

# Place, Policy, Poverty, and Maternal Mental Health

A Case Study of Los Angeles County and New York City

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## I. Introduction

Paid family leave (PFL) has emerged as a mainstream topic in the political landscape of the United States. Little progress has been made in terms of national legislation; however, a few states have passed their own PFL laws, and more have begun the policymaking process. Employee family leave have been incrementally addressed throughout U.S. history. To date, only three states have PFL laws in effect, and some cities have implemented their own PFL policies. As of April 2016, San Francisco provides both paid maternity and paternity leave, as the only city in the U.S. Employee benefits extend beyond economic implications; they also affect cultural norms and population health. Economics, culture, and health are all issues of social justice, and as a result of unpaid family leave, many face inequities. When researching a country's quality of life, maternal-infant health indicators are often used. Too many women and infants are struggling to attain the health standards they deserve, and PFL plays a major role in improving health equity for mothers and their families. By exploring the current PFL laws and maternal health data in California, public health workers and policymakers in other states can better adopt physical and social health surveillance models that could monitor the potential benefits PFL would have for stakeholders. New York is the next state to implement PFL, and therefore will benefit most immediately from studying California's system of PFL and maternal health surveillance. Quantitative reports, qualitative sources, and surveys addressing maternal-infant health, social, and income factors have been reviewed to identify trending issues women face. California, New Jersey, Rhode Island, Washington, and New York's PFL policies have been reviewed to contextualize California as the current standard.

### 1. Purpose

An increasing number of health, economic, and sociological studies are responding to the rising issue of paid family leave (PFL) in the United States. My research advocates for further

research to be conducted, and focuses on how place should be factored into maternal health. My research considers how paid family leave (PFL) policy takes effect differently across places, and how that difference is related to geographical maternal mental health disparities. Through this exploratory work, my research first advocates for greater maternal health representation on every geographic scale by improving the current Pregnancy Risk Assessment Monitoring System. Second, my research advocates for a set of national PFL guidelines that responds to public health findings by upholding postnatal health needs. Paid family leave benefits family health, economic and social equity, and health care spending. It is time for the Family Medical Leave Act to be amended and meet social needs, reduce maternal health risks, and provide greater opportunity to more families to take time off to bond and care for a new child.

## 2. Methodology and structure of the paper

In this thesis, I have employed literature from the disciplines of human geography, health, and more specifically social epidemiology, to consider how place, policy, and maternal-infant health are interrelated. I used public health's social-ecological model to consider how policy has different implications in different places. I read peer reviewed journal articles on social determinants of postpartum depression (PPD) including economic hardships, chronic stress, and urban environments. I then read peer reviewed studies that drew conclusions about the relationship between paid family leave and maternal health outcomes. The gap in knowledge regarding this relationship is an injustice to maternal representation. Without a proper public health surveillance system to comprehensively identify gaps in maternal health needs, society risks perpetuating harmful health conditions like PPD for mothers and their children – the next generation. Mothers, infants, and families who are exposed to risk factors that increase negative health outcomes deserve a mechanism of social epidemiological assessment for preventative solutions.

In order to historically contextualize women, the workforce, and family leave in the U.S. sources predating the 1993 Family Medical Leave Act (FMLA) were reviewed. *Maternity Policies and Working Women* (Kamerman, Khan, & Kingston, 1983) was selected for its in-depth history, social concerns, and qualitative research approach. The book presents the economics and culture behind job protection and benefits for women leading up to the 1980s when it was publicly assumed working women had total access to benefits like family leave. This retrospective source provides a platform to compare women's experiences predating the FMLA to women's experiences today.

The relationship between paid family leave and maternal mental health is discussed based on a series of quantitative studies conducted outside the U.S. These collective works explain how policy affects place and how geography can help identify maternal mental health disparities. More recent studies were selected to maintain relevance, and international studies were chosen to emphasize how nations with well-established paid leave plans exhibit better maternal mental health outcomes than the U.S. These works lead into discussing the FMLA and economic inequity as contributors to U.S. stress culture. Stress and poverty are risk factors of depression, and for mother this has implications for postpartum depression. Culture, policy, and place all interact with maternal health.

Studies exploring the association between environment and PPD were consulted to address the effects of place on postnatal mental health. Vigod, Tarasoff, Brya, Yudin, and Ross (2013) was reviewed to understand how living in rural, suburban, semi urban, and urban places (indicating population density) plays a potential role in PPD development. Population density implies certain characteristics and trends of an environment that may put women at risk, or protect them from, PPD. Research suggests living in urban places may be a risk factor for

developing PPD. A single study cannot claim proof, but it does propose an area of maternal infant health requiring needed attention. Public health's social ecological model is used to approach how on a local level, PFL will have diverse effects because of the area's unique traits. Vigod et al.'s (2013) work was conducted in Canada, and U.S. studies were sought without success. The U.S. would greatly benefit from such studies, especially in urban areas without PFL. Increasing knowledge about PPD risk factors facilitates adequate and appropriate public health and policy responses. Given Vigod et al.'s (2013) research, I chose to focus on urban areas and PPD in California and New York.

Hardwick (2009) defines an exploratory case study as "research conducted to gather and analyze foundational data to be used for more expanded work to be carried out after these preliminary pilot data has been assessed". After researching the areas with the highest birth delivery rates in California and New York, Los Angeles County and New York City were chosen for case study assessment. Both Los Angeles County and New York City are the states' most densely populated areas and have the highest birth rates. Additionally, these areas share demographic ecological similarities such as being ethnically and culturally diverse, having income inequalities, and having health disparities. Originally, I had intended to conduct an exploratory case study on the municipal level, but this level data on PPD is unavailable.

Although this exploratory case study only analyzes California and New York, it was important to compare these states' paid family leave policies to Rhode Island, New Jersey, and Washington. In doing so, California is better contextualized as the current national standard New York can be compared to. California has had the longest duration of PFL with ample research available regarding the law's social, health, and economic implications. New York is



the most recent state to pass PFL, and when implemented, the law will surpass California's length of leave and compensation.

Three surveys on maternal health were used to quantitatively compare data on postpartum depression. Data was compared between Los Angeles County and New York City. The Maternal Infant Assessment Survey (MIHA) and the Los Angeles Mother and Baby Survey (LAMBS) were used to assess data on PPD in Los Angeles County. The New York City Pregnancy Risk Assessment Monitoring System (NYC PRAMS) was used likewise for New York City. The complete methodology descriptions for each survey as explained by the respective authors can be found in the appendix.

## II. Political, historical, & cultural context of maternal health in the U.S.

### 1. Government, society, and the right to maternal and infant health

Government has a responsibility to uphold and protect the rights of citizens. Under article 25 of the United Nations Declaration on Human Rights (UNDHR), family, maternal, and infant health and well-being deserve equal protection of health and social services. Motherhood and childhood have a right to care and assistance on moral and economic grounds, for their own sake and the sake of the state (“UNDHR”, 2016). Without a national standard and system for paid family leave, the U.S. fails to ensure all women and children can equitably access health and social services. The Family Medical Leave Act fails to be a family-centered policy, defining people as employees before people. The FMLA's unpaid nature diminishes economic access and maternal health inclusion for new mothers. Bluntly speaking, the FMLA fails the UNDHR's maternal and infant health standards by facilitating the persistence of socioeconomic inequity, which is a universally applicable social determinant of health for all conditions. “Opting out of maternity leave” is a fallacy because thousands of women and families cannot afford to opt in

(Jones, 2012). Under the FMLA, eligible employees are provisioned with “12 weeks of unpaid, job protected leave per year” (FMLA, 2016) which may be used toward caring for a newborn or newly adopted child. In 1984 the Women’s Legal Defense Fund, now the National Partnership for Women & Families drafted the initial FMLA policy. After nearly a decade of political blockades, President Bill Clinton signed the FMLA into law in 1993 (“History of the FMLA”, 2016). Even though leave is job protected, 40 percent of the workforce cannot take advantage of the full 12 weeks due to financial strain. For new mothers and parents, this is a concern for their newborn’s well-being (“FMLA”, 2016).

## 2. History of women, labor, and motherhood in the United States

Throughout the 1940s and 1950s it was not uncommon for a woman to be fired from her job when her employer learned she was expecting (Kamerman, Khan, & Kingston, 1983). Most employers at the time were men, and female employees’ financial situations were of no concern; society’s attitude preferred women to pursue only a domestic role. Many women had jobs during the 1940s because of World War II and the industrial sector’s need to fill traditionally male positions. Post war women were expected to leave their jobs for returning men. With the impending civil rights movement and growing need for dual incomes, women’s labor force participation steadily began to increase (though gender influenced the nature of women’s work). By 1960 nearly 30 percent of wives were either seeking employment or working outside the home, and the following decade showed a 10 percent increase; by 1980 50 percent of women were employed outside the home (ibid).

In 1963 the President’s Commission on the Status of Women reported that paid maternity leave “or comparable insurance benefits” should be provided for working women, yet national paid leave for new mothers (and fathers) has yet to be established (Gault, Hartmann, Hegewisch,

Milli, & Reichlin, 2014). 1978 saw the enactment of the Pregnancy Discrimination Act (PDA) that mandated a pregnant woman have the benefit of being treated like “an ill or disabled man” (Kamerman et al., 1983). Now it was illegal for employers to discriminate against conditions of pregnancy, childbirth, or any medical condition related thereof (Gault et al., 2014). However, the PDA did not ensure paid leave for new mothers, and any benefits given were through temporary disability insurance. Today, most states still use temporary disability insurance to accommodate pregnant workers, typically providing six to ten weeks of leave for disability due to pregnancy (ibid). Understanding the cultural attitudes, economic conditions, and political context prior the FMLA positions today’s incremental social progress.

In the 1980s it was generally assumed that working women had access to employment protection and maternity leave (Kamermen et al., 1983). Today, organizations like the National Partnership for Women & Families challenge such assumptions by criticizing the prevalent ineligibility and inability for many employees to participate in the FMLA. Women in the U.S. have consistently faced barriers to paid maternity leave for decades. To begin with, the U.S. never ratified the International Labor Organization’s (ILO) 1919 Maternity Protection Convention (MPC) (ibid). The MPC was the first to address issues of women, labor, and childbirth, and the first to formulate guidelines for maternal health and employment protection (ibid). In 1952 the MPC advised countries to require a minimum of 12 weeks of paid leave, specifying 6 weeks prior and 6 weeks after birth. Technically the FMLA meets the temporal standard, but according to The National Survey of Family Growth (2005 – 2008), only 24.9 percent of women between the ages of 18 to 44 who took maternity leave took more than nine weeks off (U.S. Department of Health & Human Services, 2011). Furthermore, the MPC strongly encouraged establishing an insurance system that would provide full benefits to families

to alleviate economic stress (ibid). By the 1970s most industrialized nations had adopted these family leave guidelines. The U.S. did not. U.S. maternity leave policy “stems from neither a form based in health policy nor from a protective legislation or child welfare provision. Rather, it is related historically to civil rights legislation, the women’s movement, and the growth of American social policy generally” (ibid). U.S. maternity leave policy arose more as “an issue of sex discrimination than a response to it” (ibid), indicative of the country’s trend of shortsighted social reform. As it is written, the FMLA provides

job-protected leave for a serious health condition that makes the employee unable to perform the essential functions of his or her job; the birth of a child or to care for the employee’s newly born, adopted, or foster child; or to care for an immediate family member (spouse, child, or parent) with a serious health condition. Public agencies and private firms employing at least 50 workers within 75 miles are covered by the law. Employees are eligible for FMLA benefits if they work 1,250 hours in a year and have worked at least 12 months for their current employer, provided their current employer is covered. (Gault, 2014)

### 3. I don’t know how she does it: The danger of U.S. “do it all” culture

Capitalism, consumerism, and marketing can affect how women and mothers are culturally reflected, perceived, and responded to in society (O’Donohoe, Hogg, Maclaran, Martens, & Stevens, 2013). Historically, capital has been used to leverage power over women, as women have been systemically excluded and marginalized from earning capital, which profits control, agency, mobility, and consequently, identity; whoever earns more bread gains greater control (ibid). Finances have underpinned how and where a mother’s role is performed. Popular culture and media reflect how income affects men and women’s roles in child rearing: in a family, money has power; mothers who have money thus have power, yet still they can be subject to shame for seeking identity external from the home, while employed fathers are less likely to be shamed for seeking self-identity outside of domestic roles (ibid). The gendered

power in profit and consumption kept women in domestic roles up until WWII, when workforce disparities facilitated women entering the workforce. Today the increasing rate of employed women has changed relationships between the ‘working’ mom and ‘stay at home mom’. The “opt-out” revolution sensationalizes how women in the U.S. supposedly ‘choose’ to opt out of taking maternity leave (Jones, 2012). To “opt-out”, a person needs the actual choice of “opting-in”, and that privilege happens to be lost for many low and middle income women (ibid). Income disparities across groups of women does not begin to cover the even greater wage gap between men and women. Less than eight percent of women are in high-salary, high-level positions, revealing the U.S. has yet to graduate from the 1950’s patriarchal labor force (ibid).

Jessica Shorthall’s 2016 TED Talk, “The U.S. Needs Paid Family Leave – For the Sake of its Future”, challenges the insidious ‘do it all mom’ rhetoric running women’s lives and permeating our culture. Advertisements portray mothers as delightfully cheery, bouncing their infant on their knees while rushing to complete high demand tasks for their jobs. Shorthall argues this image falsifies reality. Post-natality is a critical time for women to bond with their newborn and let their bodies heal, but the FMLA makes this time contentious for many U.S women. Twelve weeks of *unpaid* leave reflects a naively optimistic presumption that most employers are providing adequate benefits, or that people are financially stable enough to be without 12 weeks of income (Shorthall, 2016). Many U.S. parents struggle because corporate productivity is valued over human needs, an issue especially potent for new mothers, whose children’s health is very much dependent on their own. Eventually infants will be students, students will be voters, voters will be employees, and employees will be taxpayers. Before babies are born, society determines their health and wellbeing.

#### 4. Postnatal health of the mother and the infant

Postnatal care receives the least attention across research studies, clinical settings, and individual health behavior (World Health Organization (WHO), 2013). WHO's guidelines for postnatal care for the mother and child addresses physical, psychological, and social indicators (2013). An appropriate amount of time spent in a health care facility before discharge, home check-ins, and postnatal social support from doctors and loved ones are WHO's main recommendations. New mothers should be holistically assessed within 24 hours of giving birth. Aside from physical health and nutrition screening, women should be asked about their social, emotional, and mental conditions post birth; inquiry includes physical and/or mental abuse, their social support system, sleep, stress levels and possible postpartum depression (PPD) symptoms (ibid). If PPD symptoms persist beyond ten to 14 days, mothers should continue to be monitored and provided appropriate and holistic treatment (ibid). Increasing rates of perinatal and postnatal mood disorders are a growing concern for public health workers and care providers. *The 2020 Mom Project* reports that 15 to 20 percent of U.S. women will experience perinatal and/or postnatal depression, and 15 percent will develop an anxiety disorder during or after birth (Eglovitch, 2016). Some states, such as New York, have passed postpartum screening laws for new mothers. In 2014, Governor Andrew Cuomo signed a bill into law that benefits mothers, the public, and health care professionals with resources to provide "educational services and...screening and treatment for maternal depression disorders" (NYS Pressroom, 2014). Screening and early detection of maternal mental health issues has an 80 to 90 percent success rate, and health professionals agree that it is greatly beneficial for the mother, her family, and "long term health care costs savings" (ibid). Growing awareness of maternal mood disorders is nationally increasing and legislators are moving to implement preventative policies; yet research remains limited, and screening protocols are not universally standardized or practiced, making it

difficult to determine what methods are most reliable and valid (Eglovitch, 2016). Maternal mental health disparities will persist without addressing these gaps in medical knowledge and practice.

WHO additionally provides guidelines for maternal practices, such as breastfeeding. All babies are recommended to be exclusively breastfed from birth until they are six months old (ibid). Breast milk is a baby's first natural source of nutrients, helping with sensory and cognitive development, as well as strengthening a young immune system (WHO, 2016). For new mothers, breastfeeding helps space pregnancies, reduce the risk of ovarian and breast cancers, and overall helps the mother-infant bonding process (ibid). In sum, postnatal assessments of a mother's physical, social, and mental well-being are critical for the short and long term health for her and the child. These global guidelines for postnatal health are reflected in the national *Healthy People 2020* goals. *Healthy People 2020* is a national campaign to improve every topic of health and health care in the U.S., and maternal and infant health is a specified topic under which physical, economic, and social determinants of health are addressed (Office of Disease Prevention and Health Promotion (ODPHP), 2016). Each state's health department has set their own goals to be monitored, evaluated, and reported back to the national ODPHP. As health issues are identified and preventative and intervening methods are developed and implemented, policy also plays a role. Paid family leave is a policy that would impact the economic, social, and physical concerns of WHO and *Healthy People 2020* by promoting equitable access to care and appropriate time for infant and self-care.

Inconsistent obstetric practices and hospital standards, along with an increase in negative perinatal health conditions are further leading to postnatal health problems. Women without health insurance are three to four times more likely to die from pregnancy related issues than

insured women (Agrawal, 2015). The U.S.'s lacking maternal health monitoring system is an injustice to postnatal health (ibid). The 2010 Affordable Care Act (ACA) is a crucial (though incremental) mechanism for greater maternal insurance coverage. Under the ACA, prenatal and maternal care are listed as essential health benefits requiring coverage by all insurers (ibid). However, postnatal benefits are less explicitly defined. Providing care to the mother and child is "crucial to ensuring good short- and long- term health outcomes and identifying any potential health issues" (The National Partnership for Women & Families & The Childbirth Connection, 2012). Although maternity and newborn care are listed as essential health benefits, the Department of Health & Human Services has yet to specify what maternity care entails, otherwise putting the postnatal stage at risk of neglect (ibid). After a congressional study determined maternity care was not expansive enough, even as an essential health benefit, The National Partnership for Women & Families devised policy guidelines on holistic maternal health (ibid). The guidelines argue all the following be insured for up to eight weeks after birth for optimum postnatal care: mental health screening, substance abuse counseling and treatment, medicine, labor and delivery, and postpartum evaluation and services (ibid). Paid family leave would increase women and families' ability to access such resources during the critical six weeks after childbirth.

## 5. The cost of paid vs. unpaid leave

Depression is one of, if not the, costliest disability for an employee and collaterally their employer to incur, diminishing their physical and mental energy, and overall productivity (Selix & Goyal, 2015). Depression is "an affective mood disorder" characterized by feelings of "sadness, loss of interest in pleasurable activities, hopelessness, irritability, weight loss or gain, or thoughts of suicide that persist more than 2 weeks" (ibid). Women's risk for developing depression is double the male rate, and the year after birth is a noted time of being vulnerable to



the development of depression (Mayo Clinic, 2016). Two of the most common postnatal complications include the “baby blues” and postpartum depression. The “baby blues” affects about 75 percent of new mothers, typically lasting between two and ten days, and is characterized by “crying spells, irritability, nervousness, poor sleep and emotional reactivity (Sit & Wisner, 2009). Postpartum depression is a postnatal mood disorder, defined by the Diagnostic and Statistical Manual (DSM-IV)(23) as “two weeks or more of persistent: 1) depressed mood, or 2) loss of interest in daily activities plus four associated symptoms (appetite disturbance, sleep disturbance, psychomotor agitation or slowing, fatigue, feelings of worthlessness or inappropriate guilt, poor concentration, suicidal ideation) that onset within 4 weeks after childbirth” (ibid).

Social risk factors for PPD include work-related stress, lacking social support, low socioeconomic status, as well as poor nutrition, exercise, and sleep (Selix et al., 2015). Sleep is critical for optimal health. With the birth of a newborn, new mothers can find it challenging to regularly get a healthy amount of sleep. Typically, an infant does not habituate sleeping patterns until their third month, implying greater risk of sleep deprivation for mothers, increasing their risk of developing PPD (ibid). Socioeconomic factors are related to PPD: Low income and single mothers are less likely to be able to take off the full 12 weeks they are entitled to via the Family Medical Leave Act (FMLA), putting them at risk for increased sleep deprivation and stress compared to higher income and married women (ibid).

Doctors and global health institutions like the World Health Organization (WHO) have made it clear that postnatal rehabilitation is crucial for proper health; yet the FMLA perpetuates family economic stress. Economic stress has been continuously cited as a social health risk associated with low infant birth weights, low breastfeeding rates, and maternal mental health

issues. Economic hardships impact maternal mental health. WHO defines “maternal mental health” as “a state of well-being in which a mother realizes her own abilities, can cope with the normal stresses of life, can work productively and fruitfully” and contribute to her community (Sit et al., 2009). The advocacy organization Postpartum Progress estimates about one million women are affected by PPD annually (Postpartum Progress, 2013). The human landscape of the U.S. workforce has dramatically changed in the past 100 years. Today 70 percent of mothers are employed, but public policy and culture have yet to adjust to this labor shift (Selix et al., 2015). Without paid family leave, many women are barred beneficial social provisions, and are put at higher risk for health issues like chronic stress (ibid).

Chronic stress is “stress that interferes with your ability to function normally over a long period of time” (Clay, 2016). Chronic stress is another social determinant of health related to financial-stresses (ibid). The American Psychological Association’s *Mind/Body Campaign* 2010 survey found that 76 percent of participants were stressed about money, 70 percent were stressed about employment, and 65 percent were stressed about the economy (ibid). Chronic stress has both physical and mental risks, including hypertension, cardiovascular disease, and affective mood disorders (ibid). Many people in the United States find employment and income to be major stressors, raising specific concerns about chronic stress’s mental health implications for women who play the role of breadwinner and mother.

The hormone cortisol is vital for human survival because it triggers our ‘fight or flight’ responses to potentially dangerous situations. However, chronic cortisol release is a serious detriment to mental health. For pregnant women, the placenta is a major center of cortisol release (Seth, Lewis, & Galbally, 2016). If a woman’s environment exposes her to constant stressors, she is at risk for developing hypercortisolemia (chronic excess release of cortisol

hormone) (ibid). Chronic stress puts people at risk for affective mood disorders, and for women this includes perinatal (during pregnancy) and postnatal mood disorders (ibid). About seven to 13 percent of pregnant women are affected by perinatal depression and ten to 15 percent of women experience PPD symptoms during the first six months after birth (ibid). Infants with a mother experiencing PPD are at increased risk for developing an affective mood disorder in later life (ibid).

The *Global Burden of Disease Report* states depression as a leading cause of disability for people of all ages, a concern lacking adequate policy response in the United States. (Avendano, Berkman, Brughiavini, & Pasini, 2015). The U.S. spends approximately \$83.1 billion annually on depression overall, a cost that different policies can reduce (ibid). In order to reduce the current state of maternal mental health problems, The Family Medical Leave Act (FMLA) should be revised to mandate leave be compensated, a provision that can improve health outcomes like maternal mental health. Studies measuring the long-term benefits of paid family leave in other countries justifies amending the FMLA. Europe's family-centered employee policies have alleviated the population's mental illness, and health care costs are significantly lower than in the U.S. (ibid). Harvard T.H. Chan School of Public Health researchers Avendano, Berkman, Brughiavini, and Pasini recently analyzed survey data from European women 50 years and older. The researchers took the year of a woman's first birth and assessed what the maternity leave policy was that year. This information was then linked to the current woman's depression test score. The results reveal that women who had experienced several months of paid maternity leave were "16.2 percent less likely to be depressed than women without paid maternity leave" (Dwyer, 2015). Prior work by Chatterji and Markowitz in 2012 (Avendano et

al., 2015) found women had an increased risk of depression symptoms when leave was unpaid and less than 12 weeks.

Reducing poverty and poor mental health would socially and economically benefit the United States. Aitken, Garrett, Hewitt, Keogh, Hocking, and Kavanagh (2015) conducted a meta-analysis of paid family leave's influence on maternal mental health, using survey responses from Australia, Sweden, Norway, the United States, Canada, and Lebanon. The data supported their hypothesis that countries with paid family leave would have higher rates of mentally healthy families (ibid). Medical practitioners agree the first six weeks after birth is a critical time of care for the mother and infant. Paid family leave benefits a newborn's immediate and long term positive development, both physically and mentally. A study by Rossin (2011) analyzed unpaid family leave's effects on infant health; the results found "Children of poor, single, low educated working mothers" (ibid) benefited from the FMLA the least, because socioeconomic structures tend to force mothers to re-enter the work-force prematurely (ibid). Structural poverty disadvantages children the moment they are born. Increased access to paid leave can reduce economic inequities, thereby reducing related stressors which contribute to the risk of experiencing postpartum depression.

### III. Comparing state policies

Five states have written and passed paid family leave laws: California, New Jersey, Rhode Island, Washington state, and most recently New York ("State PFL laws", 2016). Currently only California, New Jersey, and Rhode Island are practicing paid family leave, as Washington has been unable to implement their law due to lack of funding. New York's law will go into effect in 2018. The study "Family leave after childbirth and the mental health of new mothers" supports the paid family leave agenda, the results showing inadequate time and

compensation are “associated with increases of depressive symptoms” (Chatterji & Markowitz, 2012). Longer, more generously compensated leave can reduce postpartum depression (PPD). The statistical significance of this study is profound: a positive correlation was determined between increases in paid leave time and health outcomes (ibid). Increasing paid leave to eight weeks reduces depressive symptoms on a measurable scale by nine percent (ibid). On a state level, California has the most generous family leave policy in terms of length and compensation, providing six weeks of partially paid leave. San Francisco has the most generous policy in the country, providing six weeks of fully paid family leave. When New York’s paid family leave (PFL) law goes into effect in 2018, it will rival California by providing eight weeks of partially paid leave, making New York’s PFL law the most advantageous in the country. Based on this collection of studies, New York has the potential to experience significantly reduced PPD symptoms and diagnoses for women who are employed and are new mothers.

## 1. California

California enacted the first paid family leave law in 2002 which went into effect in 2004. Workers pay into the state’s Disability Insurance Fund (DIF), automatically making them eligible to take up to six weeks of guaranteed, at least partially paid, family leave each year given necessary circumstances (“What is paid family leave?”, 2016). Employees’ leave is funded through the DIF and Paid Family Leave (PFL), the difference being the former funds leave for personal health reasons, and the latter funds leave when an employee must care for a loved one’s health which includes the care of a newborn or newly adopted child (ibid). Employee coverage includes the entirety of the private sector, all self-employed individuals are welcome to opt-in, while only some public employees are covered (“State paid family leave laws”, 2016). On average employees receive about 55 percent of their weekly income while on leave, however California recently enacted a revised law that will better assist individuals with low incomes

(ibid). In 2018 the law will go into effect and for “workers whose quarterly earnings are at least \$929 but less than 1/3 of the state average quarterly wage, the weekly benefit will be 70 percent of the worker’s wage...For workers whose quarterly earnings are at least 1/3 of the state average quarterly wage, the weekly benefit rate will be 23.3 percent of the state average weekly wage or 60 percent of the worker’s weekly wage, whichever is greater” (ibid).

## 2. New Jersey

New Jersey was next in 2008 to pass PFL and it went into effect in 2009 (“State paid family leave laws”, 2016). Like California, New Jersey guarantees six weeks of job protected, partially paid leave for the purposes of caring for the health of a loved one and/or bonding with a new child. Funding for DIF comes from employee and employer contributions, the former paying about “0.2 percent of the taxable wage base”, on average \$65.20 annually. Employer contributions range between 0.10 and 0.75 percent of the taxable wage base, on average \$32.60 to \$244.50 annually. As opposed to DIF, PFL is completely funded by employees who pay about 0.08 percent of the taxable wage base and “the maximum yearly deduction for family leave insurance is \$26.08”. New Jersey’s Unemployment Compensation law guarantees paid family leave coverage (and temporary disability insurance) for both private and public sector employees “with some exceptions for government employees”. Slightly more than California, New Jersey provides employees with an average of 66 percent of their weekly income, though there is a cap at \$615 a week (ibid).

## 3. Rhode Island

Rhode Island was the third state to pass PFL in 2013, and it went into effect in 2014 (“State paid family leave laws”, 2016). Rhode Island gives only four weeks to employees to care for a new born or adopted child (however the state gives the second most generous amount of time off for temporary disability insurance (TDI) at 30 weeks). California allows leave to be

taken in single day increments while New Jersey does not specify a minimum. Rhode Island requires leave to last at least a week in order to receive PFL benefits. All eligible employees pay into the TDI and temporary care insurance which each respectively pay for these determinants of leave, and are solely contributed by the employee. Like California, Rhode Island covers all private sector employees but only some public-sector employees. The state measures weekly benefits slightly different: employees are given on average 4.62 percent of their “wages paid during the highest quarter of the worker’s base period, up to \$795 per week”. This means that rather than giving a portion of a worker’s weekly income, leave pay is measured by the highest amount that the workers earned since they began working for their employer. \$519 was the average benefit received in 2015 for temporary care insurance (ibid).

#### 4. Washington

Washington would have been the second state to enact paid leave which it signed into law in 2007 (“State paid family leave laws”, 2016). However, due to a “lack of funding mechanism” it has yet to go into effect and be implemented. Purposes for family leave would be less extensive than what is the case in the aforementioned states, the sole reason to be for the birth or adoption of a new child, implying the law is solely for parents. Per the law, five weeks of job protected paid leave would be provided, with a minimum leave of eight hours. The law would cover all employees, private and public, and like in California, self-employed individuals would be allowed to opt-in. Unlike the other states, Washington does not plan to adjust for different levels of income, providing a benefit amount of explicitly \$250 a week for employees “who were working 35 hours or more per week at the time they took leave” and part time workers would be allocated according to the amount of time they worked per week (ibid).

Each state so far guarantees job protection but under slightly different parameters. California guarantees leave within the parameters of the FMLA and California Family Rights Act; New Jersey guarantees leave within the parameters of the FMLA and New Jersey FMLA; Rhode Island has no ceiling for job protection when it comes to family care but adheres to the FMLA and Rhode Island PFMLA in terms of TDI; Washington being parent specific guarantees job protection if the person has worked for at least 12 months for an employer with 25 or more workers, and the person has to have worked at least 1,250 hours since they started working there (ibid).

## 5. New York

In the spring of 2016 New York enacted what has been described as the most comprehensive and generous state paid family leave programs seen yet. When effective in 2018, employees can file for paid leave to care for and bond with a new born or adopted child; care for a family member with a health condition; and go on family leave when a family member has impending active military duty (“State paid family leave laws”, 2016). New York will provide the most generous amount of time for family care, beginning with eight weeks in 2018, increased to ten weeks in 2019, and 12 weeks in 2021. Like California, leave can be taken in single day increments with the alternative option of taking one-fifth of the weekly benefit. For employees to qualify for PFL, they must be working for their current employer for 26 weeks in a row (175 days for part time workers); New York differs from California, New York, and Rhode Island as qualification is measured temporally rather than by income; it does not matter how much you made (and therefore how much you paid into the fund) so long as you have worked. Like Rhode Island, New York does not limit job protection for family care but stays within the parameters of the FMLA and New York PFMLA in terms of TDI. Family care will solely be funded by employees (while TDI will be shouldered by both employee and employers). The exact



guidelines of contribution are still being developed. Like all the other states all employees in the private sector will be covered, and self-employed people may opt in if they wish. Regarding the public sector, “Public employers can opt in to family care or own disability; public employees represented by an employee organization can opt in to family care”. New York plans to incrementally increase the benefit amount each year after the law goes into effect; in 2018 workers will get 50 percent of a worker’s average weekly wage “not to exceed 50 percent of the state’s average weekly wage; benefit amounts increase in 2019 to 55 percent of the worker’s weekly wage up to 55 percent of the state average weekly wage; in 2020 to 60 percent of the worker’s weekly wage up to 60 percent of the state average weekly wage; and in 2021, to 67 percent of the worker’s weekly wage up to 67 percent of the state average weekly wage” (ibid).

#### IV. Place, policy, and health

Health geography is a sub-discipline of human geography, holistically approaching health as an issue of people’s interaction with their environment, or their space (Dummer, 2008). Related to epidemiology, health geography specifically focuses on “spatial relations and patterns” of health relative to the social, cultural, and political place in which it occurs (ibid). Regarding urban areas and postpartum depression (PPD), health geography can be used to monitor patterns of policy and maternal mental health outcomes. My research proposes such an approach to measure how paid family leave (PFL) laws are affecting rates of PPD on a state level. A more in-depth spatial analysis on a county and municipal level would further identify factors such as poverty, as a risk for developing PPD. For example, spatially analyzing New York City’s five boroughs for poverty in conjunction with rates of PPD would help target places in need of social and medical response, and begs the question “what is happening here that is not happening there?” The natural and built environments play a role in human behavior and health,

and health geography can assess how all these components relate (ibid). Research on place's association with health has been seriously neglected, specifically regarding mental health. Depressive symptoms and diagnoses are increasing in the United States, and survey data suggests that on average, one in ten women between the ages of 18 and 44 experience major depression symptoms (Center for Disease Control, 2016b). Regarding PPD and maternal-infant health, these numbers are especially concerning. Understanding that a woman's zip code may indicate risk for developing PPD will help devise solutions to eliminate social detriments to maternal mental health.

Vigod, Tarasoff, Brya, Yudin, and Ross (2013) studied the relationship between place, (categorized by population density as rural, semi-rural, semi-urban, and urban) and the prevalence of PPD in those areas, an overlooked social determinant of health. The results showed that PPD was more prevalent in urban areas than anywhere else (ibid). While this study is based on data from Canadian provinces and requires replication, the results support that an individual's zip code is relevant to the primary prevention of PPD. While a national law for PFL should be prioritized with specific standards, state legislation may better address place-specific health and economic needs. Moreover, policies and public health programs targeting urban areas can produce even more locally specific responses. Harvard University psychologist Paula Caplan comments on the association between urban immigrant mothers, many of whom are impoverished with weakened social connections, and the high rates of urban PPD: "People say poor mothers suffer from depression. Why is this a surprise? If you're trying to be a good mother, it is very hard if you are poor and if you are isolated without having a sense of helplessness" (Sifferlin, 2013).

Postpartum depression (PPD) affects one in ten mothers in the United States, and collaterally, their children (Ertel, Rich-Edwards, & Koenen, 2011). Zip code, socioeconomic status, ethnic identity, education, and income are some of the many demographic categories used in public health data analysis. A cross sectional analysis of nearly 9,000 mothers in the 2001-2002 National Epidemiologic Survey of Alcoholism and Related Conditions revealed that women exposed to incomplete and/or low levels of education, financial insecurity, and unstable and/or unsafe personal relationships are at higher risk for developing depression within 12 months of giving birth (ibid). Non-Hispanic white, Native American, and U.S.-born mothers had the highest rates of depression and non-Hispanic white women were also the most likely to develop comorbid conditions (ibid). Black and Hispanic ethnicity “emerged as protective factors” (ibid) to maternal depression, which may be related to the cultural practice of “collective mothering” (Crowley, 2015). Economic hardships were reported as a serious stressor, supporting the conclusions of similar studies. Increasing knowledge of how and why certain groups are statistically protected from maternal depression would benefit communities on every scale, as potential solutions can arise from certain cultural practices (Ertel et al., 2011).

Ertel et al.’s (2011) work serves as the first nationally representative analysis on maternal depression risks in the United States, indicating poverty, lack of accessible resources, and poor social support are maternal depression risk factors. Paid family leave (PFL) is not going to solve economic and social inequalities alone, but is a step in the right direction toward alleviating social risks of maternal stress and postpartum depression. The U.S. public health community should allocate greater efforts toward health geography research on postnatal mood disorders. Currently the Center for Disease Control (CDC) uses geographic information systems (GIS) to survey spatial distributions of major health conditions, like diabetes, heart disease, and certain

maternal and infant health criteria (CDC, 2016d). The Division of Reproductive Health focuses on the spatial distribution of low birth weights, and the Pregnancy Assessment Monitoring System (PRAMS) has devised a new online data resource called “PRAMStat” (ibid). The latter uses survey data from PRAMS to map maternal and infant health indicators on a state level, and specific PRAMS questions and topics can be selected and explored. Mental health is a topic option, but the only available data years are between 2009 and 2011 (CDC, 2016c). By exploring the PRAMStat data, it can be surmised that mental health does not receive the same attention as other indicators do. Focusing on maternal mental health will promote more effectively targeted and cost-benefit social responses. Works by Ertel et al. and Vigod et al. can be used to infer the maternal health conditions on more local scales, such as Los Angeles County and New York City.

### 1. A health geography case study

California is a useful place for health geographers to research how urban environments and policy impact maternal mental health, specifically the relationships between urban environments, paid family leave (PFL), and postpartum depression (PPD). Moreover, studying the state with the longest existing PFL law and most comprehensive maternal health monitoring program is useful because it sets a standard for other states to be measured against. With New York’s PFL impending implementation, public health workers and maternal health advocates would greatly serve communities by studying the geographical distribution of maternal mental health in California’s urban areas. That information could be used to assess if there are similar patterns occurring in New York’s urban areas. California and New York have the highest urban density populations in the country, both reporting an average density of over 4,000 people per square mile (Cox, 2016). California’s most urban areas include Los Angeles, San Francisco, and San Jose, each averaging between 5,800 to 7,000 people per square mile (ibid). New York’s

average density is about 4,200 people per square mile, the densest areas being the five boroughs of New York City (NYC) (ibid). July 2015 census data reports NYC's population as 8,550,405, with a population density of 27,000 people per square mile (NYC Department of City Planning, 2016). This makes NYC the most populated, and most densely populated, city in the country (ibid).

In order to compare urban PPD rates between California and New York, areas with the highest delivery rates of each state were used as case studies. Per 2013-2014 public health data, the highest delivery rate in California occurred in Los Angeles County (California Department of Public Health, 2016). Per 2013 public health data, the highest delivery rate in New York occurred in New York City (NYC) (New York State Department of Health, 2015). Los Angeles County and NYC are both areas of high birth delivery, two of the most densely populated areas in the country, and both have a younger age range of female residents.

In the following sections, data on maternal health outcomes (primarily PPD, as well as income, and breastfeeding) are approached from a human health geography perspective. I used three surveys for this assessment: The Pregnancy Risk Assessment Monitoring System (PRAMS) for NYC, and The Maternal Infant Health Assessment (MIHA) and the Los Angeles Mother and Baby Survey (LAMBS) for Los Angeles County. Each survey's complete methodology can be found in the appendix.

## 2. Overview of surveys

The Center for Disease Control and Prevention (CDC) is responsible for the development and national oversight of The Pregnancy Risk Assessment Monitoring System (PRAMS) (CDC, 2016). Each participating state is responsible for PRAMS administration, collection, and assessment for national reports to be made (ibid). New York began participating in 2000, with

2012 as the most recent report. New York City (NYC) has its own PRAMS which commenced in 2004, with 2010 as the most recent report. Participation in PRAMS enables a state and/or a city to “monitor maternal experiences and behaviors before, during, and after pregnancy” (NYC Department of Health, 2016). Survey topics include infant sleep, family planning, domestic violence, substance abuse, breastfeeding, body mass index, and postpartum depression (PPD), each categorized by demographic factors such as age, race/ethnicity, income level, etc. NYC PRAMS is an annual survey, but throughout the years, health indicators have been defined and measured inconsistently. For example, there are reports available from 2004 to 2010, but PPD was only measured from 2004 to 2008.

California’s Maternal Infant Health Assessment (MIHA) is an “annual, state-wide representative survey of women with a recent live birth” modelled after PRAMS (California Department of Public Health, 2016). MIHA is particularly useful for health geography, surveying not only state level, but also county level “snapshots” (ibid). Although MIHA has been administered since 1988, the only data reports publicly available are between 2010 and 2014. MIHA is more thorough and consistent than NYC PRAMS; it is reported annually, consistently assessing the same areas with the same survey questions. Therefore, the reliability of data comparisons between years and places is increased. PRAMS would improve by revising to the MIHA model. Monitoring national, state, county, and municipal maternal infant health data is a critical part of identifying, reducing, and preventing maternal health risks.

While NYC has its own PRAMS, it does not have a separately sponsored survey for maternal infant health the way Los Angeles County does. The Los Angeles Mother and Baby Survey is another population surveillance method for monitoring maternal health factors, but exclusively for Los Angeles County (LAMBS was first initiated in 2004 to address serious rates

of infant mortality in certain municipalities). Being able to compare county data to state data is valuable, especially when assessing for study limitations such as the ecological fallacy, which occurs when data on a population is applied to the individual (Friis, 2010). For example, MIHA may report that in the state of California one out of ten women experience postpartum depression symptoms, but LAMBS may reveal the ratio to be higher or lower specifically for Los Angeles County. Also, LAMBS allows for less generalized survey responses. For example, instead of asking if a woman has ever experienced PPD symptoms, “yes or no”, it allows participants to define their symptoms on a scale. For health geography, specific data is integral to making accurate predictions, analyses, and projections.

### 3. Data summary

#### 3a. Maternal Infant Health Assessment (MIHA): Los Angeles County self-reported postpartum depression (PPD) symptoms, 2010 – 2014

Table 1.0 presents data on self-reported postpartum depression (PPD) symptoms between 2010 and 2014. MIHA defines PPD symptoms as the following: “Since most recent birth, experienced both of the following for two weeks or longer: felt sad, empty or depressed for most of the day; lost interest in most things she usually enjoyed” (California Department of Public Health, 2016 – MIHA Annual Reports). Between 2010 and 2014 there appears to be no significant increase or decrease in survey participants affirming PPD symptoms. When only comparing 2010 and 2014 data, there is a 1.2 percentage point decrease of women reporting PPD symptoms, from 14.3 percent to 13.1 percent.

**Table 1.0<sup>1</sup>****MIHA Los Angeles County Data – Self-reported PPD Symptoms, 2010-2014**

LA County MIHA Reports - Self Reported PPD Symptoms					
Year	MIHA Sample Size	Sample size of LAC	%	95% CI	Pop. Estimate
2010	6,817	Unknown	14.3	9.7-18.9	18,600
2011	6,853	426	12.4	8.2-16.6	15,900
2012	6,810	436	15.8	10.7-21.0	20,500
2013-2014	13,963	536	13.1	9.9-16.4	16,600

### 3b. Los Angeles Mother and Baby Survey (LAMBS): Percent of self-reported PPD symptoms, 2005, 2007, 2010, 2012

Table 2.0 presents data on self-reported PPD symptoms for 2005, 2007, 2010, and 2012.

LAMBS allows respondents to define their PPD symptoms on a scale, ranging from “not at all” and “a little” to “moderately” and “very” depressed (Los Angeles County Department of Public Health, 2016 – LAMBS Reports). Based on the collected data, between 2005 and 2012, there was an increase from 48.3 percent to 52.7 percent for those responding “not at all” to experiencing PPD symptoms. In the same time-period, the percentage for those responding with “very” decreased from 4.8 percent to 3.4 percent, i.e. a 1.4 percentage points decrease.

**Table 2.0<sup>2</sup>****LAMBS - Percentages of Self-Reported Levels of Postpartum Depression, 2005, 2007, 2010, 2012**

LAMBS Surveys: Self Reported Levels of Post Partum Depression (%)					
Year	Total Respondents	Self Reported Levels of Post Partum Depression (%)			
		Not at all	A little	Moderately	Very
2005	5,200	48.3	35	11.8	4.8
2007	6,264	49.1	41.4	12	5
2010	6,593	49	36.9	9.7	4.4
2012	6,843	52.7	34.1	9.9	3.4

<sup>1</sup> Table 1.0 was created from MIHA Snapshots of Los Angeles County between 2010 and 2014 (California Department of Public Health. (2016). MIHA Snapshots. Retrieved December 1, 2016, from Maternal Infant Health Assessment)

[http://www.cdph.ca.gov/data/surveys/MIHA/Pages/MaternalandInfantHealthAssessment\(MIHA\)survey.aspx](http://www.cdph.ca.gov/data/surveys/MIHA/Pages/MaternalandInfantHealthAssessment(MIHA)survey.aspx)

<sup>2</sup> Table 2.0 was created from LAMBS Surveillance Reports from 2005, 2007, 2010, and 2012 (Los Angeles County Department of Public Health. (2016). The Los Angeles Mother and Baby Project. Retrieved December 1, 2016, from Maternal, Child, and Adolescent Health)

<http://publichealth.lacounty.gov/mch/lamb/LAMBSResults.html>



### 3c. New York City Pregnancy Risk Assessment Monitoring System (NYC PRAMS): Number and percent of women diagnosed with postpartum depression 2004-2008

Table 3.0 presents data on survey respondents' affirmation of receiving a PPD diagnosis, including data from NYC overall and by borough. The number of respondents indicated has been adjusted to represent the number of live births for NYC overall and for each borough. Each percentage value is a measurement of how many women with a live birth are estimated to have PPD. The NYC PRAMS survey question regarding PPD asks "Since your new baby was born, has a doctor, nurse, or other health care worker diagnosed you with depression?", to which respondents choose 'yes' or 'no' (NYC Department of Health, 2016 – PRAMS data tables). MIHA and LAMBS ask about PPD symptoms, not diagnoses, which has implications for how well the former two can be compared to the latter. Another NYC PRAMS limitation is yearly data comparisons. For data between 2004 and 2008 "the Phase 5 survey was in use" while for data between 2009 and 2011 "the Phase 6 survey was used. Due to changes in several questions from Phase 5 to Phase 6, many indicators presented below are not comparable between the two time periods" (NYC Department of Health, 2016). The Phase 6 survey does not include postpartum depression as a question/indicator of maternal health for 2009 – 2011, and therefore these surveys were of null use for the purposes of this research. Altogether, the 2004 – 2008 NYC PRAMS data exhibits a slight decrease in women with a live birth reporting a PPD diagnosis. Between the 2004 – 2005 and 2008 data alone, there was a decrease from 5.6 percent to 4.6 percent.

**Table 3.0<sup>3</sup>****NYC PRAMS: Number and Percent of Women Diagnosed with Postpartum Depression, 2004-2008**

NYC PRAMS: Number and percent of women diagnosed with postpartum depression												
PLACE	2004-2005			2006			2007			2008		
	#	%	95%CI	#	%	95% CI	#	%	95% CI	#	%	95%CI
Overall	7,525	5.60%	4.4-7.1	6,026	5.20%	4.0-6.7	6,617	5.50%	4.2-7.3	4,325	4.60%	3.3 - 6.6
Bronx	1,194	6.10%	3.3 – 10.9	1,628	7.40%	4.4-12.1	1,190	5.6	3.0 - 10.3	1,405	8.50%	4.5 - 15.4
Brooklyn	2,675	5.20%	3.4 – 7.8	1,789	4.70%	2.9-7.5	1,958	4.2	2.5 - 7.1	1,264	3.70%	1.9 - 7.2
Manhattan	954	4.20%	2.2 – 7.6	1,200	5.60%	3.0-10.4	1,271	7.1	3.8 - 12.8	541	3.80%	1.6 - 8.8
Queens	2,331	6.70%	4.3 – 10.3	1,117	3.70%	2.0-6.8	1,826	6.1	3.6 - 10.2	954	4.00%	1.9 - 8.2
Staten Island	372	5.60%	1.9 – 15.0	292	5.60%	1.7-17.1	372	372	8.7 2.9 - 23.2	161	3.60%	0.6 - 19.0

## 4. Data Discussion

### 4a. Los Angeles County

The data from the Maternal Infant Health Assessment's (MIHA) Los Angeles County snapshots in addition to the Los Angeles Mother and Baby Survey (LAMBS) show a slight decrease in self-reports of postpartum depression (PPD). For MIHA, there was a 1.2 percentage point decrease in PPD symptom affirmation; for LAMBS, there was a 1.4 percentage point decrease in responses indicating “very” for experiencing PPD symptoms. Statistically these numbers are not significant, but this could be related to the narrow time periods that were measured. Given more time, data might show a greater decrease. To assess why changes in PPD outcomes have occurred over time, other social determinants of health must be considered, such as economic stress, physiological and psycho-social abuse, and healthcare inaccessibility. Each are noted social risks for developing PPD (Ertel et al., 2011). In addition to PPD, MIHA and LAMBS survey trauma and hardships, financial stress, and health care utilization. Between 2010 and 2014, MIHA data shows a decrease in women reporting income as 0 – 100 percent of the federal poverty level, declining from a steady 50.0 percent to 45.0 percent. MIHA data also

<sup>3</sup> Table 3.0 was created from NYC PRAMS data on PPD between 2004 and 2008

NYC Department of Health. (2016). Data - Pregnancy Risk Assessment Monitoring System. Retrieved December 1, 2016, from NYC Health, <https://www1.nyc.gov/site/doh/data/data-sets/pregnancy-risk-assessment-monitoring-system.page>

showed a decrease from 17.1 percent (2010) to 13.2 percent (2013/2014) for women reporting they and/or their infant needed, but could not afford, postpartum care. Responses indicating that a respondent and/or their partner lost their jobs have not significantly decreased: In 2010, 18.9% of women reported a job loss, which decreased to 17.1% in 2013/2014 (this indicator notes that Los Angeles County has a worse job loss rate than the rest of the state).

Intimate partner violence (IPV) is a difficult indicator to measure, due to fear that self-reporting will not be kept clandestine. Reports of IPV (physical or psychological) remain relatively constant throughout the MIHA data. On average, 7.45 percent of women in Los Angeles County reported experiencing IPV during and after pregnancy for MIHA in 2010 through 2014. For the same years, the average percentage of Los Angeles County respondents reporting PPD symptoms is about 13.9 percentage, nearly double the reported IPV. Correlations cannot be determined with just these data, but juxtaposing economic and social factors with PPD outcomes is important for future health geography and social epidemiology research. Action is derived from research, and action can take the form of policy, like paid family leave. Collecting evidence on associative factors of PPD can provide insight into other maternal health trends, such as breastfeeding.

Since the implementation of PFL, breastfeeding rates have increased statewide in California (Huang & Yang, 2015). Breastfeeding has indisputable health benefits for both the infant and mother, making it a Healthy People 2020 goal to increase the rate and length of exclusive breastfeeding in the United States, which the country has yet to achieve (ibid). Huang & Yang (2015) studied exclusive breastfeeding rates before and after PFL went into effect. The study supported the hypothesis that increased access to PFL was associated with increased exclusive breastfeeding from birth to the infant's six-month mark. California provides partially

paid leave, suggesting fully compensated leave could produce even greater results.

Compensating family leave increases leave participation, benefitting maternal health and behaviors, especially for groups experiencing health disparities (Bartel, Baum, Rossin-Slater, Rhum, & Waldfogel, 2014) (Huang & Yang, 2015).

California's workforce family leave participation has increased since the implementation of PFL, with 90 percent of employers reporting increased or similar rates of "productivity, profitability, retention, and morale" (Bartel et al., 2014). Prior PFL, 5.4 percent of mothers enrolled in leave in the first week after birth; after PFL the rate increased to 11.8 percent. Paid family leave insurance can be sustained if beneficiaries are paying to the system, which only works if employees return to work after taking leave. A recent study used the National Longitudinal Survey of Youth-1997 (NLSY-97) to investigate PFL's influence on job continuity "by examining whether parents continue in the pre-childbirth job when they first return to work" (Baum & Rhum, 2016). The researchers hypothesized that if PFL increases, so will the likelihood of parents returning to work after birth, and overall, employment productivity will increase (ibid). The study found that PFL was associated with improved labor market outcomes (ibid). Post-birth employment rates increased, projecting long term economic benefits for female employees and increased continuity, productivity, and profitability for their employers (ibid). This implies PFL champions workplace gender equity and representation by facilitating continued employment for *both* women and men. Public health advocates are challenged to project long term benefits, because it takes time that policymakers do not often have – therefore reliable and valid surveillance systems are critical for change-making.

In conclusion, studies on California assert that a cultural shift toward pro-family-centered policies and equitable workforce participation in terms of gender is tied to optimum maternal

health and economic outcomes. Policy takes immediate effect but culture takes time to change. California has exemplified the consequential benefits a national paid family leave law could provide. National paid family leave (PFL) is a long term social goal, but more states have begun drafting their own bills. Based on California's social and economic outcomes, projections can be made for similar outcomes for New York's anticipated PFL law.

#### 4b. New York City

Place influences health. Research suggests living in an urban area puts women at higher risk for developing postpartum depression (PPD) than rural, semi-rural, and semi-urban areas (Vigod et al., 2013). As New York prepares to implement PFL, it is important to consider how regions and municipalities will be affected differently. Given research on urban areas and PPD, monitoring New York City (NYC) is critical for future assessment of PFL's associative roles. NYC not only has the highest birth delivery rate, but also has severe health and economic disparities. Maternal-infant monitoring systems are used, helping New York plan short and long term health goals in accordance with the national *Healthy People 2020* campaign. Separate goals for maternal health and mental health are addressed in the 2013-2018 goals (New York State Department of Health, 2015b). Integrating goals and revising the NYC PRAMS would strengthen the public health and policy's ability to better address PPD in urban areas.

Data from NYC PRAMS reported a 1.0 percentage point decrease for respondents affirming they had been diagnosed with PPD between 2004 and 2008 (see table 3.0 on p.32). MIHA and LAMBS exemplify how measuring social and economic indicators shows how PFL is associated with improved maternal health. A more local look at one of the boroughs, the Bronx, highlights the reality of poverty's role in health outcomes. The Bronx continues to be the poorest borough, with as much as 40 percent of some neighborhoods living in poverty (Lederer, 2013). Specific populations at risk for developing PPD include women living with health and

wealth inequities in urban areas. Economic strains make it more difficult to escape intimate partner violence (IPV) (Seth et al., 2016). The NYC Department of Health and Mental Hygiene reports “women living in the Bronx had higher rates of IPV related hospitalization and emergency department visits than women living in other boroughs” (Lederer, 2013). Intimate partner violence is associated with chronic stress which also is associated with PPD development (Seth et al., 2016). With such high levels of poverty, a woman may have to depend on her partner to help finance pregnancy, childbirth, and childrearing, even if she is experiencing abuse. Paid family leave cannot eliminate IPV alone, but it can certainly promote financial independence from an abuser. Prevalent IPV, lacking mental healthcare resources, and lack of PFL leaves women in the Bronx at higher risk for PPD without intervention (Lederer, 2013).

New York’s Prevention Agenda identifies increasing the number of breastfed babies as another goal toward *Healthy People 2020*. By 2018, the New York Department of Health hopes to increase the percentage of infants exclusively breastfed in the hospitals from 43.7 percent (the baseline year of 2010) to 48.1 percent (New York Department of Health, 2015b). For 2004-2005 NYC PRAMS reported 84.3 percent of women delivering a live birth having ever breastfed, and this rate slightly increased to 86.7 percent in 2008. New York’s County Health Assessment Indicators (CHAI) also measures breastfeeding rates. Per the 2012-2014 maternal infant health indicators, the percentage of infants fed any breast milk in delivery hospitals in all of NYC was 89.5 percent, compared to exclusive breastfeeding at 33.2 percent. This trend of significantly lower rates of exclusive breastfeeding compared to being fed any breastmilk is exhibited throughout the data of all five boroughs. The World Health Organization (WHO) advises “All babies should be exclusively breastfed from birth until six months of age. Mothers should be counselled and provided support for exclusive breastfeeding at each postnatal contact” (WHO

Recommendations on the Postnatal Care of the Mother and Newborn, 2013). With that, New York should eventually increase its breastfeeding goal standards. Based on California's breastfeeding outcomes post PFL, NYC may see a rise in exclusive breastfeeding, as PFL makes this practice more feasible for working mothers.

California has had PFL for 14 years, and in terms of health and social impact, that is not much time to see significant changes. Nevertheless, data from Los Angeles County has begun to support studies suggesting PFL alleviates economic stress, improves leave participation, and improves maternal-infant health outcomes. Surveillance systems like MIHA and LAMBS continue to reliably monitor maternal health outcomes which can be used to measure PFL's holistic benefits. With time, hopefully these benefits will proliferate. NYC faces many social disparities that unjustly disadvantage already struggling mothers and families. Poverty, IPV, and exclusive breastfeeding are all connected and can potentially be improved by PFL. Paid family leave can then be associated with reducing the risk of PPD in the urban boroughs.

## 5. Limitations

My initial intent for this paper was to identify differences in postpartum depression (PPD) before and after paid family leave (PFL) was implemented in California, as a means of discussing PFL's potential benefits for New York. However, data predating California's implementation of PFL (2004 and before) is unavailable through Maternal Infant Health Assessment (MIHA) and the Los Angeles Mother and Baby Survey (LAMBS). MIHA director Christine Rinki confirmed via email that no such data is publicly available, and LAMBS did not even begin until 2004. I compromised by assessing only the earliest and latest data available, those being 2010 and 2013-2014. Though MIHA and LAMBS are more thorough and consistent than the New York City Pregnancy Risk Assessment Monitoring System (NYC PRAMS), the years do not completely align, and MIHA cannot be compared to LAMBS. A strength of my

research was using LAMBS in addition to MIHA because it provided more nuanced data on PPD. NYC PRAMS, MIHA, and LAMBS cannot be reliably compared, due to inconsistencies of time periods, definition differences, and methodological differences. Ultimately, I determined to use a case study approach. MIHA and LAMBS inquire about PPD symptoms, while NYC PRAMS inquires about PPD diagnoses. This difference changes how well MIHA, LAMBS, and NYC PRAMS can compare PPD survey data. NYC PRAMS's reductive approach to the PPD question excludes more nuanced responses from participants who may feel depressed, but have not received a professional diagnosis. Comparing data between NYC PRAMS years proved challenging because of the differences between Phase 5 and Phase 6 survey methodology, limiting the data years assessed to 2004, 2005, 2006, 2007, and 2008. MIHA, LAMBS, and NYC PRAMS each acknowledge their own limitations in the methodology section of the appendix.

MIHA limitations include the fact that non-resident mothers were not included in the sample, and therefore representativeness of the data is weak; it is not fully population inclusive. The Center for Disease Control recommends at least a 70 percent response rate for reports to be made public, which each MIHA report achieved. In terms of annual comparability though, it should be noted that slightly different methods of data weighting (adjusting the number of respondents to try and reflect the total population of live births) were used between 2010 and 2012 versus the 2013-2014 report, but the report notes the difference is too subtle to hinder comparability. Lastly, the reports reflect wide confidence intervals. Each report has estimated the prevalence of certain health indicators (such as PPD) in the population by weighting (also called adjusting) the respondent data. The 95 percent confidence interval (95% CI) "means that there is a 95% chance that the range contains the actual prevalence in the population" (NYC



Department of Health, 2016 - MIHA 2013-2014 Report). The wider the confidence interval, the less precise the estimation. The report uses relative standard error (RSE) to measure the survey's statistical reliability, and notes when estimates should be trusted with caution (ibid).

LAMBS' limitations are similar to MIHA's. Technical notes acknowledge that even though the population-based survey allows for greater generalization of Los Angeles County mothers who had a live birth, some sample sizes for subpopulations "were too small for precise estimates" (Los Angeles County Department of Public Health, 2012). Additionally, LAMBS recognizes sources of recall, and non-coverage bias may be present in the data (ibid). In surveys, recall bias refers to the fact that survey participants may have incomplete or inaccurate recollection of their conditions or experiences, therefore reducing the reliability of survey data (Friss, 2010). Non-coverage bias occurs when people are systematically excluded from the survey. This can happen if the survey was conducted online or by telephone, and thus people without access to either are excluded (Harrison, 2006). Surveillance systems should take care to consider a wide range of respondent recruitment methodologies when trying to capture greater population representation. Lastly, LAMBS also reflects wide confidence intervals that should be considered when evaluating the weighted data's reliability.

NYC PRAMS exhibits methodological inconsistencies interfering with yearly comparisons. Due to the difference between the Phase 5 and Phase 6 approaches, the only comparable data relevant to my research was between 2004 and 2008. Gaps in data categories occur throughout the reports "where the number of actual respondents is less than 30 due to the instability of such estimates" (NYC Department of Health, 2016, 2008 report). The survey report also acknowledges that for some survey questions such as the PPD one, the "weighted totals for each [demographic] category may not equal the overall total due to missing data and

rounding” (ibid). Like MIHA and LAMBS, NYC PRAMS also exhibits wide confidence intervals for estimating the prevalence of a health indicator for the total population.

Although I am an active student, a limitation of myself as the researcher is lacking expertise in the fields of quantitative analysis and public health research. Although I have been academically prepared to read journal articles and understand basic statistical analysis and public health language, I am more grounded in human geography, sociology, and qualitative methods. I may be limited in conducting a complete and complex quantitative analysis, but this did not limit me from recognizing the deficits of the Pregnancy Risk Assessment Monitoring System. My academic background in geography, sociology, and women’s health issues has equipped me to draw conclusions regarding the connection between place, policy, poverty, and health. I intend for my conclusions to engage researchers and advocates more in health geography and how it relates to policy, a holistic method that can reform survey methods and support paid family leave.

## V. Conclusion

The United States’ workforce has gone through tremendous changes since the beginning of WWII. Women’s participation has increased, and with that an ideological shift from traditional gender norms has taken effect. Still, women face many inequalities, especially in terms of health and access to health-promoting resources such as paid family leave policy. The Pregnancy Discrimination Act (1978) was the first sign of maternal-centered policy, and a decade and a half later advocates finally won the Family Medical Leave Act (FMLA). Progression toward more equitable, accessible, and human-centered family leave has been incremental in the United States. The FMLA is job-protecting and provides qualifying employees with 12 weeks off, but many new mothers can only manage to take partial leave

because there is no mandate to compensate leave. The World Health Organization recommends weekly postnatal physical, social, and mental assessment, counselling as needed, and exclusive breastfeeding from birth to the infant's six-month mark. The FMLA therefore insufficiently accommodates the postnatal health needs of the mother and infant. Without pay, especially for those in lower income brackets, many employed mothers return to work far earlier than the final 12<sup>th</sup> week. Compared to family leave policies in Europe and other industrialized countries, the FMLA is less concerned with family health and more concerned with keeping government out of the private sector. Unpaid family leave perpetuates economic inequality, debilitates health care access, and unjustly places women in the position of opting out of their careers more than it does men. A *paid* family leave law would allow more parents to take off the time they need to care for themselves and their newborn, and would champion the positive cultural acceptance of women in the workforce. Research on California supports that PFL benefits people's health and society's economic productivity (Bartel et al., 2014). The United States needs a reliable, in-depth monitoring system for health and social indicators that can determine PFL's effects. The Pregnancy Assessment Monitoring System can be this platform, as it measures 250 maternal-infant health indicators, and through PRAMStat, reports the geographical distribution of each health factor on a state level (Center for Disease Control, 2016c). Unfortunately, PRAMS fails to be a strong monitoring system because of its patchworked nature and incomparable data collection methods. Eleven states do not participate in PRAMS; 13 do not have data for the most recently reported year, that being 2011. Unlike PRAMS, California's Maternal Infant Health Assessment (MIHA) manages to collect and report data almost annually and data can be compared year to year. MIHA is a better system, but MIHA data cannot be compared to data from states that participate in PRAMS because of methodological differences. Like the FMLA,

PRAMS requires reform: each state should be monitoring the same indicators, on the same regular basis, using the same methods. In doing so, a reliable source of data can be derived to study the geographical distribution of certain indicators, like postpartum depression, on a state level.

With more states considering, drafting, and passing their own paid family leave laws, it is now more important than ever to improve maternal and infant health surveillance. New York City (NYC) is the most densely populated city in the entire country with one of the highest birth rates; it is also a city with serious economic and maternal-infant disparities, both of which the state anticipates it has the potential to reduce. Without improving yearly and methodological consistency and thoroughness, NYC will be unable to present data supporting that their policy is benefitting people's lives. Such data would not only serve NYC; it would serve the state, and even other states where paid leave is up for debate. California has produced an exceptional model of maternal health monitoring through the Maternal Infant Health Assessment (MIHA), an improved model of PRAMS. MIHA annually assesses maternal health on a regional and county scale, consistently measuring the same indicators and using the same methods each year. Some counties such as Los Angeles have even taken the initiative to produce their own MIHA reports providing more detailed representative maternal health data. Such systems should be implemented throughout the country on a state, county, and ideally municipal level. Doing so would competently collect data on maternal health risk that could then be used to identify areas of need, set health goals championing the *Healthy People 2020* campaign, and support and produce social change responses such as paid family leave.

National paid leave standards promoting postnatal health recommendations should be a goal for the United States. Given the country's tendency to be incremental about passing federal

social acts, state, counties, and cities should do their part to achieve maternal-infant health equity. The actions and investments of local communities can produce the most immediate and tangible benefits for stakeholders. Community health advocates can lobby to fund locally managed resources and support systems. Aside from quantitative monitoring methods, qualitative research can be conducted on a local scale to determine the unique experiences and needs of mothers and families across varying localities. Local representation can provide the most cost-efficient, socially effective, and long-lasting solutions for municipalities, because different areas require different priorities and agendas. Human geographers can provide place-specific population, cultural, and economic data, a critical part of community health planning, as presented for maternal health. The MIHA and LAMBS surveys include qualitative vignettes that humanize all the faceless data and statistics in each report. Qualitatively interacting with survey respondents is an empowering way to shift toward a more horizontally integrative means of developing an understanding of maternal health risks. When people, women, and mothers gain agency and representation concerning maternal health issues like postpartum depression, they can ally with public health workers and policy advocates for paid family leave. In conclusion, women across the United States are being forced to choose between their paycheck and their health, and many are at risk of postpartum depression. Urban areas like New York City and Los Angeles county are home to many new mothers and families, increasing the need to monitor such issues in these areas. By increasing health geography research, reforming the Pregnancy Risk Assessment Monitoring System, and collecting local qualitative data, more can be done to support the maternal health and paid family leave agendas in the United States.

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## Appendix

### Acronyms

ACA: Affordable Care Act

IPV: Intimate Partner Violence

LAMBS: Los Angeles Mother and Baby Survey

MIHA: Maternal-Infant Health Assessment

MPC: Maternity Protection Act

NYC: New York City

PDA: Pregnancy Discrimination Act

PFL: Paid Family Leave

PPD: Postpartum Depression

PRAMS: Pregnancy Risk Assessment Monitoring System

TDI: Temporary Disability Insurance

### Complete Survey Methodologies

#### Maternal Infant Health Assessment Survey (MIHA)

“MIHA is a stratified random sample of English- or Spanish-speaking women 15 years or older who had a live birth and who resided in California at the time of birth (MCAH Program, 2012). MIHA data are weighted to represent all women with a live birth in California, excluding women who were non-residents, were younger than 15 years old at delivery, had a multiple birth greater than triplets, or had a missing address on the birth certificate. To allow for county-level estimates, a larger number of women was sampled in the 20 counties with the most births...

The questionnaire collects information about maternal and infant experiences before, during and shortly after pregnancy. The MIHA questionnaire and methods are like those used by the Centers for Disease Control and Prevention (CDC) in conducting the multi-state Pregnancy Risk Assessment Monitoring System (PRAMS).

Data for [these] reports were analyzed to account for MIHA's complex survey design using SAS software. The percentage and estimated number of women in the population with a given health indicator or characteristic are best estimates of the actual prevalence in the population. The 95% confidence interval (95% CI) means that there is a 95% chance that the range contains the actual prevalence in the population. Caution should be used when interpreting percentages with wide confidence intervals, as this indicates that the true prevalence could be much higher or lower than the percentage provided.

Statistical differences between each county and the rest of California were assessed using the chi-square test. To help stakeholders identify county-specific health issues, a symbol indicating whether the county is better (a check symbol), worse (x symbol), or not statistically different (gray rhombus) from the rest of California is shown next to each indicator.

Demographics, health insurance coverage and public program participation are described as higher (up arrow) or lower (down arrow) than the rest of California, not better or worse"

(California Maternal, Child, and Adolescent Health Program, 2012)

MIHA defines postpartum depression symptoms as experiencing, since the most recent birth, feelings of sadness, emptiness, or depression for most of the day, a loss of interest in things usually enjoyed, or a combination of both (ibid).

#### Los Angeles Mother and Baby Survey (LAMBS)

"Mothers who are Los Angeles County residents who delivered a baby during the preceding two to six months are eligible for LAMB (Los Angeles County Department of Public health, 2016). The survey asks about some events that happened several months prior to pregnancy, so mothers who have babies over seven months old are ineligible because of the

difficulty they might have recalling events accurately. Adoptive mothers are ineligible because many of the questions ask about attitudes and perceptions only known to the birth mother.

The Project adopts a mixed data collection method from the CDC's Pregnancy Risk Assessment Monitoring System (PRAMS). All mothers chosen to participate in LAMB receive a letter that explains the project, invites participation, and announces the arrival of the survey packet in 10 to 14 days. Respondents receive a \$20 to \$25 Ralphs/Food4 Less certificate. Mothers who do not respond to the survey in two weeks are sent a reminder postcard. After 7-10 days, non-respondents are mailed a second survey packet. Non-respondents are called for a telephone interview two weeks after the second packet is mailed” (ibid).

#### New York City Pregnancy Risk Assessment Monitoring System (NYC PRAMS)

“PRAMS in New York City Data collection for PRAMS in New York City (NYC) began in 2001” (NYC PRAMS, 2012) however data reports are only available beginning in 2004, as the Center for Disease Control recommends a “70% response rate in order to publicly share data” (ibid). “Each month, approximately 180 NYC residents who have given birth in the previous 2-4 months in NYC are randomly selected from registered birth certificates to participate in PRAMS. The survey is mailed to women, and those who do not respond are contacted by telephone. Women are mailed an incentive to participate. The survey is in English, Spanish, and Chinese and includes about 80 items on numerous topics, including: unintended pregnancy, contraceptive use, prenatal care, breastfeeding, smoking, drinking, domestic violence, and maternal and infant health. Findings from PRAMS are used to: enhance understanding of maternal behaviors that are important for good reproductive outcomes and infant health, such as smoking, body mass index, breastfeeding, and contraceptive use; develop and evaluate programs to improve maternal and

infant health; and inform policy development in NYC. PRAMS is approved by the Institutional Review Boards of the CDC and the NYC Department of Health and Mental Hygiene.

The NYC PRAMS sample is selected by stratified random sampling without replacement. Low birth weight (LBW) births (<2500 grams) are oversampled such that 30% of the PRAMS sample is LBW compared with 9% in the 2010 NYC birth cohort. PRAMS survey data are linked to selected variables from the birth certificate including maternal demographic characteristics, infant birth weight, and gestation.” (ibid)

“The CDC recommends a 65% response rate to share data publicly. Response rates and the number of PRAMS respondents per year” can be viewed in table 3.1 in the Data Summary section. The “overall” numbers addressed in the data interpretation are adjusted numbers based on the above number of responses. The adjusted numbers are a part of the “final PRAMS analysis data set” which is “weighted for sample design, nonresponse and noncoverage. It provides city-wide estimates of the prevalence of perinatal health behaviors and experiences of NYC women delivering live infants” (ibid).

NYC has its own PRAMS “designed to monitor maternal experiences and behaviors before, during and after pregnancy. Findings from PRAMS are used by the Bureau of Maternal, Infant, and Reproductive Health to: enhance our understanding of maternal behaviors that are important for good reproductive outcomes and infant health [Epidemiology Grand Rounds: <https://www1.nyc.gov/assets/doh/downloads/pdf/ms/PRAMSGrandround2007.pdf> ]; develop and evaluate programs to improve maternal and infant health; and inform policy development relevant to reproductive health. Read more about PRAMS: <https://www1.nyc.gov/assets/doh/downloads/pdf/ms/PRAMSintro.pdf> (ibid).

The current tables available online for public use are for 2004 to 2010. “For 2004-2008 births, the Phase 5 survey was in use, and for 2009-2011 births, the Phase 6 survey was used (New York City Department of Health, 2016). Due to changes in several questions from Phase 5 to Phase 6, many indicators presented below are not comparable between the two time periods, and are noted with an \* at the end of the subject heading. Additional data for key indicators from the PRAMS survey are available through the CPONDER system. CPONDER is a web-based, menu-driven query system for generating analytic reports and graphs using PRAMS data, and is available on the CDC website at CPONDER: <http://www.cdc.gov/prams/pramstat/index.html>” (ibid.)

### Survey Methodology Reference List

- California Maternal, Child and Adolescent Health (MCAH) Program. (2012, February). 2010 MIHA County Report. Retrieved October 30, 2016, from <http://www.cdph.ca.gov/data/surveys/MIHA/Pages/AnnualReports.aspx>
- Los Angeles County Department of Public Health. (2016). LAMBS. Retrieved October 30, 2016, from <http://publichealth.lacounty.gov/mch/lamb/lambmethod.html>
- New York City Department of Health. (2016). Pregnancy Risk Assessment Monitoring System. Retrieved October 30, 2016, from NYC Health, <https://www1.nyc.gov/site/doh/data/data-sets/pregnancy-risk-assessment-monitoring-system.page>
- NYC PRAMS. (2012). Pregnancy Assessment Monitoring System (PRAMS). Retrieved October 30, 2016, from <https://www1.nyc.gov/assets/doh/downloads/pdf/ms/PRAMSintro.pdf>

## Maps

### United States Maps

For the purposes of visualizing the spatial distribution of paid family leave, poor mental health, and working mothers in the United States, the following maps were developed. Spatial data was collected from the U.S. Census Bureau. Attribute datasets for each national map was collected from the *Institute for Women's Policy Research* project, the "Status of Women".

Where is there Paid Family Leave in the United States? uses data derived from the "Work & Family" spreadsheets; the map indicates where paid family leave has been passed and implemented, passed but not yet implemented, and where no bill has been passed. Percent of Women 18 and Older Living Below the Federal Poverty Line, uses data derived from the "Poverty and Opportunity" spreadsheets. Average Number of Days per Month Women 18-64 Experience Days of Poor Mental Health, uses data derived from the "Health & Wellbeing" spreadsheets. Although the data presented on this map does not specify depression or postpartum depression, it does address personally-identified poor mental health experience as indicated by survey respondents. This spatial distribution of poor mental health helps to identify trends and ask critical questions about why women of child-bearing and maternal age might be experiencing various levels of poor mental health in each state.

### California Maps

For the purposes of visualizing the spatial distribution of poverty and postnatal depressive symptoms in California, the following maps were made. Spatial data was collected from Esri ArcGIS. I created attribute datasets for California map by selecting data from the 2013-2014 Maternal-Infant Health Assessment Annual Report, and used each map. By comparing each map, there is a suggestion of positive correlation between poverty and risk of postnatal depressive symptoms in California.






## Where is there Paid Family Leave in the United States?

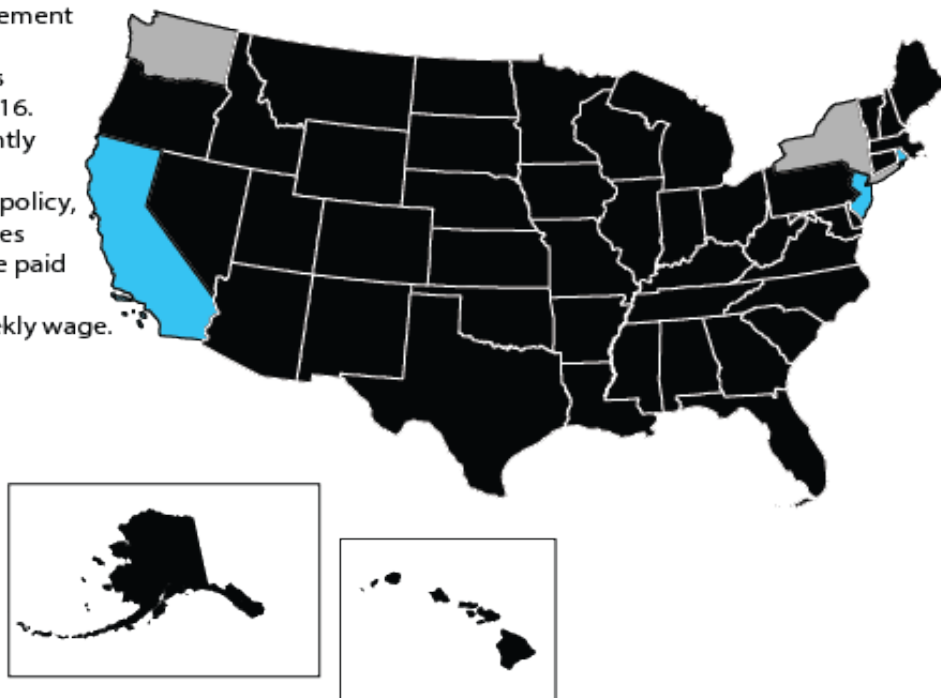
The United States is the only industrialized country without a national paid leave law. However, some states have begun implementing their own paid leave policies.

Norway has the longest paid family leave policy at 46 weeks of full pay. Right now CA holds the longest paid family leave policy at 6 weeks, but partially paid.

### Status of Paid Family Leave Law

-  No law
-  Law passed and implemented
-  Law passed, not implemented

**California** was the first to implement PFL in 2004, and the law was expanded in 2016. The state currently has the most generous policy, giving employees 6 weeks of leave paid at 55% of the employees' weekly wage.

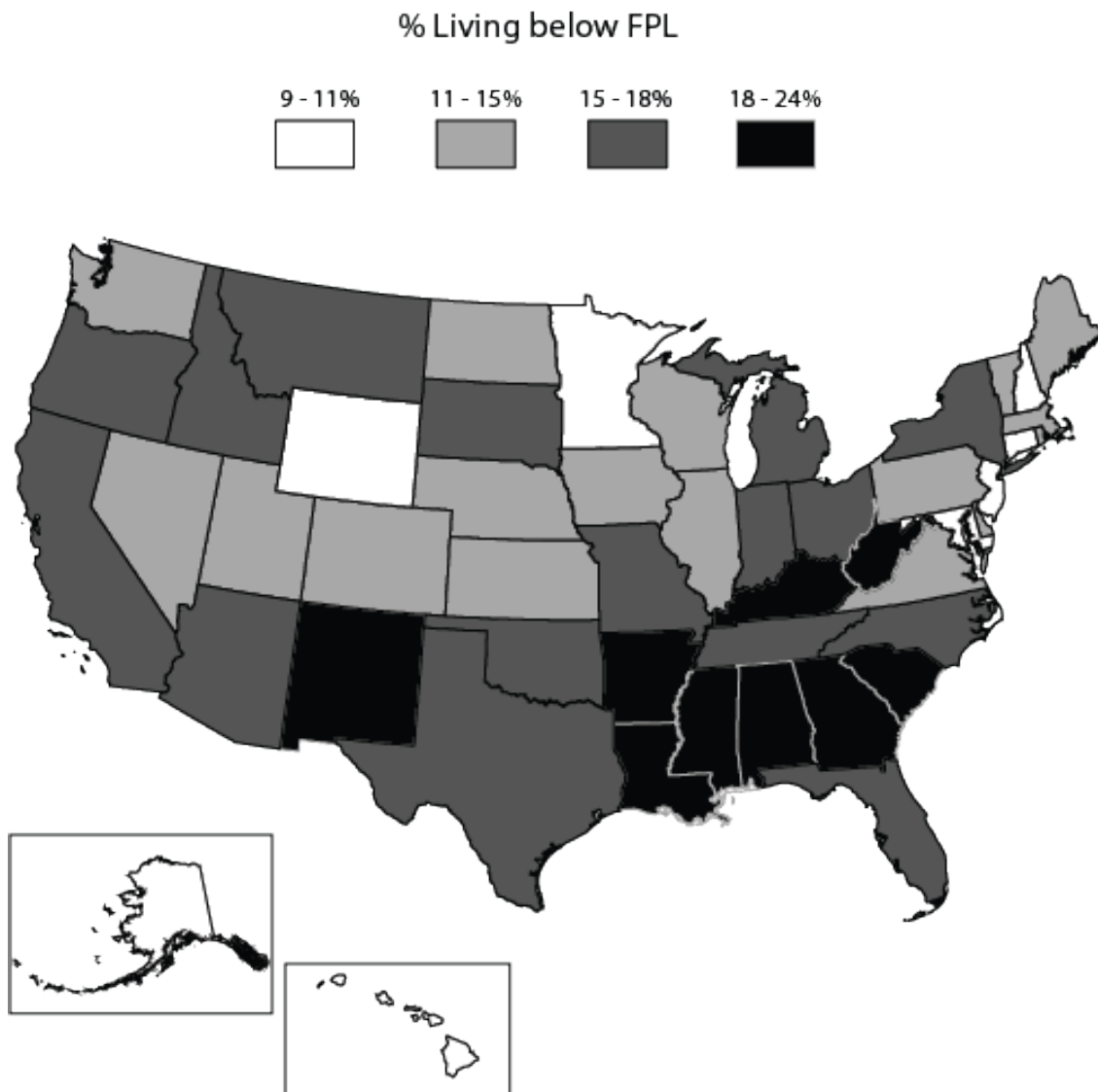


Tempe Staples  
U.S. Census Bureau  
Institute for Women's Policy Research  
Hofstra University

GIS Advisor: Dr. Craig Dalton

Course: Geographic Communications, Fall 2016

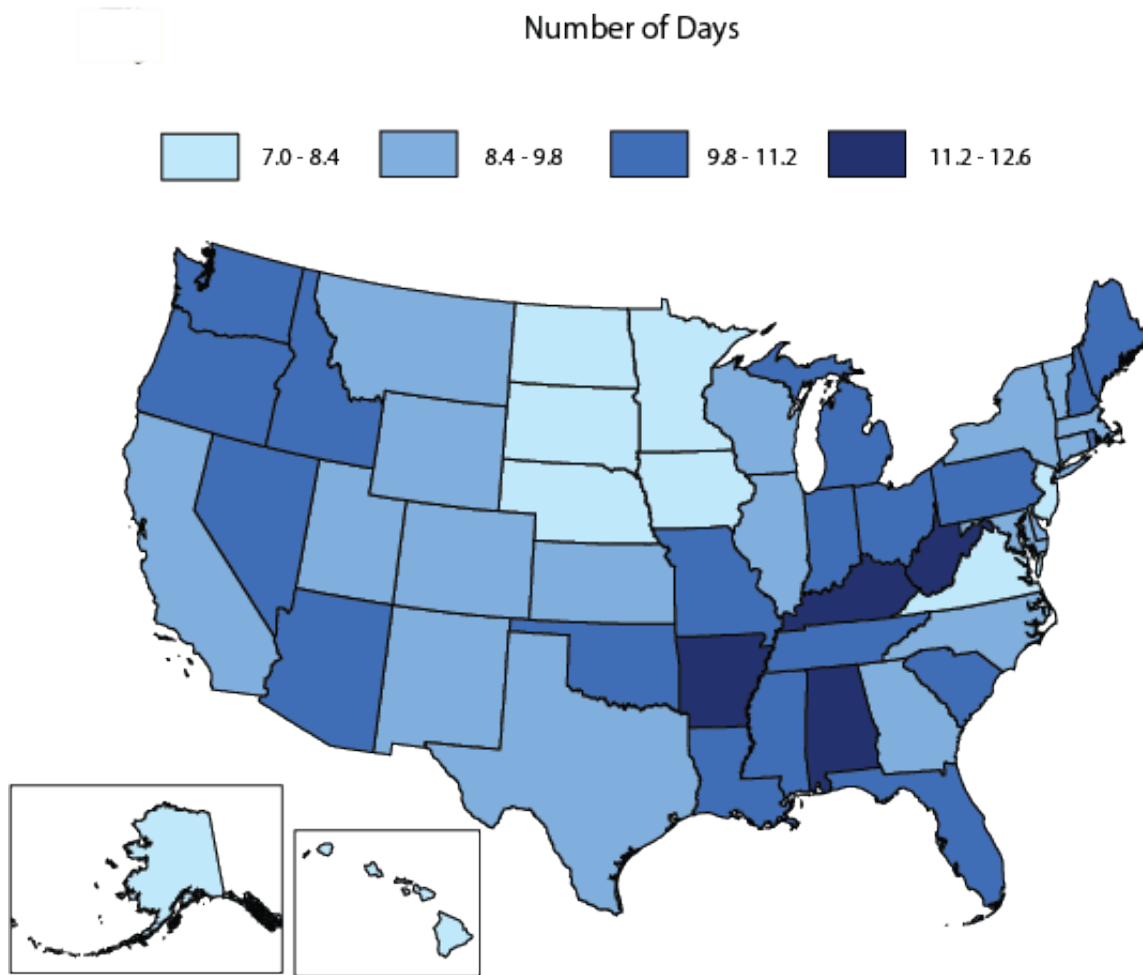
## Percent of Women 18 and Older Living Below the Federal Poverty Line, 2013



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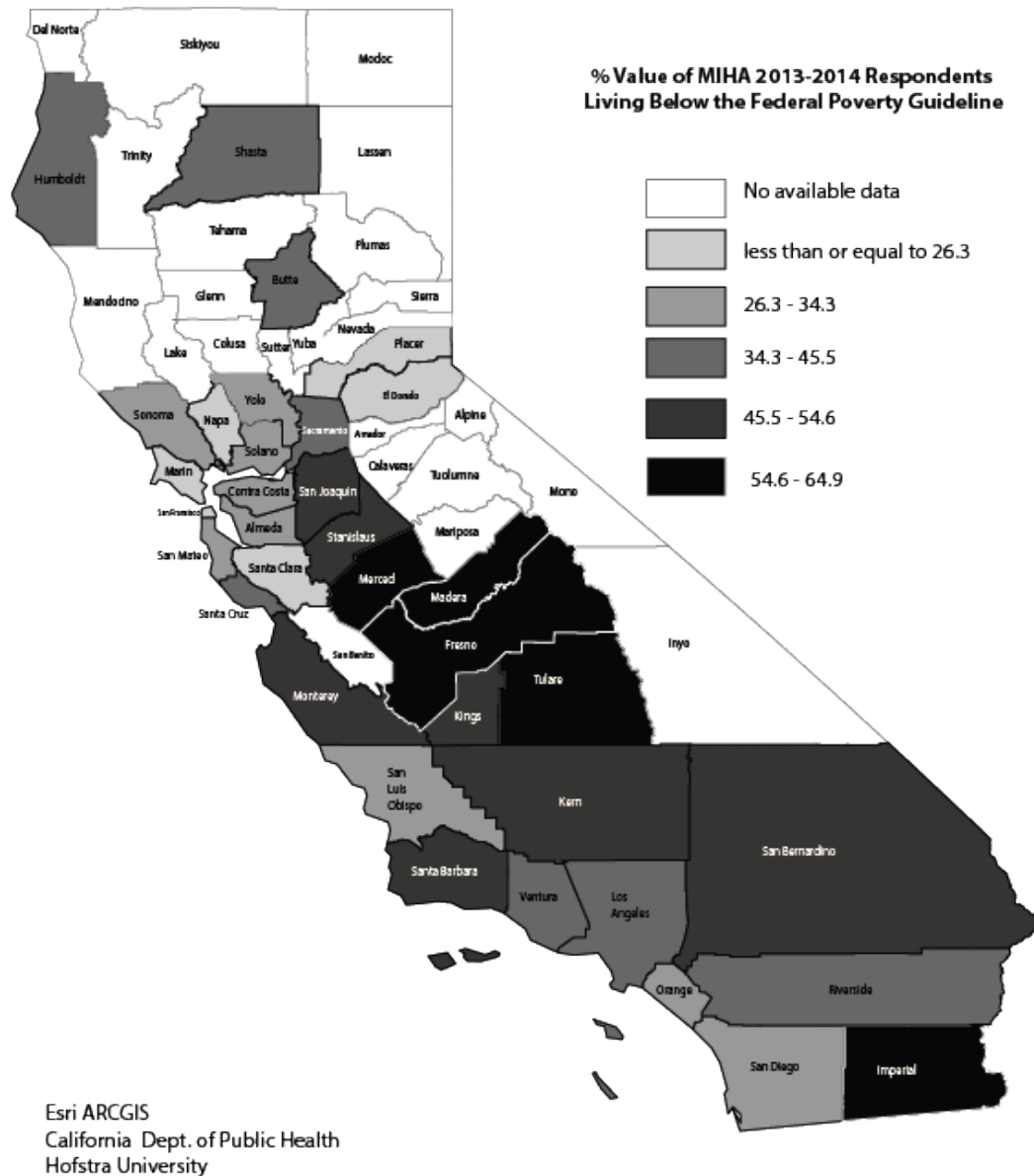
## Average Number of Days Per Month Women 18-64 Experienced Poor Mental Health, 2013



Tempe Staples  
U.S. Census Bureau  
Institute for Women's Policy Research  
Hofstra University

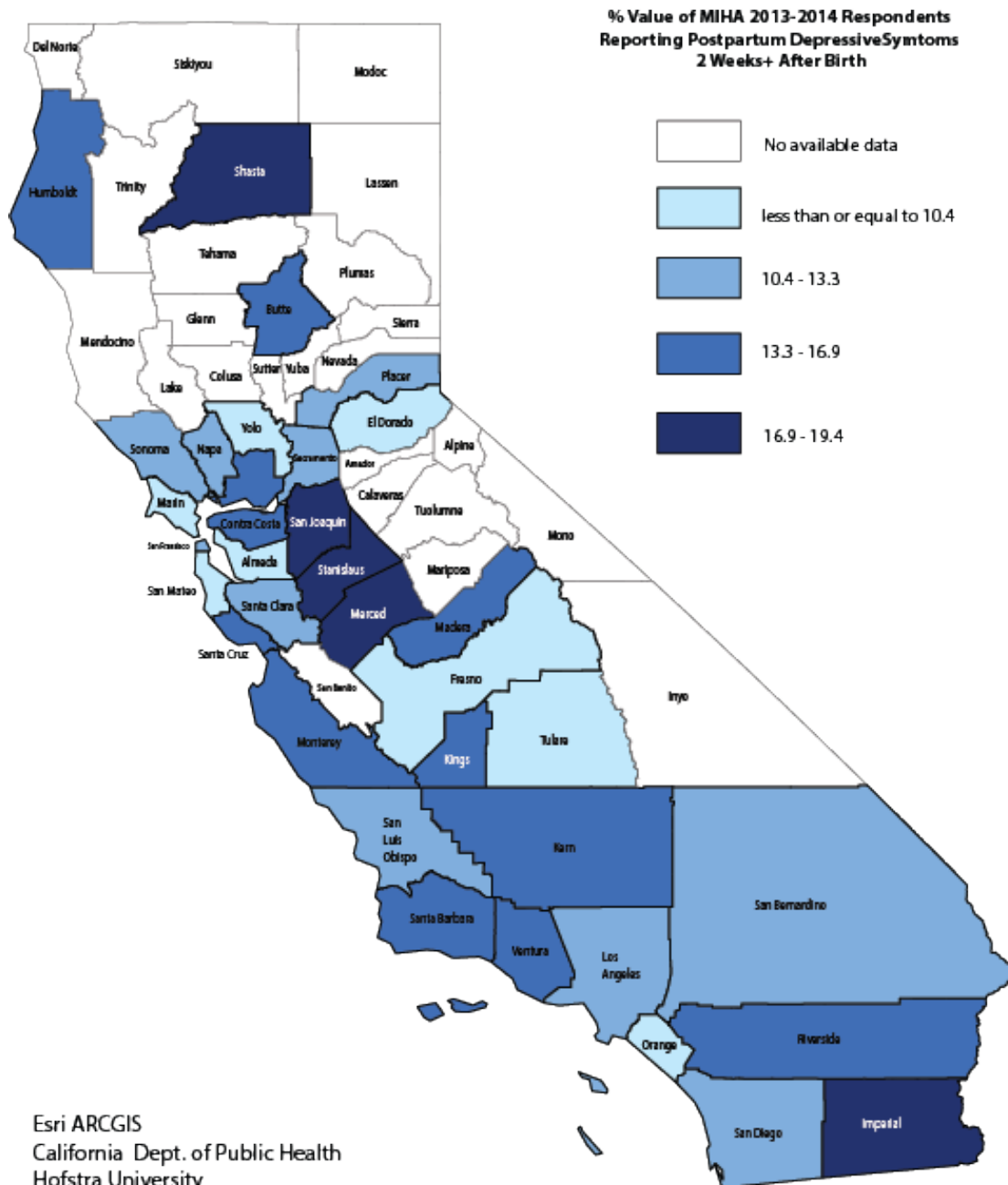
GIS Advisor: Dr. Craig Dalton  
Course: Geographic Communications, Fall 2016

# **MIHA Respondents Reporting an Income 0-100% of the Federal Poverty Guideline**



GIS Advisor: Dr. Craig Dalton  
Course: Geographic Communications, Fall 2016

# **MIHA Respondents Reporting Postpartum Depressive Symptoms for Two or More Weeks After Childbirth**



GIS Advisor: Dr. Craig Dalton  
Course: Geographic Communications, Fall 2016

## Maps Reference List

- California Department of Public Health, The. (2016). MIHA County Regional Report 2013-2014. Retrieved from December 6, 2016, <http://www.cdph.ca.gov/data/surveys/MIHA/Pages/AnnualReports.aspx>
- Esri. (2012, December 11). CA Counties. Retrieved December 6, 2016, from ArcGIS, <http://www.arcgis.com/home/item.html?id=2f227372477d4cddadc0cd0b002ec657>
- Institute for Womens' Policy Research. (2016). Download the data - women in the states. Retrieved December 6, 2016, from The Status of Women, <http://statusofwomendata.org/explore-the-data/download-the-data/>
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