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Maternal Leave practices and Health outcomes after Prolonged Postnatal Infant Hospitalization

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Abbreviations: Neonatal Intensive Care Unit (NICU), Paid Family Medical Leave (PFML), Postpartum Depression (PPD), Pregnancy Risk Assessment and Monitoring Survey (PRAMS)

Objective To assess the association between paid leave and breastfeeding and mental health among mothers of infants with prolonged postnatal hospitalization.

Study design Data were obtained from 13 states participating in the Centers for Disease Control and Prevention's Pregnancy Risk Assessment and Monitoring System from 2016–2021. Prolonged postnatal hospitalization was defined as hospitalization > 14 days. Maternal leave-taking was categorized as paid, unpaid, or no leave. The primary outcomes included breastfeeding initiation and continuation at 4 weeks, and postpartum depressive symptoms. We fit adjusted logistic regression models to estimate adjusted odds ratios (aORs, 95% CI) and marginal probabilities of the outcomes.

Results Among 2622 mothers whose infants had a prolonged hospitalization, 53% reported paid leave, 39% unpaid, and 7.3% no leave. Mothers with paid leave were more likely to have at least some college education, private insurance, and identify as White. No leave was associated with significantly decreased odds of ever breastfeeding (aOR 0.34 [95% CI 0.15, 0.76]) and breastfeeding at four weeks postpartum (aOR 0.38 [95% CI 0.19, 0.76]) compared with paid leave; comparisons with unpaid leave were similar. Associations with postpartum depressive symptoms were not statistically significant (no leave compared with paid leave aOR 1.31 [95% CI 0.65, 2.65]).

Conclusions Significant disparities exist in utilization of paid leave among mothers of infants with prolonged postnatal hospitalizations. Given the association between leave-taking and breastmilk provision, policies to support maternal leave-taking may promote breastfeeding in this population.

Paid leave after birth has numerous benefits for infants and parents. Dedicated, compensated parental bonding time is associated with improved maternal mental health and parental coping,[1] and longer durations of paid leave are associated with decreased rates of postpartum depression (PPD).[2] Paid leave is also associated with benefits for infants, including decreased mortality, improved rates of breastfeeding and vaccination, and improved language outcomes at age 2-3 years.[3–5] Despite these known benefits, the United States remains the only high-income country without a federal policy guaranteeing paid family and medical leave (PFML). Only 27% of non-governmental workers in the United States have access to PFML, which is provided via a patchwork of state and employer-based policies.[6] Workers who identify as Asian, Hispanic, and non-Hispanic Black are significantly less likely to have access to paid leave than those who identify as White.[7] The etiology of these disparities is multifactorial and influenced by historical and current policies that are rooted in structural racism.[7,8]

A growing body of literature has assessed the impact of paid leave within the general postpartum population; however, little is known about leave practices and health outcomes of mothers of premature or medically complex infants who require prolonged hospitalization following birth. Approximately 9-13% of infants in the United States require admission to the Neonatal Intensive Care Unit (NICU) for ongoing care after birth.[9] An infant's prolonged hospitalization is associated with increased rates of PPD and decreased rates of breastfeeding, both of which can significantly impact an infant's health trajectory.[10–13] Although evidence indicates that leave-taking is associated with improved breastfeeding rates and mental health outcomes in the general population,[2,5] no studies have assessed associations between leave and PPD and breastfeeding practices among mothers whose infants have a prolonged postnatal hospitalization. Given the well-documented racial and socioeconomic inequities in preterm birth

rates, breastmilk provision, and PPD;[14–16] assessing for potential differences in leave-taking within this group could have important implications for drivers of equitable health outcomes.

The following analysis utilized data from the Centers for Disease Control and Prevention's (CDC) Pregnancy Risk Assessment and Monitoring Survey (PRAMS) to describe differences by socioeconomic factors and race and ethnicity in leave-utilization among mothers of infants with a prolonged postnatal hospitalization and to analyze the relationship between leave-taking and postpartum depressive symptoms and breastfeeding practices in this population.

Methods

Study Sample

PRAMS is a collaboration between the CDC and state departments of health to assess factors that impact pregnancy, delivery, and the postpartum period.[17] Participants are randomly sampled between 2-6 months postpartum from state birth certificate files of live births in the past calendar year and invited to participate in a survey via mail or telephone. States can choose to strategically over-sample certain populations by demographic or birth characteristics and sample weights are provided by PRAMS.

Our analysis included data from 2016-2021 from thirteen states and one city with questions regarding maternal postpartum leave practices: Louisiana, Maryland, Massachusetts, Minnesota, Missouri, New Hampshire, New Mexico, New York, North Carolina, Oregon, Tennessee, Vermont, Wisconsin, and New York City. Of the states included, New York (including New York City) and Massachusetts had state-wide PFML policies that took effect during the study period, in 2018 and 2021, respectively. [18]

We classified infants as having a prolonged postnatal hospitalization if they were reported to have a postnatal hospitalization greater than 14 days. Our study sample was restricted to

mothers 18 years or older who reported working during pregnancy and whose infant was alive at the time of the survey. In addition, mothers who did not plan to return to work after delivery did not answer questions regarding leave-taking and therefore were not included in our analysis.

The PRAMS dataset for this analysis did not identify the gender of the birthing individual. We acknowledge that not all birthing individuals identify as women; however, in alignment with language utilized in the survey we refer to the surveyed individual as the "mother."

Measures of interest

The primary exposure of interest was the utilization of paid leave. Mothers who planned to return to work were asked if they took leave after their most recent pregnancy. The possible responses included no leave, unpaid leave, state-specific leave options (leave or disability programs, as examples listed in PRAMS), and paid leave. Mothers could mark more than one option. We categorized these responses as no leave, unpaid leave, or any paid leave (including mothers who reported a mix of paid and unpaid leave, and mothers who reported state-specific leave options).

We defined "ever breastfed" as a response to the question "Did you ever breastfeed or pump breast milk to feed your new baby, even for a short period of time?" Participants who breastfed also reported the duration of breastfeeding or reported that they were still breastfeeding. We classified respondents based on whether they breastfed for at least 4 weeks.

Postpartum depressive symptoms were defined as a response of "always" or "often" to either of the following questions: "Since your new baby was born, how often have you felt down, depressed, or hopeless?" and "Since your new baby was born, how often have you had little interest or little pleasure in doing things you usually enjoyed?" This definition of postpartum

depressive symptoms reflects a categorization utilized by the CDC.[19,20] The measure and cut-off score are derived from the Patient Health Questionnaire-2 (PHQ-2), which has been shown in prior analyses of postpartum women to have sufficient sensitivity and specificity to identify probable depression in clinical practice.[21] Thus, mothers with elevated depression scores in PRAMS can be considered to have clinically significant levels of postpartum depressive symptoms.

We included variables in our analysis that had potential associations with leave-taking and our outcomes of interest. These variables included maternal age (years in categories: 18-19, 20-29, 30-39, 40+), marital status (married or not), education level (no high school, some high school, high school graduate, and some college or more), income level (household income in 12 months prior to delivery as categorized in PRAMS: $0-$20,000; $20,001-$40,000; $40,001-$60,000; $60,001-$85,000; >$85,000), insurance type (private, Medicaid, none, or other); maternal history of diabetes, hypertension, and/or depression (reported as prior to or during pregnancy), and household size. We included race and ethnicity given the known disparities in access to leave by self-identified race and ethnicity.[7] We grouped respondents into the following categories of maternal race and ethnicity based on birth certificate data: American Indian/Alaska Native, Asian-American, Black, Hawaiian or Pacific Islander, Mixed Race, Other (as selected by respondents not identifying with the above race options), and White. Hispanic ethnicity was described separately based on maternal identification on the birth certificate as Hispanic ethnicity (yes or no). Our descriptive analysis of leave-taking also included urban and rural location and gestational age (categorized as <28 weeks, 28-33 weeks, 34-36 weeks, and ≥ 37 weeks). Mothers were classified as living in a state with PFML if they lived in a state with a PFML policy in effect during the year of the infant's birth.

Statistical analysis

To investigate predictors of leave-taking, we first computed frequencies of each of the leave-taking categories by demographic and pregnancy characteristics. We then computed frequencies of categorical postpartum variables and medians and interquartile ranges for continuous variables stratified by leave type. All analyses were weighted using the PRAMS survey weights and adjusted for the complex survey design.

Based on prior analyses that have shown an association between paid leave and decreased rates of PPD and improved breastfeeding rates among the general postpartum population,[2,5] we hypothesized that these associations would hold among mothers of infants with prolonged postpartum hospitalization. To test this hypothesis, we fit separate multivariable logistic regressions for the association between leave-taking category and each outcome: ever breastfed, breastfeeding > 4 weeks, and postpartum depressive symptoms. We adjusted for the following covariates: maternal age, marital status, income, education, insurance status, race and ethnicity, number of dependents, pre- or during-pregnancy hypertension and diabetes, survey year, and state. In the model for postpartum depressive symptoms, we also adjusted for pre- or during-pregnancy depression. We used these models to estimate marginal probabilities of each outcome, averaged over the distribution of covariates in our entire sample.

Results

2,622 mothers had an infant with a prolonged postnatal hospitalization. Of those infants, 8.7% of infants were born at ≥37 weeks of gestation, 25.6% between 34-36 weeks, 54.5% between 28-33 weeks, and 11.1% <28 weeks. The median age of infants at the time of survey was 4 months for all groups. Of mothers, 53% reported taking any paid leave, 39% only unpaid leave, and 7.3% no leave (Table I).

Significant disparities in the use of paid leave were observed by multiple demographic characteristics. Twenty-four percent of mothers who had an annual household income less than $20,000 reported taking any paid leave compared with 72% who reported an income of over $85,000. This trend was seen in other markers of socioeconomic status, such as insurance type and maternal education (Table I). Our data also demonstrated significant disparities in paid leave use by race and ethnicity. Paid leave was used by 46% of mothers who identified as Black and 48% of mothers who identified as Hispanic, compared with 63% of Asian-American/Hawaiian/Pacific Islander and 57% of White mothers. Mothers living in a state with a PFML policy were more likely to take paid leave (71%) than those in states without (51%). There were no significant differences between mothers who took paid leave by location (urban versus rural), household size, or pre-/during-pregnancy health conditions (Table I).

An unadjusted comparison of postpartum outcomes stratified by leave type demonstrated differences between the paid, unpaid, and no-leave groups. Mothers who took paid leave were more likely to have ever breastfed and be breastfeeding at 4 weeks postpartum (Table II). Mothers with paid leave were less likely to report postpartum depressive symptoms (Table II).

Adjusted analyses

In our adjusted analyses, not taking leave was associated with significantly decreased odds of ever breastfeeding and breastfeeding at four weeks postpartum compared with paid leave (adjusted odds ratio [aOR] 0.34 [95% CI 0.15, 0.76] and aOR 0.38 [95%CI 0.19, 0.76]) (Table III). There were no significant differences in breastfeeding between mothers with paid leave and those with unpaid leave (ever breastfed: aOR 1.08 [95%CI 0.61, 1.93]; breastfeeding at 4 weeks: aOR 0.8 [95% CI 0.51, 1.25]). Results for postpartum depressive symptoms showed no statistically significant associations with unpaid and no leave compared with paid leave (unpaid

leave: aOR 1.08 [95% CI 0.72, 1.63]; no leave: aOR 1.31 [95% CI 0.65, 2.65]) (Table III). Averaged over the distribution of the covariates, the predicted probabilities from the regression models followed similar patterns as the unadjusted frequencies (Table III).

Discussion

We investigated the postpartum leave practices of mothers in the United States whose infants had a prolonged postnatal hospitalization. Our results demonstrate significant disparities in utilization of paid leave among this sample. Mothers who reported use of paid leave were significantly more likely to identify as White, report higher annual income, have more education, and be covered by private insurance. Preterm delivery, the most common etiology of a prolonged postnatal hospitalization, is more common among Black mothers and people living in neighborhoods with markers of disadvantage,[14] likely due to the downstream health effects of historical and interpersonal racism. Our findings indicate a compounding of inequality among this group of mothers—those who are already at greater risk of having a hospitalized infant also experience inequitable access to beneficial resources such as paid leave.

Mothers of infants who require prolonged hospitalization are at greater risk for PPD and are less likely to breastfeed.[11,22] Mothers who identify as Black or report markers of lower socioeconomic status are even less likely to breastfeed and more likely to have postpartum depression than other sociodemographic groups.[15,16] There are many possible mechanisms for these observed associations. Barriers to breastmilk provision in the NICU are significant, including limited access to pumping materials, challenges establishing milk supply, and variable access to lactation services.[16] Maternal presence at the bedside, and specifically skin-to-skin contact with her infant, is associated with decreased rates of PPD and increased rates of breastfeeding initiation.[23] Qualitative analyses of factors impacting skin-to-skin time have shown

that limited access to leave is a barrier for many mothers.[24] In addition, there are well-documented disparities by markers of socioeconomic status in skin-to-skin time.[15] Although an interplay of many factors impacts the ability of mothers to be present in the NICU, use of leave may be an important mechanism by which to achieve more equitable outcomes.

Our study partially supported our hypotheses that leave-taking is associated with breastmilk provision and decreased postpartum depressive symptoms in the NICU. We found that mothers without leave were significantly less likely to breastfeed or continue to breastfeed than those with leave. Leave-taking, both paid and unpaid, was associated with breastmilk provision, suggesting that policies that increase uptake of leave would improve breastfeeding rates among families experiencing a prolonged postnatal hospitalization. The association between paid leave and decreased rates of postpartum depressive symptoms was not statistically significant. There are multiple possible explanations for this finding. Given elevated levels of PPD among mothers of infants with a prolonged hospitalization, it is possible that there is insufficient variability in symptom prevalence across our groups of interest.[15] Although our measure of depressive symptoms has previously been validated,[21] it is nonetheless imprecise, and this non-differential measurement error may lead to bias toward a weaker or null association. Only a small portion of mothers responded to PRAMS within 3 months postpartum, when they are at greatest risk for experiencing postpartum depressive symptoms; therefore, our findings may be impacted by selection bias related to timing of survey response. Furthermore, our analysis is limited by the inability to distinguish the duration of paid leave versus unpaid leave for mothers who took a combination of leave types or the rate of reimbursement for those taking paid leave. Those mothers classified in our analysis under the paid leave category may have had

inadequate duration of paid leave or inadequate reimbursement to result in significant changes in outcomes.

This study, which included a large, diverse sample of mothers from thirteen states, had many strengths. PRAMS collects detailed information regarding maternal socioeconomic status, race and ethnicity, and risk factors during and prior to pregnancy. Nonetheless, the cross-sectional nature of our data limits any claims of causality. PRAMS requires states to achieve a response rate of at least 50% to allow for public release of data. Analyses of non-response bias in PRAMS data indicate minimal impact from this requirement; however, they did identify possible overreporting of positive behaviors and underreporting of risky behaviors.[25] Perhaps reflecting this finding, our data had higher than expected rates of breastmilk provision within this sample, which may indicate response and selection bias with regards to who responds to the survey. Lastly, given the known disparities in paid leave use identified in this study, there is a possibility that we have failed to account for unmeasured confounders in our analysis such as partner leave-taking, childcare support, and percentage of salary covered through paid leave.

Our study has important implications for neonatal health outcomes. Provision of breastmilk and positive maternal mental health are critical for the well-being of all infants. These factors are especially important for infants with ongoing medical needs.[12,15] Provision of maternal milk is associated with numerous beneficial outcomes for infants born preterm, including decreased rates of necrotizing enterocolitis, sepsis, and retinopathy of prematurity.[12] Positive maternal mental health can also benefit infants by enabling maternal-child bonding. PPD has been associated with negative outcomes in infants, including emotional difficulties and avoidant attachment styles.[13] Access to leave allows mothers to spend time at the bedside, which

in turn promotes mother-child bonding, and provides positive benefits to both mothers and infants during this critical period.[23]

The findings in our study, which build on prior research in this area, point to key takeaways for federal and state policy as well as for clinical practice. Although our results did not demonstrate differences in breastmilk provision between paid and unpaid leave cohorts, we did demonstrate significant differences between any leave-taking and no leave. Policies that support uptake of leave would have potential to improve breastmilk provision for vulnerable infants in the NICU. Passage of PFML, as opposed to job-protective unpaid leave, at the state level is associated with significantly increased uptake of leave, particularly among mothers who were lower-income and who identified as Black or Hispanic.[26,27] Federal and state PFML policies could have the potential to reduce the inequitable utilization of leave observed within this study. In our descriptive analysis we found that state-level PFML was associated with increased use of paid leave. Although there are many other state policies that may impact this finding, it supports prior literature that PFML policies increase use of paid leave.[26] Moreover, our findings suggest that the expansion of leave provisions specifically for parents whose infants have a prolonged postnatal hospital course could be beneficial. This aligns with recent policy changes in other high-income nations. For example, the Neonatal Care (Leave and Pay) Act 2023, which was recently passed in the United Kingdom, provides an additional 12 weeks of paid leave to parents whose infants require admission to the NICU.[28]

The passage of PFML policies, although essential to improving access, cannot guarantee uptake of paid leave. Even in states with well-established PFML, many mothers, particularly those with lower incomes, report limited awareness of leave benefits.[29] Providers in the NICU should ensure that mothers are aware of potential leave benefits. Many mothers with perinatal

health complications also report administrative barriers to the leave application process.[30] Ensuring that mothers who intend to utilize leave benefits both submit their paperwork for leave and receive benefits should be an essential component of support provided within the NICU.

Our study did not find statistically significant associations between paid leave and decreased rates of postpartum depressive symptoms, which differs from studies in the general postpartum population,[2] suggesting that larger studies with better measures of mental health within this population are needed to better understand this association. In addition, many mothers of infants with a prolonged postnatal hospitalization did not return to work after birth; these mothers were not included in our analysis due to lack of information on leave-taking within this cohort. Further studies of mothers who do not return to work could help understand the drivers of this decision and the support these families might need. Lastly, a study of non-birthing parents' leave-taking could complement and expand on our findings.

In conclusion, we found that among mothers of infants with a prolonged postnatal hospitalization, utilization of paid leave in the postpartum period was inequitable by markers of race and ethnicity and socioeconomic status. In this study, leave-taking, paid and unpaid, was significantly associated with the provision of breastmilk. Improving access to and utilization of paid leave could increase leave-taking and benefit mothers and infants during the neonatal period, especially those with babies experiencing a postnatal hospitalization when the provision of breastmilk is an important component of their care.

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***Table** I. Leave-taking according to demographic and health characteristics among mothers of infants with >14 days in hospital. Numbers are unweighted N (survey-weighted row %).*

	Any paid leave	**Only unpaid leave**	**No leave**	**Total**	**p-value**
Total Sample	N = 1,467 (53%)	N = 971 (39%)	N = 84 (7.3%)	N = 2,622	-
Maternal age (years)					<0.001
18-20	6 (18%)	20 (68%)	3 (13%)	29	
20-29	424 (43%)	397 (48%)	74 (9.3%)	895	
30-39	924 (60%)	509 (34%)	87 (5.2%)	1,520	
40+	113 (61%)	45 (26%)	20 (13%)	178	
Maternal education (n missing = 12)					<0.001
No high school diploma	26 (17%)	62 (63%)	26 (20%)	114	
High school graduate/GED	175 (37%)	230 (57%)	32 (6.6%)	437	
Some college or more	1,262 (61%)	674 (33%)	123 (6.5%)	2,059	
Maternal race (n missing = 9)					<0.001
American Indian/Alaska Native	14 (36%)	18 (53%)	5 (11%)	37	
Asian/Pacific Islander	105 (63%)	45 (30%)	13 (7.1%)	163	
Black	292 (46%)	227 (47%)	42 (6.8%)	561	
Mixed Race	40 (48%)	47 (46%)	8 (6.6%)	95	
Other[1]	55 (34%)	48 (52%)	13 (13%)	116	
White	958 (57%)	581 (36%)	102 (7.2%)	1,641	
Hispanic ethnicity (n missing = 40)					0.13
Hispanic	156 (48%)	117 (41%)	30 (11%)	303	
Non-Hispanic	1,290 (54%)	840 (39%)	149 (6.8%)	2,279	
Income (n missing = 99)					<0.001
$0 to $20,000	88 (24%)	272 (65%)	50 (11%)	410	
$20,001 to $40,000	214 (47%)	208 (45%)	39 (8.3%)	461	
$40,001 to $60,000	201 (51%)	150 (40%)	23 (9.0%)	374	
$60,001 to $85,000	229 (65%)	86 (32%)	16 (3.0%)	331	
$85,001 and above	686 (72%)	214 (22%)	47 (5.9%)	947	
Marital status (n missing = 5)					<0.001
Married	1,049 (61%)	515 (32%)	98 (6.6%)	1,622	
Other	417 (41%)	453 (50%)	85 (8.4%)	955	
Number of dependents (n missing = 53)					0.049
1	141 (50%)	111 (39%)	31 (11%)	283	
2	721 (57%)	366 (38%)	60 (4.8%)	1,147	
3+	580 (51%)	473 (41%)	86 (8.3%)	1,139	
Insurance (n missing = 34)					<0.001
Private insurance	1,183 (65%)	477 (29%)	92 (5.8%)	1,752	

***Table** I. Leave-taking according to demographic and health characteristics among mothers of infants with >14 days in hospital. Numbers are unweighted N (survey-weighted row %).*

Medicaid	234 (33%)	453 (57%)	84 (10%)	771	
Other	24 (42%)	8 (48%)	4 (10%)	36	
No insurance	11 (18%)	17 (80%)	1 (1.5%)	29	
WIC recipient (n missing = 40)					<0.001
No	1,215 (60%)	611 (34%)	117 (6.5%)	1,943	
Yes	229 (37%)	348 (54%)	62 (9.5%)	639	
Location (n missing = 2)					0.4
Rural	214 (49%)	202 (44%)	34 (6.4%)	450	
Urban	1,251 (54%)	769 (39%)	150 (7.5%)	2,170	
State with leave policy[2]					<0.001
No	1,239 (51%)	906 (42%)	156 (7.2%)	2,301	
Yes	228 (71%)	65 (21%)	28 (8.3%)	321	
Pre/during pregnancy diabetes					0.8
No	1,179 (53%)	799 (40%)	152 (7.5%)	2,130	
Yes	288 (55%)	172 (38%)	32 (6.6%)	492	
Pre/during pregnancy hypertension					0.4
No	832 (54%)	558 (40%)	103 (6.4%)	1,493	
Yes	635 (53%)	413 (38%)	81 (8.7%)	1,129	
Pre/during pregnancy depression (n missing = 2)					0.5
No	660 (55%)	403 (38%)	77 (7.0%)	1,140	
Yes	806 (52%)	567 (41%)	107 (7.6%)	1,480	
Vaginal delivery (n missing = 1)					0.4
No	965 (55%)	612 (38%)	110 (7.2%)	1,687	
Yes	502 (50%)	359 (42%)	73 (7.5%)	934	
Gestational age (weeks)					0.8
<=27	161 (54%)	101 (35%)	31 (11%)	293	
28-33	822 (53%)	521 (40%)	87 (6.5%)	1,430	
34-36	366 (54%)	257 (38%)	49 (7.5%)	672	
>=37	118 (52%)	92 (41%)	17 (7.4%)	227	

[1] Please note that 'Other race' is an option provided in the PRAMS data and mothers have been categorized as such

[2] Defined as state with PFML policy in place at time of infant's birth. This included New York and New York City from 2018-2021 and Massachusetts in 2021.

Table II. *Leave and postpartum characteristics, stratified by leave type, among mothers of infants with >14 days in hospital. Numbers are unweighted N (survey-weighted %).*

	Any paid leave	**Only unpaid leave**	**No leave**	**Total**	**P value**
Total Sample	N = 1,467 (53%)	N = 971 (39%)	N = 184 (7.3%)	N = 2,622	
Leave duration (days; median [IQR]) (n missing = 338)	91 (70, 121)	84 (61, 112)	0 (0, 0)	84 (56, 112)	<0.001
Attended postpartum visit (n missing = 15)					0.002
Yes	1,402 (95%)	879 (92%)	159 (85%)	2,453 (93%)	
No	59 (5.0%)	85 (8.4%)	23 (15%)	167 (7.1%)	
Ever breastfed (n missing = 46)					0.022
Yes	1,358 (92%)	871 (90%)	153 (80%)	2,382 (90%)	
No	90 (8.0%)	80 (10%)	24 (20%)	194 (9.8%)	
Currently breastfeeding (n missing = 56)					0.003
Yes	834 (53%)	445 (43%)	80 (40%)	1,359 (48%)	
No	609 (47%)	502 (57%)	96 (60%)	1,207 (52%)	
At least 4 weeks breastfeeding (n missing = 125)					<0.001
Yes	1,249 (86%)	750 (78%)	131 (66%)	2,130 (82%)	
No	156 (14%)	171 (22%)	40 (34%)	367 (18%)	
At least 12 weeks breastfeeding (n missing = 178)					0.003
Yes	931 (63%)	504 (52%)	92 (49%)	1,527 (58%)	
No	444 (37%)	396 (48%)	77 (51%)	917 (42%)	
Postpartum depressive symptoms (n missing = 10)					0.031
Yes	165 (11%)	170 (16%)	36 (20%)	371 (14%)	
No	1,296 (89%)	798 (84%)	147 (80%)	2,241 (86%)	

Table III. *Marginal probabilities and adjusted odds ratios estimated from logistic regression models to examine the association between maternal leave-taking and breastfeeding practices and postpartum depressive symptoms. Adjusted for maternal age, marital status, maternal education, maternal race and ethnicity, insurance, income, number of dependents, diabetes, hypertension, survey year, and state. Postpartum depression analysis also adjusted for pre-pregnancy depression. Marginal probabilities are calculated over the distribution of covariates in the entire sample.*

Characteristic	Marginal probability (95% CI)	OR (95% CI)	p-value
Ever breastfed			
Maternal leave-taking			
Any paid leave	92.8% (90.8%, 94.8%)	—	
Only unpaid leave	93.3% (91.0%, 95.5%)	1.08 (0.61, 1.93)	0.8
No leave	83.5% (75.4%, 91.6%)	0.34 (0.15, 0.76)	0.009
At least 4 weeks breastfeeding			
Maternal leave-taking			
Any paid leave	86.7% (84.0%, 89.4%)	—	
Only unpaid leave	84.2% (80.7%, 87.7%)	0.80 (0.51, 1.25)	0.3
No leave	73.9% (63.6%, 84.1%)	0.38 (0.19, 0.76)	0.006
Postpartum depressive symptoms			
Maternal leave-taking			
Any paid leave	12.5% (9.9%, 15.0%)	—	
Only unpaid leave	13.3% (10.5%, 16.1%)	1.08 (0.72, 1.63)	0.7
No leave	15.5% (7.9%, 23.0%)	1.31 (0.65, 2.65)	0.5