



# PRAMS

## Perspectives

### A Pregnancy Risk Assessment Monitoring System Report – March 2018

## Maternal Mental Health in Utah

### Background

One in seven women experience perinatal depression, with nearly 600,000 cases annually in the United States [Patel, et al, 2012; Ko, Rockhill, Tong, Morro, Farr, 2017]. Negative outcomes of depression and anxiety during the perinatal period are well documented [Dunkel and Tanner, 2012]. Maternal mental health challenges often go unidentified and underdiagnosed, and prevalence is therefore believed to be underestimated. It is important to recognize the risk factors for maternal mental health conditions during preconception health care and routine obstetric care visits. The Pregnancy Risk Assessment Monitoring System (PRAMS) is one of the primary tools used by state public health departments in the United States to assess risk factors for adverse maternal and infant outcomes. This report uses Utah PRAMS data to examine the characteristics and experiences of women with pre-existing depression, pre-existing anxiety, and or symptoms of postpartum depression.

### Methodology

#### Data

Utah PRAMS data from 2013-2015 were used to examine factors associated with maternal mental health in Utah. To identify women with pre-existing anxiety and chronic health conditions, PRAMS respondents are asked: “During the 3 months before you got pregnant with your new baby, did you have any of the following health conditions?” Response options for this question are “asthma,” “anemia,” “heart problems,” “epilepsy,” “thyroid problems,” and “anxiety”.

To identify women with a diagnosis of depression and other specified health conditions PRAMS respondents are asked: “Before you got pregnant with your new baby, did a doctor, nurse, or other health care worker tell you that you had any of the following conditions?” Response options for this question are “Type 1 or Type 2 diabetes,” “high blood pressure or hypertension,” and “depression”.

#### What is PRAMS?

PRAMS is an ongoing, population-based risk factor surveillance system designed to identify and monitor selected maternal experiences that occur before, during and after pregnancy as well as early infancy experiences among women who had a live birth. Each month, a sample of approximately 200 women, two to four months postpartum is selected. The sample is stratified based upon race and birth weight so that inferences and comparisons about these groups can be made. The results are weighted for sample design and non-response.

Survey respondents are asked questions about prenatal care, breastfeeding, smoking and alcohol use, physical abuse, stressful life events, and early infant care. PRAMS is intended to help answer questions that birth certificate data alone cannot answer. Data are used to provide important information that can guide policy and other efforts to improve care and outcomes for pregnant women and infants in Utah.

The PRAMS data reported here represent all live births to Utah residents during 2013-2015. During this period, 7,011 mothers were selected to participate and 4,163 mothers responded, for a response rate of 59%. Survey results were weighted for non-response so analyses could be generalized to the entire population of 149,532 Utah resident women who gave birth to a live baby in the state of Utah during 2013-2015. For more information on PRAMS, visit <https://mihp.utah.gov/pregnancy-and-risk-assessment>.

To identify women with postpartum depressive symptoms, the following two questions are asked: 1) “Since your new baby was born, how often have you felt down, depressed, or hopeless?” and 2) “Since your new baby was born, how often have you had little interest or little pleasure in doing things?” Women responding “always” or “often” to either question are classified as experiencing postpartum depressive symptoms. These questions are based on the Patient Health Questionnaire (PHQ-2).

The number of stressful life events are calculated by totaling the yes responses to a question that asks women if they experienced any of 14 specific events related to finances, trauma, and close relationships during the year before giving birth. The full list of stressful life events can be found on question 44 on the Phase VII PRAMS survey at [https://mihp.utah.gov/wp-content/uploads/UT\\_Phase7\\_Eng.pdf](https://mihp.utah.gov/wp-content/uploads/UT_Phase7_Eng.pdf).

Unintended pregnancies are identified by asking the question: “Thinking back to just before you got pregnant with your new baby, how did you feel about becoming pregnant?” Responses of “I wanted to be pregnant later” and “I didn’t want to be pregnant then or at any time in the future” are counted as unintended pregnancies. Women who responded “I wasn’t sure what I wanted” are counted separately.

### **Limitations**

Although the spectrum of mental health disorders that can affect mothers during pregnancy and postpartum is broad, PRAMS data are limited to information about pre-existing depression, pre-existing anxiety, and postpartum depressive symptoms.

A limitation of the findings in this report is that the pre-existing anxiety question simply asks the respondent if she had anxiety before pregnancy, without regard to a clinical diagnosis. Anxiety can be described as an emotion that people experience when nervous or under stress rather than a true mental disorder. Consequently, the results in this report might overestimate the prevalence of anxiety in terms of a mental disorder.

Another limitation is that the questions used to assess the prevalence of postpartum depressive symptoms do not represent a clinical diagnosis of depression. In one study, the PHQ-2 questions with similar categorization schemes had a sensitivity of 58% and specificity of 85% when compared with clinical assessments of major depressive episodes [O’Hara et al, 2012]. Therefore, the results in this report might underestimate the true prevalence of postpartum depression.

### **Analysis**

To account for the stratified and weighted sample, data were analyzed using the survey procedures in SAS version 9.3. Chi-square tests were used to identify differences in the rates of maternal mental health between women with and without certain characteristics.

## Results

Overall, 10.3% of women reported a diagnosis of depression before pregnancy, 14.8% reported having anxiety before pregnancy, and 12.2% reported symptoms of postpartum depression.

Of the women with a history of anxiety or depression before pregnancy, 24.4% went on to experience symptoms of postpartum depression compared to 9.0% of women without a history of mental health conditions.

### Maternal Characteristics

Significant differences in rates of mental health conditions were identified among women with certain characteristics. These differences are identified in Table 1 with a P-value of <0.05, which was considered significant for the purposes of this analysis.

In summary, for the three mental health conditions covered in this report, higher rates were found among women who:

- were younger than 20 years of age
- were unmarried
- were living at or below 100% of the Federal Poverty Level
- were enrolled in Medicaid
- had no college education
- were unsure or did not want to be pregnant at the time of conception

*“I wish I was more informed about postpartum depression, I had no idea it existed. At least I have experienced depression before & knew something was up. I had to go to the hospital for a week & get stable & be away from my new baby & husband. It was the hardest thing to do.”*

-PRAMS respondent, 2015

*“I was experiencing emotional abuse mental and verbal before pregnancy, during and after.”*

-PRAMS respondent, 2015

**Table 1. Mental Health Conditions by Selected Maternal Characteristics, Utah PRAMS, 2013-2015**

2013-2015 Characteristics	Pre-existing Depression			Pre-existing Anxiety			Postpartum Depressive Symptoms		
	%	95% Confidence Interval	P-Value	%	95% Confidence Interval	P-Value	%	95% Confidence Interval	P-Value
<b>Total Maternal Population</b>	<b>10.3</b>	<b>(9.2 – 11.4)</b>		<b>14.8</b>	<b>(13.6 -16.1)</b>		<b>12.2</b>	<b>(11.0 – 13.3)</b>	
<b>Maternal Age</b>			NS			<0.05			<0.05
≤ 17	19.3	(10.1 – 28.5)		25.0	(14.9 – 35.2)		22.6	(13.1 – 32.1)	
18 - 19	15.2	(9.5 – 21.0)		25.2	(18.0 – 32.4)		17.7	(14.1 – 26.2)	
20 - 24	12.0	(9.6 – 14.4)		15.6	(12.9 – 18.2)		13.4	(11.0 – 15.8)	
25 - 29	9.1	(7.3 – 11.0)		13.6	(11.4 – 15.7)		11.3	(9.2 -13.3)	
30 - 34	9.2	(7.2 – 11.3)		14.4	(11.8 – 17.0)		13.0	(10.6 – 15.4)	
35 - 39	11.2	(7.5 – 14.8)		15.8	(11.7 – 19.9)		8.9	(6.0-11.9)	
40 +	10.4*	(0.8 – 20.0)		9.6*	(1.7 – 17.4)		8.7*	(1.2 – 14.3)	
<b>Education Level</b>			<0.0001			<0.001			<0.0001
Less than High School	14.8	(12.2 – 17.3)		17.5	(14.8 – 20.1)		16.8	(14.2-19.4)	
Completed High School	13.0	(10.9 – 15.0)		18.4	(16.1 – 20.7)		15.6	(13.4-17.9)	
Some College	10.6	(8.4 – 12.9)		16.2	(13.6 – 18.7)		12.0	(9.7 – 14.4)	
College Graduate	7.4	(5.6 – 9.2)		11.1	(8.9 – 13.3)		8.9	(7.0 – 10.9)	
<b>Marital Status</b>			<0.0001			<0.001			<0.0001
Married	8.6	(7.5 – 9.8)		13.5	(12.1 – 14.9)		11.1	(9.8 – 12.4)	
Unmarried	18.5	(15.2 – 21.9)		21.7	(18.5 – 24.9)		17.4	(14.4 – 20.3)	
<b>Race</b>			<0.05			<0.001			NS
White	10.8	(9.3 – 12.0)		16.0	(14.5– 17.4 )		12.0	(10.7 – 13.3 )	
Other than White	7.3	(4.9 – 9.7)		9.0	( 6.5 – 11.5)		13.2	(10.3 – 16.1)	
<b>Ethnicity</b>			<0.0005			<0.0005			NS
Non-Hispanic	10.9	(9.6 – 12.2)		15.7	(14.3 – 17.2)		12.3	(10.9 – 13.6)	
Hispanic	6.5	(4.8 – 8.3)		9.9	(7.4 – 12.4)		12.2	(9.7 – 14.6)	
<b>Federal Poverty Level (FPL)</b>			<0.0001			<0.001			<0.0001
≤100% of FPL	16.6	(13.8 – 19.5)		20.8	(17.8 – 23.7)		19.3	(16.3 – 22.3)	
101-133% of FPL	9.5	(6.3 – 12.7)		20.2	(15.7 – 24.7)		13.4	(9.8 – 17.0)	
134-185% of FPL	9.4	(6.2 – 12.6)		14.5	(10.8 – 18.2)		14.5	(10.7 – 11.3)	
185+% of FPL	8.3	(6.8 – 9.7)		11.9	(10.2 – 13.6)		8.9	(7.5 – 10.4)	
<b>Prenatal Care Payer</b>			<0.0001			<0.001			<0.0001
No Insurance	7.5	(4.5 – 10.6)		8.3	(5.3 – 11.2)		14.3	(10.7 – 13.2)	
Medicaid	16.1	(13.6 – 18.7)		22.2	(19.3 – 25.1)		18.1	(15.4 – 20.9)	
Private Insurance	8.3	(7.0 – 9.6)		12.7	(11.1 – 14.2)		9.5	(8.2 – 10.9)	
Other	13.9	(7.2 – 20.7)		19.7	(11.7 – 27.7)		15.6	(8.6 – 22.6)	
<b>Urban/Rural</b>			NS			NS			NS
Urban	9.9	(8.6 – 11.0)		14.8	(13.3 – 16.3)		12.2	(10.9 – 13.5)	
Rural	10.4	(8.0 – 12.5)		15.0	(12.4 – 17.6)		12.1	(9.6 – 14.5)	
<b>Previous Live Birth</b>			NS			<0.05			NS
No	9.7	(7.8 – 11.7)		16.9	(14.5 – 19.3)		11.2	(9.3 – 13.2)	
Yes	10.6	(9.2 – 12.0)		13.9	(12.4 – 15.4)		12.5	(11.1 – 14.0)	
<b>Pre-existing Body Mass Index</b>			<0.0001			<0.05			NS
Underweight	7.2	(4.7 – 9.6)		15.3	(11.6 – 19.0)		11.5	(8.2 – 14.7)	
Normal	8.7	(7.3 – 10.1)		13.2	(11.5 – 14.8)		11.4	(9.7 – 13.0)	
Overweight	14.8	(10.8 – 18.7)		18.1	(13.9 – 22.2)		12.6	(9.1 – 16.2)	
Obese	14.2	(11.5 – 17.0)		18.3	(15.3 – 21.4)		13.9	(11.4 – 16.5)	
<b>Pregnancy Intention</b>			<0.0001			<0.05			<0.0001
Intended	8.3	(7.0 – 9.5)		13.4	(11.8 – 15.0)		9.6	(8.3 – 10.9)	
Unintended	13.2	(10.6 – 15.8)		16.8	(14.0 – 20.0)		17.2	(14.3 – 20.1)	
Not Sure	16.2	(12.3 – 20.0)		19.7	(15.9 – 23.6)		16.5	(12.7 – 20.3)	
<b>1st Trimester Prenatal Care</b>			NS			NS			<0.05
No	9.4	(6.6 – 12.1)		15.0	(11.5 – 18.6)		16.3	(12.5 – 20.1)	
Yes	10.2	(9.0 – 11.4)		14.7	(13.3 – 16.1)		11.3	(10.1 – 12.5)	

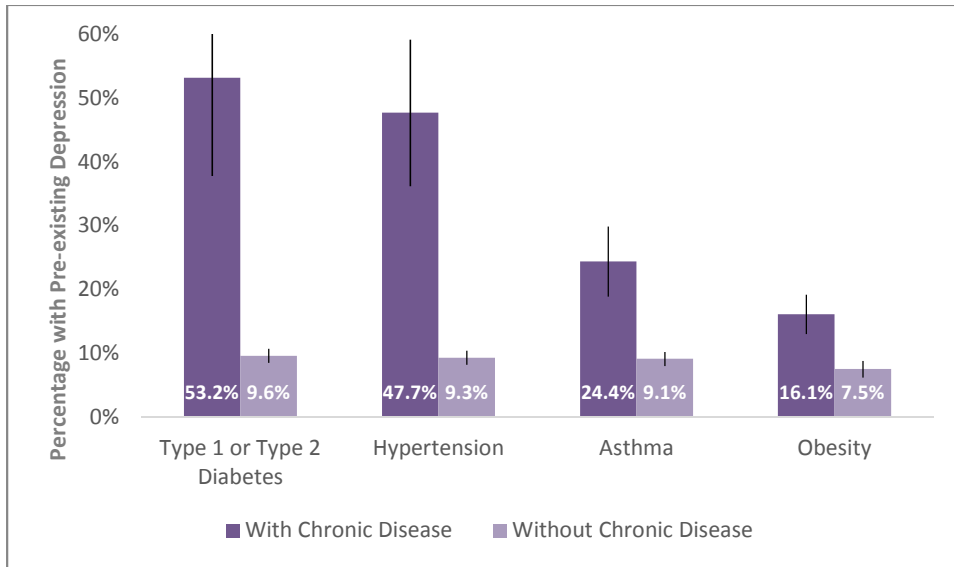
NS=Not Significant

\*Use caution in interpreting; the estimate has a relative standard error greater than 30% and does not meet UDOH standards for reliability.

## Chronic Diseases and Maternal Mental Health

Depression before pregnancy was reported at significantly higher rates among women with certain chronic diseases compared to women without these chronic diseases (Figure 1). Of the women with chronic diseases, only 24% were checked for depression or anxiety by a health care worker before pregnancy.

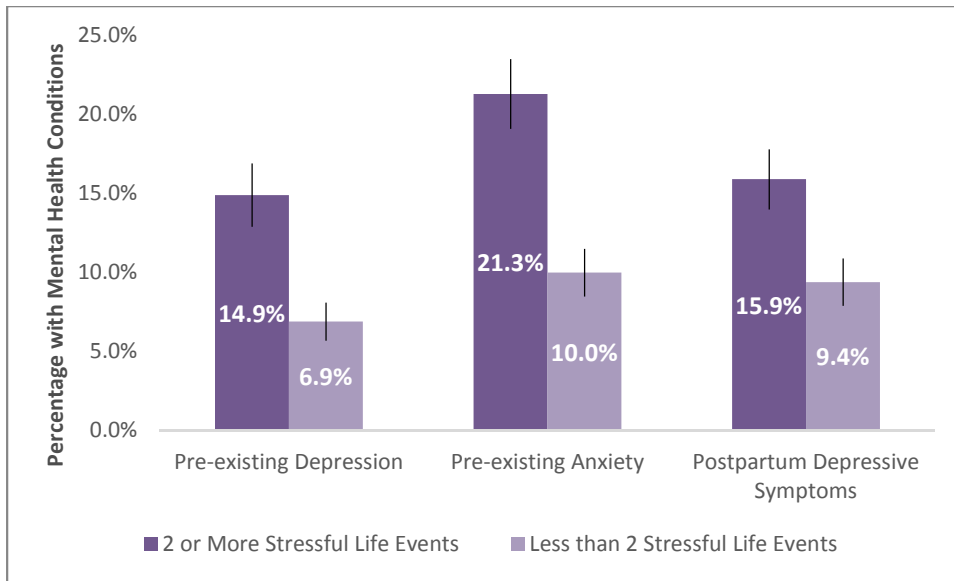
Figure 1: Pre-existing Depression by Chronic Disease, Utah PRAMS, 2013-2015



## Stressful Life Experiences, Physical Abuse, and Maternal Mental Health

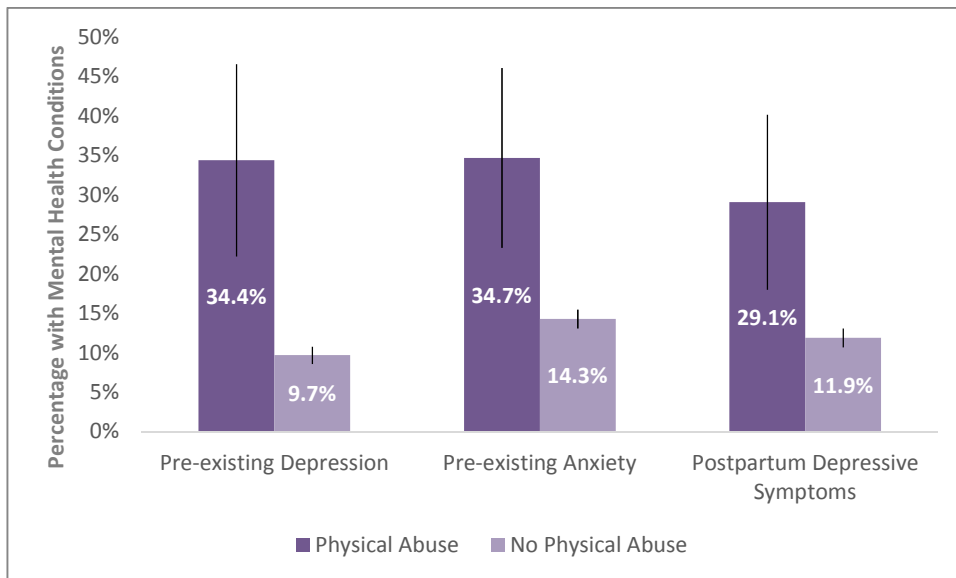
Women who experienced two or more stressful life events in the year before giving birth had higher rates of mental health conditions when compared to women who reported less than two stressful life events (Figure 2).

Figure 2: Mental Health Conditions by Stressful Life Events, Utah PRAMS 2013-2015



In addition, women who experienced physical abuse around the time of pregnancy had higher rates of mental health conditions when compared to women who reported no physical abuse (Figure 3).

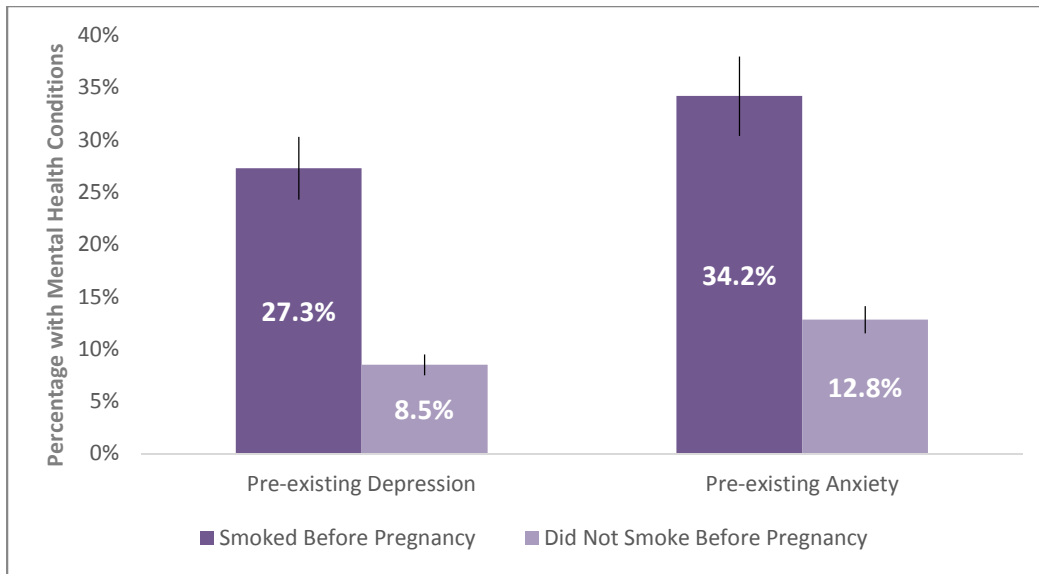
Figure 3: Mental Health Conditions by Physical Abuse, Utah PRAMS, 2013-2015



## Smoking and Maternal Mental Health

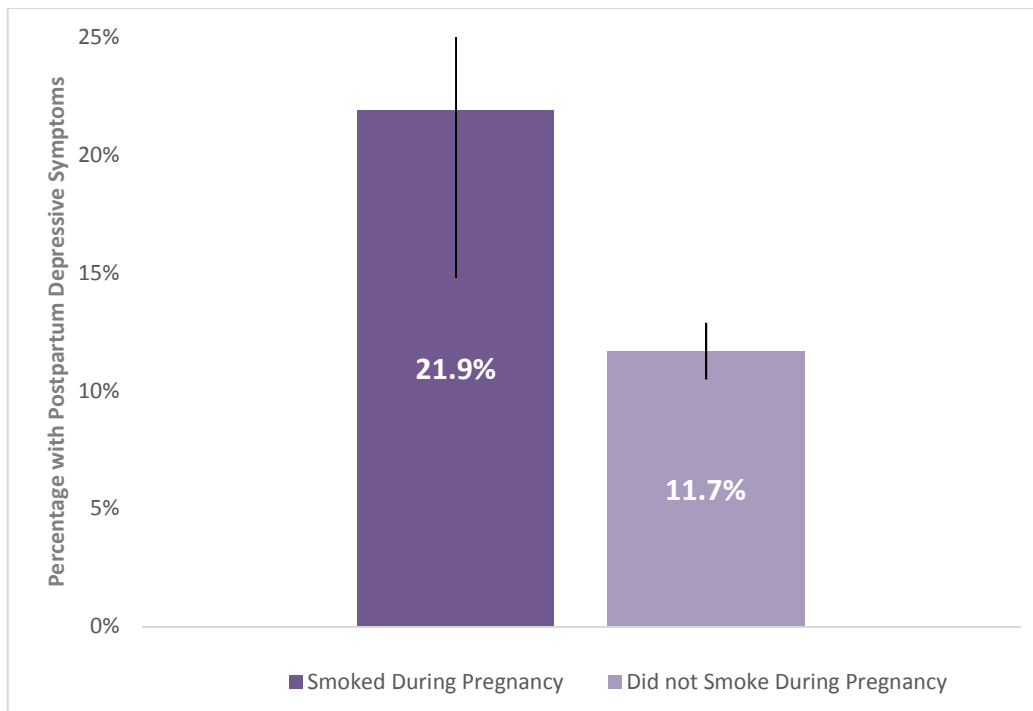
Women who smoked *before* pregnancy reported higher rates of pre-existing mental health conditions compared to women who did not smoke before pregnancy (Figure 4).

Figure 4: Mental Health Conditions by Smoking Status before Pregnancy, Utah PRAMS, 2013-2015



In addition, women who smoked *during* pregnancy reported higher rates of postpartum depressive symptoms compared to women who did not smoke during pregnancy (Figure 5).

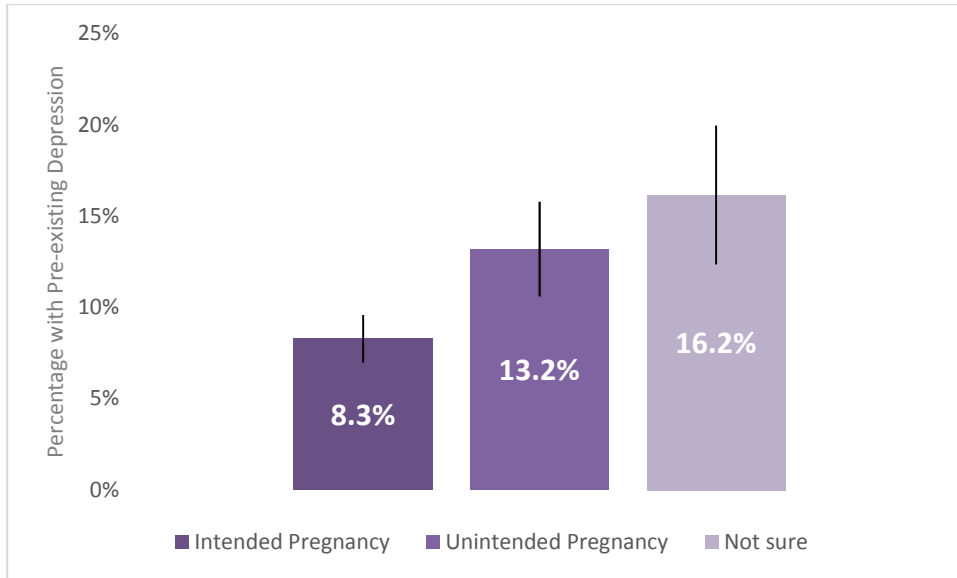
Figure 5: Postpartum Depressive Symptoms by Smoking Status during Pregnancy, Utah PRAMS, 2013-2015



## Pregnancy Intention and Maternal Mental Health

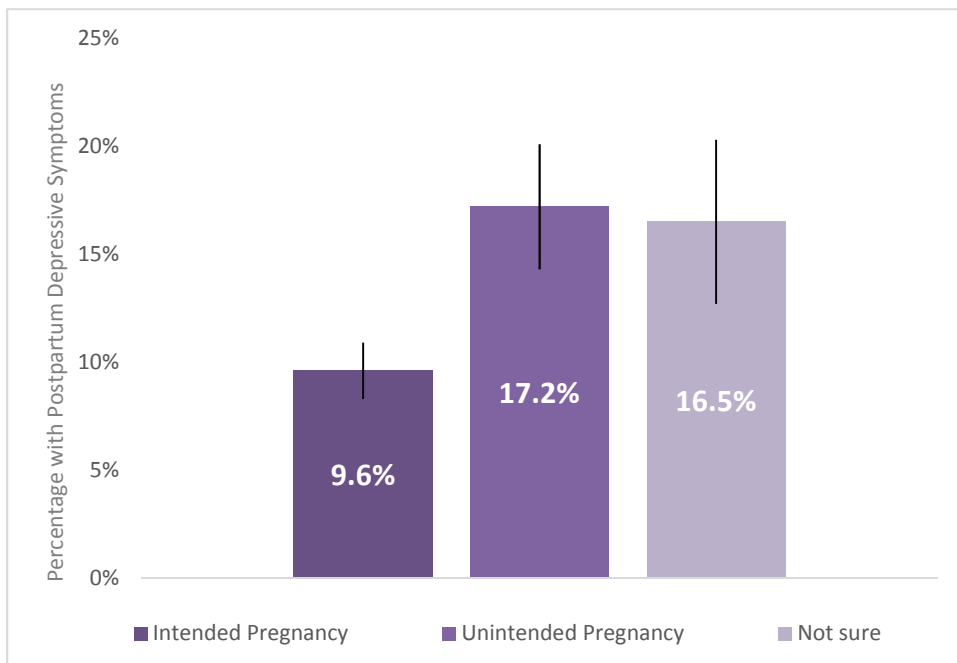
Pre-existing depression was reported at higher rates among women who said they did not want to be pregnant or were not sure if they wanted to be pregnant at the time of conception compared to women who said they wanted to be pregnant at the time of conception (Figure 6).

Figure 6: Pre-existing depression by Pregnancy Intention, Utah PRAMS, 2013-2015



Postpartum depressive symptoms were also reported at higher rates among women who said they did not want to be pregnant or were not sure if they wanted to be pregnant at the time of conception compared to women who said they wanted to be pregnant at the time of conception (Figure 7).

Figure 7: Postpartum Depressive Symptoms by Pregnancy Intention, Utah PRAMS, 2013-2015

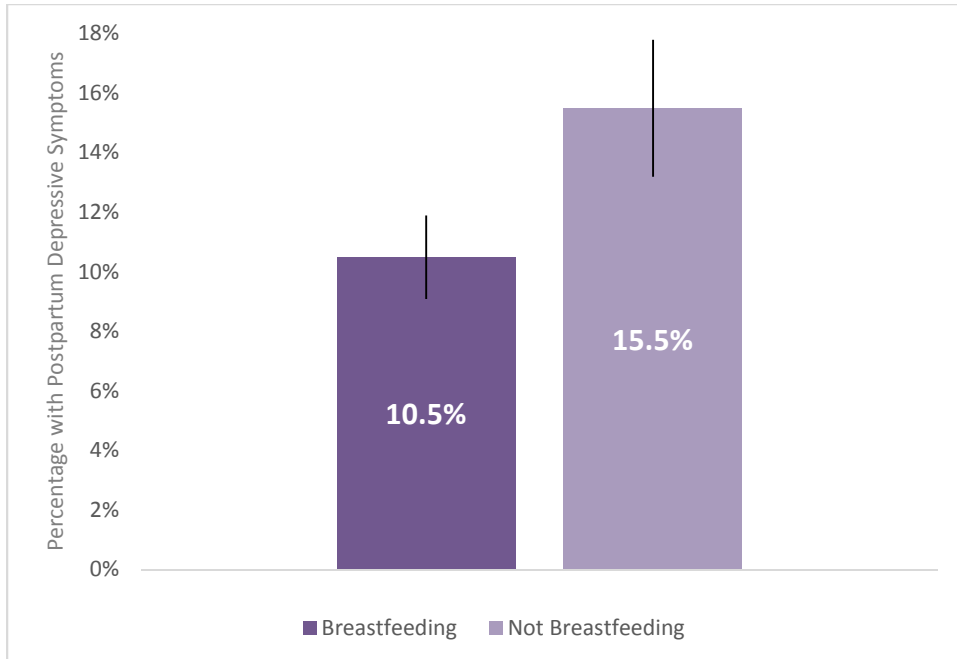




## Breastfeeding Duration and Maternal Mental Health

Postpartum depressive symptoms were reported at higher rates among women who were not breastfeeding at the time they completed the survey (2-4 months postpartum) compared to women who were breastfeeding at time they completed the survey (Figure 8).

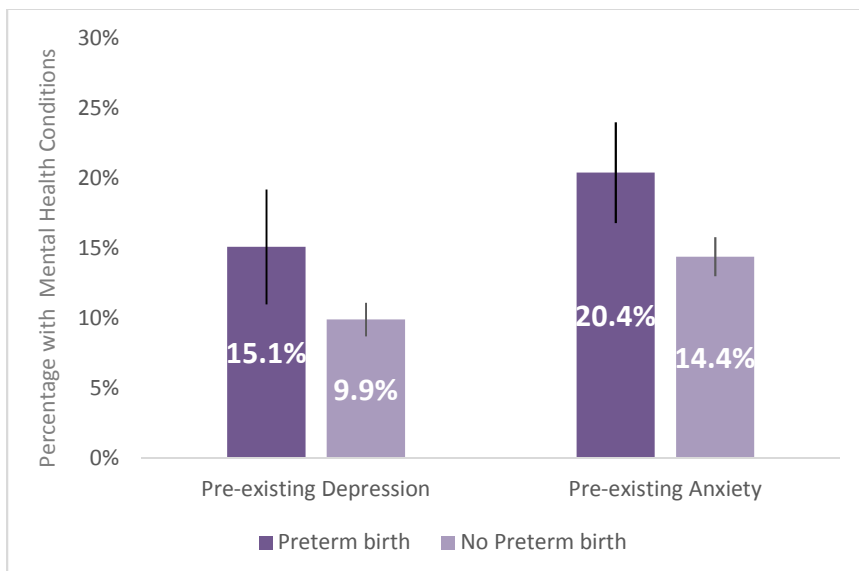
Figure 8: Postpartum Depressive Symptoms by Breastfeeding, Utah PRAMS, 2013-2015



## Birth Outcomes and Maternal Mental Health

Pre-existing depression and anxiety were reported at higher rates among women with a preterm birth (before 37 weeks gestation) when compared to women without a preterm birth (Figure 9).

Figure 9: Preterm Birth by Mental Health Conditions, Utah PRAMS, 2013-2015



## Health care Interactions and Maternal Mental Health

Most women reported receiving prenatal care in the first trimester and attending a postpartum office visit 4-6 weeks after giving birth (Table 2). These health care visits provide opportunities for mental health screening and treatment, yet only 70 percent of women reported their health care provider discussed depression with them during their prenatal care.

Table 2: Maternal Health care Visits, Utah PRAMS, 2013-2015

Received some prenatal care	99.8%
Received prenatal care in 1 <sup>st</sup> trimester	87.8%
Discussed what to do if depressed during or after pregnancy with a prenatal care provider	70.3%
Attended a postpartum office visit	90.3%

## Conclusion and Recommendations

Our results highlight several important associations between maternal mental health conditions and chronic disease, stressful life events, physical abuse, smoking status, pregnancy intention and breastfeeding duration. The findings are consistent with a number of published reports on risk factors for pre-existing mental health conditions and postpartum depression [Abbasi S.,Chuang C, Dagher R, Zhu J, Kjerulff K, 2013; Lancaster et al, 2010; Qobadi M., Collier C., and Zhang L, 2016].

One of the most remarkable findings was the difference in the rates of pre-existing depression among women with a chronic disease when compared to women without a chronic disease. Evidence has shown that in the general population, mental health disorders, most often depression, are strongly associated with serious chronic disease, including diabetes, hypertension, and heart disease [Reeves W. C., 2011]. Yet, there is little information in the literature about the relationship between chronic disease and depression among pregnant women. Our findings indicate that women with chronic diseases that may complicate the normal course of pregnancy and postpartum recovery should be screened for depression early and carefully monitored throughout the pregnancy and postpartum.

Our findings of higher rates of pre-existing depression and anxiety among women with multiple stressful life events were not surprising. Similar to other studies, the findings indicate the more stressful life events experienced in the perinatal period, the more likely women are to experience postpartum depressive symptoms [Qobadi M., Collier C., Zhang L., 2016]. Efforts to effectively prevent and manage postpartum depression should focus on not only diagnosing and treating the clinical illness, but should attempt to address the potential sources of stress that can intensify this condition for women.

Depression and anxiety during pregnancy have been found to be the strongest predictors of postpartum depression [Katon, Russo, and Gavin, 2014], likewise, we found women with a history of depression or anxiety to have significantly higher rates of postpartum depressive symptoms. As prenatal care providers commonly use history of depression and anxiety to assess a woman's risk of developing mental health problems during the perinatal period, it was encouraging to find that nearly all women reported receiving some prenatal care and most received prenatal care during the first trimester. Similarly, postpartum office visits provide an opportunity for routine postpartum depression screening and most women in our study reported attending a postpartum visit. While it was promising to find most women received routine medical care, it is not known if validated mental health screenings were conducted during those office visits. According to one study, fewer than 20% of women in whom perinatal depression is diagnosed self-report their symptoms, [DeFrancesco 2015] thus, routine screening is especially important. The American College of Obstetrics and Gynecologists [ACOG, 2015] and the United States Preventive Services Task Force [Siu A., USPSTF, 2016] recommend that all women be screened for detection of perinatal depression during pregnancy and early postpartum. ACOG also notes that women with

existing depression or anxiety, a history of perinatal mood disorders, or risk factors for perinatal mood disorders warrant particularly close monitoring, evaluation, and assessment [ACOG, 2015].

## Resources

Timely access to mental health services is vital for the best outcomes for women, their babies, and families. The Utah Maternal Mental Health Collaborative (UMMHC) offers free phone and email support provided by mothers who have experienced emotional health complications around pregnancy, postpartum, infertility, miscarriage and loss, as well as helpful local resources and referrals. Contact information can be found at <http://www.utahmmhc.org/>.

The Utah Department of Health Maternal and Infant Health Program maintains a Community Resources Guide with contact information for several mental health agencies. The Community Resources Guide can be found at: [https://mihp.utah.gov/wp-content/uploads/MIHP\\_English\\_Community\\_Resources.pdf](https://mihp.utah.gov/wp-content/uploads/MIHP_English_Community_Resources.pdf).

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