	.616
High school graduation rate	-17.5	10.9	-.104	-1.6	.115
% of low-income adult births	81.2	8.8	.710	9.2	<.0001
% of teens foreign-born	115.8	17.0	.442	6.8	<.0001

R^2 = .794; Adj. R^2 = .774; B=unstandardized regression coefficient, *β=standardized regression coefficient, SE=standard error, P=probability value*

Note: Sierra County was excluded from the analysis due to less than 5 cases of teen births.

Figure 1: Access to Publicly Funded Family Planning Services and Teen Birth Rate among Teens Ages 15-19, 2006-07



Notes: Publicly funded family planning services are provided by Medi-Cal and the Family PACT Program. Rate of Access was derived from the report http://www.familypact.org/Files/Reports-and-Briefs/2011-0407_AccessToPubliclyFundedFPServicesCA_FY0607_508.pdf.
Sierra was excluded due to fewer than five teen births that occurred in the county.

Data Sources: State of California, Department of Finance, *Race-Ethnic Population with Age and Sex Detail, 2000–2050.* Sacramento, CA, July 2007; California Health Interview Survey, 2005 & 2007; California Women's Health Survey, 2006-08; Medi-Cal and Family PACT claims data, 2006-07; Pooled 2005-07 Birth Statistical Master Files.

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