Physical Abuse as a Risk Factor for Adverse Mental and Behavioral Maternal Outcomes

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 29,500 birthing persons are included between 2002-2022, with an average response rate of 70%.

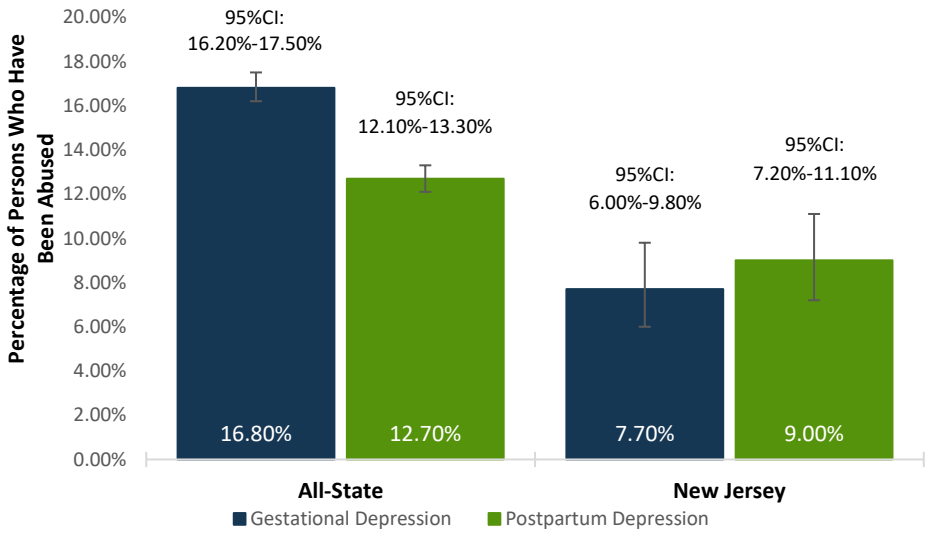
Background & Significance

The National Intimate Partner and Sexual Violence Survey (2016-2017) found that 41% of women and 26% of men in the United States reported contact sexual violence, physical violence, or stalking by an intimate partner within their lifetimes.[1] Although any form of abuse is concerning, abuse during pregnancy is alarming because it affects not only the birthing person but also the unborn infant(s). Both are vulnerable to negative outcomes, with far-reaching consequences.

Approximately 1.5% of U.S. women reported experiencing physical violence during their pregnancy.[2] In fact, 1 in 6 women have their *first* experience with abuse during pregnancy.[3] This can be triggered due to the stress of an unintended pregnancy, financial struggles, or jealousy for the birthing person's attention.[3]

Physical domestic abuse, though a sensitive topic, needs to be recognized as a maternal health issue to ensure the well-being of the mother-infant dyad. The prevalence of gestational and postpartum depression for all PRAMS sites, inclusive of the sites that met the required 50% response rate threshold, saw aggregate rates over 12%, while in New Jersey, both gestational depression and postpartum depression saw rates over 7% in 2022 (Figure 1). This is especially concerning as published literature has shown that prenatal depression was 5 times higher amongst persons who experienced domestic violence.[4] Moreover, several studies have suggested that experiences of abuse are linked to an increased risk of postpartum depression symptoms in women.[5,6] Additionally, alcohol use during pregnancy is associated with an increased likelihood that the birthing person has experienced violence during pregnancy.[7] One study using PRAMS survey data from 33 states found that women who experienced physical abuse were 2.6 times more likely to smoke during pregnancy

Figure 1: Mental Health Amongst Birthing Persons,
NJ PRAMS and *CDC All-State PRAMS,* 2022



than women who did not experience physical abuse.[8] Persons who have been abused are also less likely to attend prenatal care visits.[9] Ferraro et al (2017) found that anxiety in women who were abused is associated with newborns being "small for their gestational age".[10] Substance use during pregnancy, which is noted as being higher among individuals who experience abuse during pregnancy, is significantly associated with low birthweight, preterm birth, and miscarriage.[11] Another PRAMS study including nine jurisdictions found that the prevalence of low infant birth weight was higher amongst women who experienced either emotional, sexual, physical, or any Intimate Partner Violence [IPV] type than it was among those who did not report experiencing IPV.[12]

Preterm birth was also higher among those who experienced physical, sexual or any IPV type than it was among those who did not report these experiences. [12]

In 2022, for all PRAMS sites, including locations meeting the required 50% response rate threshold, 2.5% of birthing persons reported experiencing intimate partner violence in the 12 months before pregnancy, and 1.7% experienced it during pregnancy.[13] Between 2012-2022, 1.3% of birthing individuals in New Jersey experienced physical abuse by a husband or partner before pregnancy, and 1.1% experienced physical abuse during their pregnancy.[14] It is crucial to track and study abuse rates among pregnant persons and any effects they may have on the birthing population.

The purpose of this investigation is to explore the association between physical abuse and maternal health outcomes in New Jersey birthing persons, with an emphasis on mental health and behavior.

Methodology

Weighted PRAMS data was analyzed from 2018-2022. Survey respondents were asked whether or not they had been "push[ed], hit, slap[ped], kick[ed], choke[d], or physically hurt" in any way by a husband or partner in the 12 months before or any time during their most recent pregnancy. Those who responded "Yes" to any of those options were considered to have been abused before or during their pregnancy; those who responded "No" to both abuse before or any time during their most recent pregnancy were not considered to be abused. Missing responses were not included in this study.

Descriptive statistics were collected using frequencies and cross-tabulations within the sample. Data for physical abuse in the 12 months before and any time during pregnancy were combined into one abuse variable. Statistical analysis was performed using logistic regression models where abuse was the independent variable; mental health and behavior were the dependent variables. Gestational depression and postpartum depression served as indicators to assess mental health and were combined into one mental health variable. Drinking during the last 3 months of pregnancy, smoking during the last 3 months of pregnancy, and smoking relapse acted as indicators to assess maternal behavior and were combined into one behavior variable. Separate regression models were run for each outcome variable.

Race/ethnicity, age, educational attainment, and prenatal care insurance (as a proxy for economic status) were the main confounders in each model.

Descriptive Analysis

Study Population Characteristics. Over 45% of the sample identified as White non-Hispanic (NH), then Hispanic, Black NH, and Asian NH (Table 1a). About 59% of the population was between 25-34 years old; under 3% was less than 20 years old (Table 1a). One-third of survey respondents had a high school education or lower (Table 1a). About 30% of survey respondents used Medicaid for their prenatal care insurance; 7% had no insurance prenatally (Table 1a).

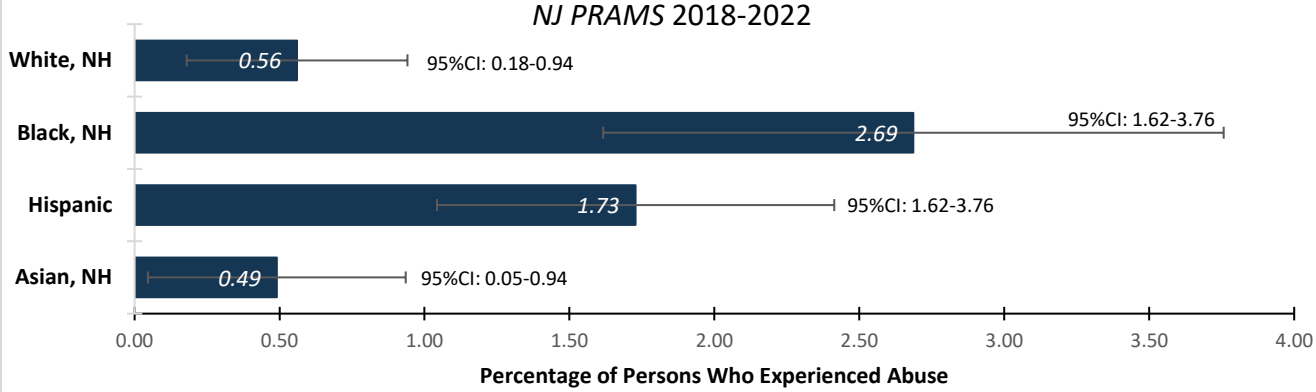
Approximately 7% of participants had gestational depression; 11% of participants experienced postpartum depression (Table 1a). Nearly 10% of the study sample drank during the last 3 months of pregnancy, and over 2% smoked during the last 3 months of pregnancy (Table 1a).

Table 1. Population Characteristics, NJ PRAMS 2018-2022		
Indicator	1a. Study population (N=5,311) Weighted Percentage	1b. Population Who Experienced Physical Abuse (N=80) Weighted Percentage
Maternal Race/Ethnicity		
White, NH	45.46	21.51
Black, NH	12.97	29.13
Hispanic	31.00	45.02
Asian, NH	10.57	4.34
Maternal Age (in Years)		
Less than 20	2.51	10.54
20-24	11.42	30.46
25-34	59.03	41.60
35+	27.04	17.39
Educational Attainment		
Less than high school	9.70	23.09*
High school graduate	23.72	37.10*
Some College or College Graduate	66.58	39.80*
Prenatal Care Insurance		
Private	62.98	31.63
Medicaid	30.40	56.77
No Insurance	6.62	11.61
Abuse Before or During Pregnancy		
Yes	1.22	/
No	98.78	/
Gestational Depression		
Yes	6.92	31.34
No	93.08	68.66
Postpartum Depression		
Yes	10.66	26.25
No	89.34	73.75
Drinking During Pregnancy		
Yes	9.67	15.99
No	90.33	84.01
Smoking During Pregnancy		
Yes	2.45	14.54
No	97.55	85.46
Smoking Relapse		
Yes	35.31	53.84*
No	64.69	46.16*

*Result not statistically significant (p>0.05).

Population Who Experienced Abuse. Over 1% of the study population (2018-2022) stated that they had been abused during their pregnancy. Of those who experienced abuse, most identified as Hispanic or Black NH (Table 1b). Within racial/ethnic groups, the rate of abuse among Black NH participants was nearly 5 times that of White NH participants (Figure 2). Thirty-seven percent (37%) of persons who experienced abuse were high school graduates, while 23% had less than a high school education (Table 1b). Over half of respondents were on Medicaid for prenatal care, and about 12% had no insurance (Table 1b). Approximately 31% of persons in this sub population experienced gestational depression (Table 1b) and about one in four participants experienced postpartum depression (Table 1b). Nearly 16% of survey respondents drank during the last 3 months of pregnancy, and 15% smoked during the last 3 months of pregnancy (Table 1b).

Figure 2: Abuse Before or During Pregnancy by Race/Ethnicity,
NJ PRAMS 2018-2022



Statistical Analysis

Mental Health. The odds of experiencing adverse mental health outcomes, such as gestational and postpartum depression, were four times higher among participants who experienced abuse before or during pregnancy compared to those who did not (95% CI: 2.40-6.90) (Table 2). These results remained consistent even after adjusting for race/ethnicity, age, educational attainment, and prenatal care insurance (95% CI: 2.36-8.10) (Table 2).

Table 2. Effects of Abuse Before or During Pregnancy on Mental and Behavioral Outcomes, *NJ PRAMS* 2018-2022

Indicator		Odds Ratio	95% Confidence Interval	P-Value
Mental Health				
	Crude	4.07	2.40-6.90	p<.0001
	Adjusted	4.37*	2.36-8.10	p<.0001
Behavior				
	Crude	2.81	1.55-5.07	p=0.0006
	Adjusted	4.20*	2.30-7.69	p<.0001

*Adjusted for race/ethnicity, age (in years), educational attainment, and prenatal care insurance.

Behavior. The odds of experiencing adverse behavioral outcomes such as drinking, smoking or smoking relapse during the last 3 months of pregnancy, were approximately three times higher among birthing persons who experienced abuse before or during pregnancy compared to those who did not (95%CI: 1.55-5.07) (Table 2). After adjusting for race/ethnicity, age, educational attainment, and prenatal care insurance, individuals who experienced abuse were four times more likely to exhibit adverse behaviors compared to those who did not (95% CI: 2.30-7.69) (Table 2).

Agenda for Action

Results from this study suggest that physical abuse before or during pregnancy is a significant risk factor for negative mental and behavioral outcomes in New Jersey birthing persons. The national PRAMS survey, along with medical providers, should continue to monitor the rates and signs of physical abuse in birthing individuals. Additionally, these organizations should consider expanding inquiries to include *emotional* abuse experienced before or during pregnancy to better safeguard the well-being of birthing persons and their infants.

The Division on Women

The Division on Women (DOW) at the New Jersey Department of Children and Families (DCF) is dedicated to creating, funding, and evaluating programs that promote women's rights and advancement. It encourages women's advocacy through programs in areas such as cultural inclusion, financial empowerment, and sexual and domestic violence.

New Jersey Coalition to End Domestic Violence

The New Jersey Coalition to End Domestic Violence is a nonprofit organization which aims to decrease rates of abuse, as well as offer resources and support to victims of domestic violence in the state. Their mission is to "lead collaborative community and systemic responses to domestic violence by providing public awareness, training, advocacy, policy development, technical assistance and supportive services."

Maternal and Child Health Consortia

The New Jersey Maternal and Child Health Consortia is a group of nonprofit organizations (Partnership for Maternal and Child Health [North Jersey], Central Jersey Family Health Consortium [Central Jersey], and The Cooperative [South Jersey]) that aim to promote the health of birthing individuals and children in the state. Through these organizations, support groups are available throughout the state to assist birthing persons who may have experienced domestic abuse.

Violence Against Women Act

The Violence Against Women Act, first established in 1994 and monitored by the Office on Violence Against Women (OVW), is a federal act which supports funding and programming for domestic violence and sexual violence prevention. This law was recently reauthorized in 2022 through fiscal year 2027 to continue uplifting government activities in these areas. Programs under OVW include the Tribal Governments Program, Transitional Housing Program, Sexual Assault Services Culturally Specific Program, and STOP (Services, Training, Officers, and Prosecutors) Violence Against Women Program.

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 2018-2022. PRAMS was designed to supplement the 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, despite the robust methodological approach, PRAMS data is subject to limitations. PRAMS survey data is subject to common survey biases: recall bias, non-response bias, and social desirability bias. Combining years improved reliability for the purposes of this project (i.e., sample descriptive and statistical analysis), but the ability to display data for individual years was limited.

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
Plans of Safe Care Brochure (Supporting Substance Affected Newborns and their Families):
nj.gov/dcf/about/divisions/dcsc/Plans-of-Safe-Care-Brochure.pdf
NJ State Hotlines for Women and Domestic Violence Victims: nj.gov/dcf/women/hotlines
Domestic Violence Direct Services and Programs: nj.gov/dcf/women/domestic

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