Maternal Oral Health Study, NJ PRAMS 2018-2023

The NJ Pregnancy Risk Assessment Monitoring System (PRAMS) is a joint project of the New Jersey Department of Health (NJDOH) and the Centers for Disease Control and Prevention (CDC). Information from PRAMS is used to help plan better health programs for NJ mothers and infants. One out of every fifty mothers are sampled monthly when newborns are two to six months old. Survey questions address their feelings and experiences before, during, and after pregnancy. The PRAMS sample design oversamples smokers and minorities. Data are weighted to give representative estimates of proportions in specific categories and of actual persons. More than 30,300 birthing persons are included between 2002-2023, with an average response rate of 69%.

Summary

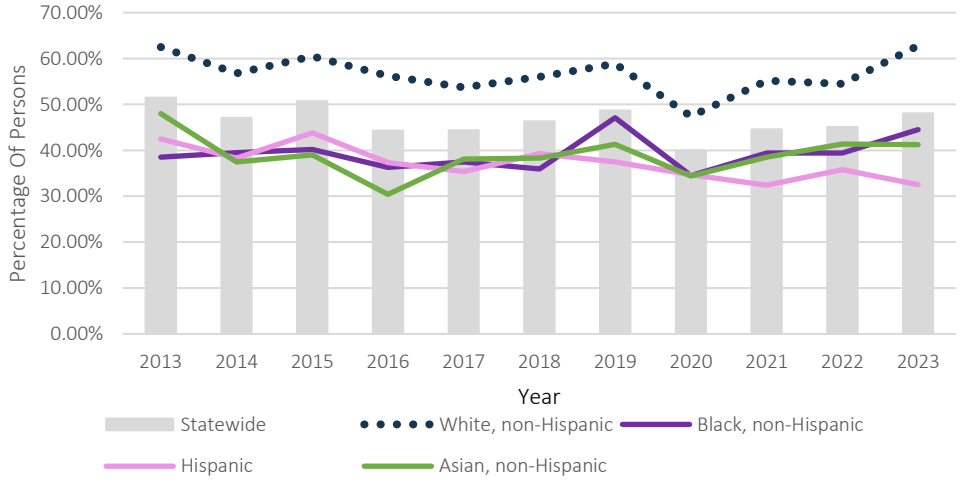
- Maternal race/ethnicity, education, and prenatal care insurance type are associated with professional dental cleanings during pregnancy in New Jersey birthing persons.
- It is essential for care providers to continue encouraging birthing persons to utilize professional dental care services throughout their pregnancy.

Background & Significance

It is crucial that a birthing person's oral health is maintained throughout their pregnancy. Poor oral health during pregnancy has been associated with preeclampsia and gestational diabetes in birthing persons.[1] Pregnant persons are also more prone to adverse oral health conditions such as gum disease, cavities, and gingivitis.[2] In addition, maternal oral health plays a critical role in shaping infant health. Research has demonstrated that caries-causing bacteria can be vertically transmitted from mothers to infants.[3] Poor maternal oral health has also been linked with preterm birth and low birth weight in infants.[1] A PRAMS study encompassing data from multiple jurisdictions found that maternal gum disease during pregnancy is associated with infants being small for their gestational age and falling below the 10th percentile.[4]

Despite the Centers for Disease Control and Prevention (CDC) recommendation that pregnant persons receive routine dental care during pregnancy, aggregated PRAMS data (including 32 U.S. sites) showed that only about 47 percent did so in 2022.[2,5] The affordability of dental care may be impacting utilization rates. Having dental insurance during pregnancy has been associated with 4 times higher odds of utilizing dental care

Figure 1: Teeth Cleanings During Pregnancy Statewide and by Race/Ethnicity, NJ PRAMS 2013-2023 [8]



services during that time.[6] Other barriers to dental care include fears about the safety of dental care during pregnancy, difficulty in finding a dentist, and not seeing the benefit in oral health care.[6]

Racial/ethnic disparities persist with this issue. A 2016-2018 PRAMS study (including 39 states and New York City) observed that non-White individuals were less likely to receive a dental cleaning during pregnancy than White individuals.[7] In New Jersey, White non-Hispanic (NH) individuals have consistently had higher rates of professional teeth cleanings during pregnancy (PTC) than all other racial/ethnic groups (Figure 1).[8] Maternal education may also be a factor in utilization rates. A Canadian study found that education level was positively associated with dental service usage ($p<0.001$).[9] Although the statewide rate of PTC has remained relatively consistent in New Jersey, it may be beneficial to explore any disparities present within this measure (Figure 1).[8] **The purpose of this study was to investigate the relationship between socioeconomic factors —specifically race/ethnicity, education, and insurance status — and dental care utilization among pregnant individuals in New Jersey.**

Methodology

Weighted NJ PRAMS data was analyzed from 2018-2023. Dental care utilization was determined via self-reported receipt of a professional teeth cleaning during pregnancy. Survey respondents were asked whether they had their teeth cleaned by a dentist or dental hygienist during their most recent pregnancy. Descriptive statistics were gathered using frequencies for single variables and cross-tabulations by teeth cleaning group ("yes" or "no"). Pearson's chi-square statistics, with Rao and Scott adjustments, were provided where appropriate (i.e., for cross-tabulations).

Inferential statistics were performed using logistic regression models, with teeth cleaning as the dependent variable. Race/ethnicity, education, and prenatal care insurance (as a proxy for dental insurance during pregnancy) served as the independent variables of interest. Crude and adjusted models were fitted for each variable of interest; missing values were omitted from the models. Maternal age served as an additional confounder in this study. All data were analyzed using R version 4.5.1/RStudio version "Mariposa Orchid".

Table 1. Population Characteristics, NJ PRAMS 2018-2023

1a. Study population (N = 6,146)		Weighted Percentage
Maternal Race/Ethnicity		
	White, NH	45.53
	Black, NH	12.73
	Hispanic	31.32
	Asian, NH	10.42
Maternal Age (in Years)		
	Less than 20	2.29
	20-24	11.06
	25-34	59.30
	35+	27.35
Educational Attainment		
	Less Than High School	9.74
	High School Graduate	23.68
	Some College or College Graduate	66.59
Prenatal Care Insurance		
	Private	62.74
	Medicaid	30.79
	No Insurance	6.47
Teeth Cleaned During Pregnancy		
	Yes	45.49
	No	54.51

Descriptive Analysis

The study population consisted of 6,146 participants. Over 45 percent of survey respondents reported receiving professional teeth cleaning during pregnancy, while nearly 55 percent did not (Table 1). When assessing dental care utilization within racial/ethnic groups, the prevalence of PTC was lower among Black NH, Hispanic, and Asian NH individuals compared to their White NH counterparts (Table 2).

In terms of maternal age, PTC was the lowest amongst 20-24-year-olds (Table 2). About 25 percent of those with less than a high school education received professional teeth cleaning during pregnancy (Table 2). Over 37 percent of Medicaid users and 23 percent of those with no prenatal care insurance received a professional dental cleaning during pregnancy (Table 2).

Table 2. Professional Dental Cleanings Within Select Indicator Groups, NJ PRAMS 2018-2023

Indicator, P-value	Percentage Who Had a Professional Teeth Cleaning
Race/Ethnicity, p<0.001	
White NH	55.83
Black NH	40.03
Hispanic	35.31
Asian NH	39.15
Age (in Years), p<0.001	
Less Than 20	39.22
20-24	33.96
25-34	45.09
35 +	51.50
Education, p<0.001	
Less Than High School	25.43
High School Graduate	36.44
Some College +	51.74
PNC Insurance, p<0.001	
Medicaid	37.14
Private	53.09
No Insurance	23.02

Inferential Statistics

Race/Ethnicity: Black NH, Hispanic, and Asian NH respondents were between 47-57 percent less likely to obtain PTC than White NH respondents (Table 3). After adjusting for maternal age, education, and prenatal care insurance, Black NH, Hispanic, and Asian NH respondents were between 35-52 percent less likely to receive a professional dental cleaning during pregnancy (Table 3, Figure 2). The highest difference was for Asian NH birthing persons, who were 52 percent less likely to receive dental cleanings during pregnancy than their White NH counterparts (Table 3, Figure 2).

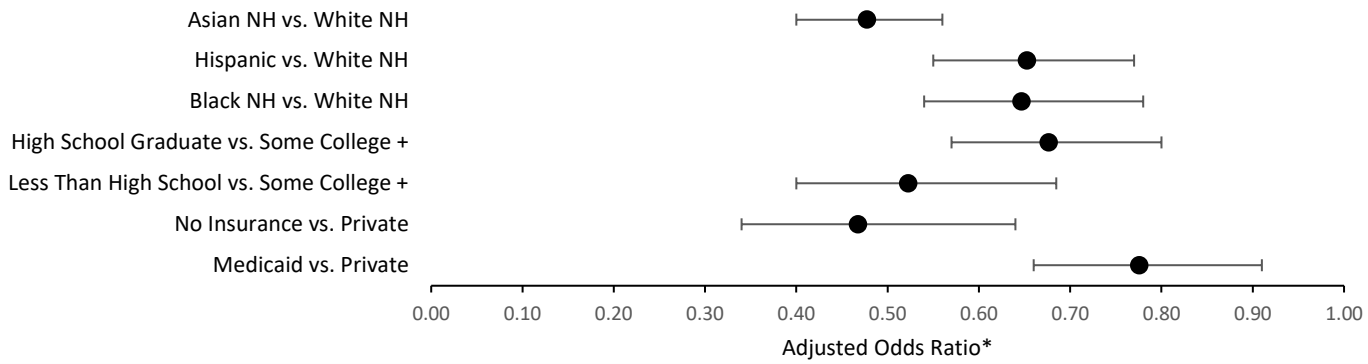
Education: Respondents with less than a high school education were 68 percent less likely to receive PTC than those with at least some college education (95% CI: 0.26-0.39) (Table 3). After adjusting for age, race/ethnicity, and prenatal care insurance, those with less than a high school education were 48 percent less likely to receive PTC than those with at least some college education (95% CI: 0.40-0.68) (Table 3, Figure 2). High school graduates were 47 percent less likely to receive professional dental cleanings than those with at least some college education (95% CI: 0.46-0.62) (Table 3). After adjusting for age, race/ethnicity, and prenatal care insurance, high school graduates were 32 percent less likely to receive PTC than those with at least some college education (95% CI: 0.57-0.80) (Table 3, Figure 2).

Prenatal Care Insurance: Respondents who used Medicaid as their prenatal care insurance were 48 percent less likely to receive PTC than those who used private prenatal care insurance (95% CI: 0.46-0.60) (Table 3). After adjusting for age, race/ethnicity, and educational attainment, Medicaid users were 22 percent less likely to receive PTC than those who used private insurance (95% CI: 0.66-0.91) (Table 3, Figure 2). Respondents who did not have prenatal care insurance were 74 percent less likely to receive PTC than respondents with private prenatal care insurance (95% CI: 0.20-0.35) (Table 3). After adjusting for age, race/ethnicity, and educational attainment, persons without prenatal care insurance were 53 percent less likely to receive PTC than those with private prenatal care insurance (95% CI: 0.34-0.64) (Table 3, Figure 2).

Table 3. Association Between Professional Teeth Cleanings During Pregnancy and Select Indicators, NJ PRAMS 2018-2023				
Indicator		**Odds Ratio**	**95% Confidence Interval**	**P-Value**
Black NH vs. White NH				
	Crude	0.53	0.45-0.62	p<0.001
	Adjusted*	0.65	0.54-0.78	p<0.001
Hispanic vs. White NH				
	Crude	0.43	0.38-0.50	p<0.001
	Adjusted*	0.65	0.55-0.77	p<0.001
Asian NH vs. White NH				
	Crude	0.51	0.44-0.60	p<0.001
	Adjusted*	0.48	0.40-0.56	p<0.001
Less Than High School vs. Some College +				
	Crude	0.32	0.26-0.39	p<0.001
	Adjusted*	0.52	0.40-0.68	p<0.001
High School Graduate vs. Some College +				
	Crude	0.53	0.46-0.62	p<0.001
	Adjusted*	0.68	0.57-0.80	p<0.001
Medicaid vs. Private				
	Crude	0.52	0.46-0.60	p<0.001
	Adjusted*	0.78	0.66-0.91	p= 0.0024
No Insurance vs. Private				
	Crude	0.26	0.20-0.35	p<0.001
	Adjusted*	0.47	0.34-0.64	p<0.001

* Racial/ethnic group models adjusted for age (in years), prenatal care insurance, and educational attainment. Education models adjusted for age (in years), race/ethnicity, and prenatal care insurance. Prenatal care insurance models adjusted for age (in years), race/ethnicity, and educational attainment.

Figure 2: Association Between Sociodemographic Factors and Professional Teeth Cleanings During Pregnancy, NJ PRAMS 2018-2023



* Racial/ethnic group models adjusted for age (in years), prenatal care insurance, and educational attainment. Education models adjusted for age (in years), race/ethnicity, and prenatal care insurance. Prenatal care insurance models adjusted for age (in years), race/ethnicity, and educational attainment.

Agenda for Action

Results from this study suggest that socioeconomic disparities exist in dental care utilization among pregnant individuals in New Jersey. In comparison to their White NH counterparts, Black NH, Hispanic, and Asian NH persons were less likely to receive professional dental cleanings (Table 3, Figure 2). Additionally, higher educational attainment was associated with a higher likelihood of receiving professional teeth cleanings during pregnancy ("Less Than High School" vs. "Some College +" compared to "High School Graduates" vs. "Some College +": Table 3, Figure 2). Finally, those who did not use private prenatal care insurance (i.e., "Medicaid" or "No Insurance") were less likely to receive professional dental cleanings during pregnancy than those who used private prenatal care insurance (Table 3, Figure 2).

Research has shown that maternal salivary bacteria act as a predictor for caries incidence in their children.[10] Preventive dental care during pregnancy may therefore serve as an important strategy for improving both maternal and infant oral health outcomes. Care providers should stress the importance of maintaining one's oral health during pregnancy. Protect Tiny Teeth, an initiative spearheaded by the CDC and the American Academy of Pediatrics, provides resources to help health care providers approach the dental care conversation with pregnant persons.[11, 12] The toolkit is provided in multiple languages and offers materials such as videos, posters, brochures, and infographics containing oral health information.

NJDOH Children's Oral Health Program

The New Jersey Department of Health's Children's Oral Health Education Program aims to promote positive oral hygiene practices in the state, particularly for children in high-need/high-risk areas. This program offers oral health education in both virtual and in-person formats, including sessions specifically designed for pregnant people and those working with pregnant people. Furthermore, they partner with the Women, Infants, and Children Supplemental Food Program (WIC) to provide oral health education for its participants.

Beyond oral health education, the New Jersey Department of Health's Oral Health Unit supports the application of fluoride varnish and dental screenings in New Jersey schools. These efforts aim to reduce the burden of dental disease through early intervention and referral to dental care. Additionally, a grantee supported by the New Jersey Department of Health is currently conducting the state's first Basic Screening Survey (BSS) focused on pregnant individuals. The project will generate critical baseline data on oral health status, access to care, and unmet dental needs among pregnant people in New Jersey. Data is expected to be available in the coming months and will help inform future maternal oral health programming and policy development.

A directory of dental care providers developed by the Children's Oral Health Education Program can be found here: nj.gov/health/fhs/oral/documents/dental-directory-2024 .

Strengths & Limitations

The NJ PRAMS sample is representative of the population. This weighted analysis can be applied to all mothers who delivered a live birth in NJ during 2018-2023. PRAMS was designed to supplement vital records data by providing state-specific data on maternal behaviors and experiences for planning and assessing perinatal health programs. Since PRAMS utilizes a standardized methodological approach, it eases data comparison across states. Moreover, NJ PRAMS data is weighted to provide a sample that is a representative estimate of proportions in specific categories and of actual persons.

However, PRAMS data is subject to limitations. PRAMS survey data is subject to common survey biases: recall bias, non-response bias, and social desirability bias.

Note on Language and Grammar

In alignment with the Nurture NJ Maternal and Infant Health Strategic Plan and other recent publications, this document uses language conventions that are intended to be universal and inclusive. We use the phrases and terms "maternal health", "mother", "woman", "she" and "her" to refer to a person who recently gave birth. We recognize that not all birthing people identify as women; these terms are meant to include cisgender females, non-binary individuals, and transgender men. The terms survey respondents and mothers are used interchangeably.

In keeping with APA guidance, all racial and ethnic groups are capitalized as they are considered proper nouns.

Resources

Contact NJ PRAMS: mchepi@doh.nj.gov Website: nj.gov/health/fhs/maternalchild/mchepi/prams/

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