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Psychosocial and healthcare experiences among women with pre-pregnancy mental health concerns

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Introduction

The lifetime prevalence of major depressive disorder in women is approximately 20% within the U.S., with its onset occurring most among women of childbearing age (20–40 years) (Marcus & Heringhausen, 2009). It is well established that a history of mental illness is a risk factor for mental health concerns during and after pregnancy (Beck, 2001; Bina & Harrington, 2017; Marcus, Flynn, Blow, & Barry, 2003; Robertson, Grace, Wallington, & Stewart, 2004). However, only a small number of women who meet criteria for major depressive disorders seek treatment with many women remaining undiagnosed and untreated (Ko, Farr, Dietz, & Robbins, 2012). Thus, there is a need to better understand whether a history of depression *prior to pregnancy* is related to a variety of negative outcomes in the prenatal and postpartum periods such as increased psychiatric attention during the prenatal period.

For mothers, depression is associated with negative outcomes, impacting several areas of functioning such as engagement in school, extracurriculars, parenting, relationships/social isolation and workforce productivity (Beck, 2002; Hysenbegasi, Hass, & Rowland, 2005; Paulson, Dauber, & Leiferman, 2006; Stewart, Ricci, Chee, Hahn, & Morganstein, 2003). Thus, research suggests that women with perinatal depression are more likely to also experience greater life stress (Lancaster et al., 2010; Liu & Tronick, 2013). However, further research is needed to better understand whether mental health concerns prior to pregnancy is related to greater life stress during pregnancy.

Another important question to consider is the extent to which those with mental health concerns prior to pregnancy also show challenges after giving birth with maternal postpartum health care utilization (e.g. “postpartum follow ups,” checkups which occur during the 6 weeks after childbirth for mothers often conducted by the prenatal provider such as the obstetrician/gynecologist) (Albers, 2000). Although the postpartum follow up appointment has been argued as being limited in addressing the health care needs of women, (Cheng, Fowles, & Walker, 2006) these appointments are considered “crucial” for a provider to identify and respond to patients' health needs and/or complications such as breastfeeding, vaginal bleeding, endometritis, urinary incontinence, and postpartum depression (Albers, 2000; Cheng et al., 2006). Accordingly, medical practitioners have begun to integrate assessments of depression within other appointments that take place in the postpartum such as the at 1, 2, 3, and 6-month child visits (American Academy of Pediatrics, 2018). However, since mental health issues are associated with lower utilization rates of preventative health care in general, (Druss, Rosenheck, Desai, & Perlin, 2002) women with pre-pregnancy mental health concerns and those who experience depressive symptoms in the postpartum may be less likely to attend these postpartum checkups.

Importantly, there is little data on whether women are attending these checkups, and whether certain groups are more or less likely to attend these visits. This sentence should be replaced with: For instance, in studies with Ethiopian women, less maternal education and women’s attitudes towards the importance of follow-up care were associated with decreased likelihood of attending the postpartum checkup (Alemayeh, Assefa, & Adama, 2014); in studies with eastern Ugandan women, maternal unemployment, utilizing care at public health facilities and lack of information about postnatal care were associated with decreased likelihood of attending the postpartum checkup (Izudi & Amongin, 2015). Overall, racial/ethnic minorities within the U.S. are less likely to seek and have access to mental health services in general as a result of barriers including, but not limited to: low socioeconomic status, distrust of mental health providers, lack of culturally-appropriate services, cultural differences in conceptualizing mental illness, and stigma (Clement et al., 2015; Leong & Lau, 2001; Scheppers, Van Dongen, Dekker, Geertzen, & Dekker, 2006; Snowden, 2001). It is unknown whether racial/ethnic minority women who have such mental health concerns show reduced rates of attendance in the postpartum.

The current study focuses on a diverse population of women from New York City to examine the extent to which self-reported mental health concerns pre-pregnancy is associated with psychosocial and health care experiences during the prenatal and postpartum periods.

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First, we examined sociodemographic factors that may influence mental health help-seeking among women. Next, we examined whether seeking help for mental health concerns from one year prior to pregnancy would be associated with the following four outcome variables across pregnancy and the postpartum period: 1) prenatal life stress, 2) depression consultation with a provider during pregnancy, 3) postpartum depression, and 4) the postpartum checkup attendance. We hypothesized that seeking help for mental health concerns pre-pregnancy would be associated with higher life stress and a higher rate of depression consultation from a provider during pregnancy given previous literature, (Liu & Tronick, 2013; Marcus et al., 2003) but a higher rate of postpartum depression (Beck, 2001; Robertson et al., 2004) and lower postpartum checkup rates (Druss et al., 2002).

Materials and methods

Sample

The NYC PRAMS dataset from 2009 to 2011 was used to conduct the analyses for this study. At the time of the study, the 2009–2011 dataset was the latest available PRAMS data. The PRAMS is a population-based survey administered to women, with the goal for monitoring maternal behaviors and experiences of women before, during, and after live birth pregnancies, and is coordinated by the Center for Disease Control and Prevention and state health departments. We utilized the data from New York City, which was provided by the NYC Department of Health and Mental Hygiene (DOHMH). The participants in this dataset were randomly sampled from New York City mothers with live births. Questionnaires were mailed to mothers 2 to 4 months after delivery. Each month, a stratified sample was drawn from the current birth certificate files and a questionnaire was sent to mothers. By utilizing stratified sampling methods, subpopulations of particular public health interest were oversampled including low birthweight infants, racial/ethnic minority groups, low maternal education, maternal age, high-risk geographic areas, and Medicaid status (Shulman, D'Angelo, Harrison, Smith, & Warner, 2018). Among those contacted, 82.6% responded by email and 17.4% by phone. Within the data collection, the sample was randomized without replacement and stratified by birth weight, with the final dataset weighted for stratification, non-selection, and non-response ("CDC - Methodology - Pregnancy Risk Assessment Monitoring System - Reproductive Health, 2018").

Based on the numbers provided by DOHMH, a total of 6549 responses were received from 2009 to 2011 with a 65% response rate. The stratified sampled responses were derived from 117,929, 115,091, and 113,661 live births for 2009, 2010, and 2011 respectively. For the current study, responses with missing variables of interest were eliminated, resulting in an un-weighted study sample of 2888. Those who were less likely to have missing data were White and Asian, older, and more educated. Women who had less income and who were born outside of the U.S. were more likely to have missing data. The approved use of this dataset was obtained from the Institutional Review Board of the NYC DOHMH.

Measures

Demographics

We relied on the birth certificate to obtain information regarding maternal race/ethnicity and nativity. Through this, women were classified as Hispanic or non-Hispanic, with non-Hispanic categorized into one of the following groups: White, Black, and Asian/Pacific Islander (A/PI) (Note: we were not able to examine Native American/American Indian women due to small sample sizes). As well, we included Maternal Age and Nativity (U.S. Born versus Foreign Born) which were obtained from the PRAMS survey, and Maternal Education (categorized as: 0–8, 9–11, 12, 13–15, and > 16 years) which was derived from the birth certificate. Mothers completed the survey at a mean infant age of 3.9 months (range 2–7 months); no significant differences were obtained in infant age across racial groups.

We utilized the maternal report on the PRAMS survey for the remaining variables. Household Income was obtained through the item "total household income before taxes in the 12 months before the new baby was born." Respondents were asked to indicate one from the following options: < $10,000, $10,000–$14,999, $15,000–$19,999, $20,000–$24,999, $25,000–$34,999, $35,000–$49,999, $50,000–$74,999, or > $75,000.

Pre-pregnancy mental health seeking

Respondents' were asked to respond either "yes" or "no" to the item "I visited a health care worker to be checked or treated for depression or anxiety at any time during the 12 months *before"* they were pregnant with the new baby.

Stressful life events

Respondents were asked to indicate stressful events during pregnancy, by indicating "yes" or "no" to events that may have occurred during the last 12 months before the new baby was born. Examples include, "I moved to a new address," "I had a lot of bills to pay," "I got separated or divorced from my husband or partner," and "Someone very close to me died." These events were counted and categorized into the following: 0, 1–2, 3–5, and 6–13 events to comprise a number of Total Stressors.

Depression consultation during pregnancy

Consultation regarding depressed mood during pregnancy was obtained by respondents indicating "yes" or "no" to the question, "During any of your prenatal care visits, did a doctor, nurse, or other health care worker talk with you about what to do if you felt depressed during your pregnancy or after your baby was born?" on the PRAMS questionnaire.

Postpartum depression

Postpartum depression experiences in the NYC PRAMS were assessed through three items that referred to depressed mood. Specifically, mothers were asked to indicate how often they experienced Sad Mood ("I felt down, depressed, or sad"), Hopelessness ("I felt hopeless") and Slowed Down ("I felt slowed down") since their baby was born on a 5-point Likert scale from 1 (Never) to 5 (Always). The PRAMS-3D is a screener that relies on the sum of these three factors to produce an overall score of depression, with values ranging from 3 to 15. The recommended cutoff score for PRAMS-3D was been used to determine depression (≥ 9) versus non-depression (< 9) (Davis, Pearlstein, Stuart, O'Hara, & Zlotnick, 2013). The use of these items has been demonstrated to be an effective brief screening tool for PPD, with the three items showing moderate accuracy for predicting PPD when examined with structured clinical interviews (Davis et al., 2013). The results presented here assume PPD based on scores that are equal or greater than a sum of 9.

Maternal postpartum checkup

Mothers indicated whether they received a postpartum checkup themselves by indicating "yes" or "no" to the question, "Since your new baby was born, have you had a postpartum checkup for yourself?" on the PRAMS questionnaire.

Statistical analyses

We utilized the Complex Samples module of SPSS version 23.0 (SPSS Inc., Chicago, IL) to account for the stratified and weighted sample of the NYC PRAMS. Prevalence estimates overall, and pre-pregnancy mental health help seeking were first generated based on the predictor and outcomes. Reported proportions represent weighted averages. This was followed by a series of logistic regression models for each of the outcome of interest. All unadjusted models are first displayed followed by models adjusted for sociodemographic variables. Some additional models included additional covariate adjustment. Such

Table 1
Characteristics of women based on pre-pregnancy (12 months prior) mental health help seeking: "I visited a health care worker to be checked or treated for depression or anxiety".

Predictor variables	Total sample, %	Outcomes	
		Pre-pregnancy mental health seeking, %	No pre-pregnancy mental health seeking, %
Maternal race			
White	29.6	33.7	29.3
Black	21.7	20.2	21.8
Hispanic	33.7	27.5	34.1
Asian/Pacific Islander	15.0	18.6	14.8
Maternal age			
< 20	5.8	7.8	5.7
20–34	73.1	68.2	73.4
≥35	21.1	24.1	20.9
Maternal education			
0–8	4.2	4.2	4.2
9–11	12.7	17.5	12.4
12	21.1	16.4	21.3
13–15	25.4	26.5	25.3
≥16	36.7	35.5	36.7
Income			
< 10,000	21.4	22.6	21.3
10,000-14,999	12.7	9.1	12.9
15,000, 19,999	6.8	5.4	6.9
20,000-24,999	7.4	7.2	7.4
25,000-34,999	9.4	5.0	9.7
35,000-49,999	7.6	4.2	7.9
50,000-74,999	8.4	11.1	8.2
≥75,000	26.3	35.4	25.7
Maternal nativity			
U.S. Born	50.6	49.5	68.1
Non-U.S. Born	49.4	50.5	31.9
Number of stressors during pregnancy			
0	33.3	22.0	34.0
1–2	43.6	38.3	43.9
3–5	19.9	29.3	19.3
6–13	3.1	10.4	2.7
Was told what to do if depressed pregnancy			
No	40.7	31.1	41.3
Yes	59.3	68.9	58.7
Postpartum depression			
No	83.2	76.4	83.6
Yes	16.8	23.6	16.4
Sadness			
No	90.9	88.6	91.0
Yes	9.1	11.4	9.0
Hopelessness			
No	95.3	94.4	95.4
Yes	4.7	5.6	4.6
Slow down			
No	85.1	79.5	85.5
Yes	14.9	20.5	14.5
Went to postpartum checkup for self			
No	9.9	17.4	9.4
Yes	90.1	82.6	90.6

adjustments are justified within the results section and later elaborated in the discussion section.

Results

Table 1 displays characteristics of women based on the overall sample by women who sought assistance with depression or anxiety one year prior to their pregnancy.

A logistic regression was used to examine whether sociodemographic factors predicted pre-pregnancy mental health seeking (results presented in Table 1). A trend toward greater help seeking among A/PI women relative to Whites was observed (OR = 1.8, CI = 1.0–3.3, $p < .01$). Further, there was a statistically significant lower likelihood of help seeking among women with at least 16 years of education relative to those indicating having < 9 years of education (OR = 0.3, CI = 0.1–0.8, $p < .05$), and a lower likelihood among women who were non-U.S. born relative to U.S. born women (OR = 0.4, CI = 0.3–0.6, $p < .001$).

We then in turn, examined whether pre-pregnancy mental health seeking predicted life stress 12 months prior to the baby being born and depression consultation with a provider during pregnancy (results displayed in Table 2). After adjusting for sociodemographic variables, results indicated that mothers who sought help for their mental health 1 year prior to pregnancy had a greater likelihood of reporting more stressors (3–5 stressors: OR = 3.2, CI = 1.7–5.7, $p < .01$; 6–18 stressors: OR = 8.4, CI = 3.6–19.7, $p < .001$) relative to having 0 stressors. Further, maternal race ($p < .001$) and maternal education ($p < .01$) were significantly associated with number of stressors endorsed (Note: these and subsequent statistics on the specific associations between sociodemographic factors with outcomes are reported in the text but not displayed in the Table). Income ($p < .001$) and nativity ($p < .05$) were also independently associated with number of stressors endorsed.

Further, after adjusting for sociodemographic variables, analyses revealed that those who sought pre-pregnancy mental health services were more likely to receive consultation for depression during pregnancy (OR = 1.8, CI = 1.2–2.7, $p < .01$). Within the adjusted model, race was a significant factor ($p < .001$) in predicting depression consultation. Specifically, Blacks (OR = 2.1, CI = 1.6–2.8) and Hispanics (OR = 2.1, CI = 1.6–2.7) had a greater likelihood of receiving depression consultation during pregnancy. As well, women with at least 9 years of education were less likely to receive depression consultation during pregnancy ($p < .01$) (OR range = 0.3–0.4).

To understand whether pre-pregnancy mental health seeking predicted postpartum depression, we also examined postpartum depression as defined by scores exceeding the cut off threshold from the PRAMS-3D, and through the three separate symptoms that comprise of the PRAMS-3D: sadness, hopelessness, and feeling slowed down (results displayed in Table 3). Although pre-pregnancy mental health seeking did not significantly predict any of the individual symptoms, it did predict a higher likelihood of scores indicated as "high" on the PRAMS-3D, (OR = 1.6, CI = 1.0–2.4). Sociodemographic factors within the first adjusted model that were significantly associated with PRAMS-3D scores included maternal education ($p < .01$). Depression consultation during pregnancy did not reduce the association between pre-pregnancy mental health seeking and postpartum depression when added as a covariate.

Finally, we examined pre-pregnancy mental health seeking as a predictor of whether the mother went for a postpartum checkup for herself (results presented in Table 4). Women who sought mental health services pre-pregnancy were less likely to attend their postpartum checkup (OR = 0.5, CI = 0.3–0.8, $p < .01$). Further, maternal education was associated with postpartum checkup ($p < .05$). Postpartum depression did not significantly reduce the association between pre-pregnancy mental health seeking and postpartum checkup when added as a covariate.

Discussion

The goal of the present study was to examine the extent to which self-reported mental health concerns within one year prior to pregnancy is associated with perinatal challenges, as indicated by maternal experiences of life stress, depression consultation during pregnancy, reported postpartum depression symptoms and attending the postpartum checkup.

Table 2
Logistic regression of pre-pregnancy mental health seeking in predicting pregnancy stress and depression consultation during pregnancy.

Predictor	Outcomes		
Pre-pregnancy mental health seeking	Adjusted or unadjusted OR	Life stressors during pregnancy[a]	Depression consultation during pregnancy[b]
	Unadjusted OR	1–2 Stressors: 1.4 (0.8–2.2)	1.6 (1.1–2.3)*
		3–5 Stressors: 2.3 (1.4–3.9)**	
		6–18 Stressors: 6.0 (2.9–12.4)***	
	Adjusted OR[c]	1–2 Stressors: 1.5 (0.9–2.5)	1.8 (1.2–2.7)**
		3–5 Stressors: 3.2 (1.7–5.7)**	
		6–18 Stressors: 8.4 (3.6–19.7)***	

* $p < .05$.
** $p < .01$.
*** $p < .001$.
[a] Stressful events during pregnancy were obtained by "yes" or "no" responses to events that may have occurred during the last 12 months before the new baby was born.
[b] Whether a doctor, nurse, or other healthcare worker talked with you if you felt depressed during pregnancy or after the baby is born.
[c] Adjusted for maternal race, maternal age, maternal years of education, income, and nativity.

Which women more likely to seek mental health support prior to pregnancy?

Our analyses revealed no differences in the likelihood to seek help for mental health concerns by race, age, or income. Women with 16 or more years of education were less likely to seek help for mental health concerns one year prior to pregnancy than women with < 9 years of education. It is possible that women who have receive less education and who are lower in socioeconomic status may be embedded in a system of care that allows for greater access to mental health services given their higher risk for mental illnesses and decreased likelihood to utilize mental health services (Araya, Lewis, Rojas, & Fritsch, 2003; Hudson, 2005; Steele, Dewa, Lin, & Lee, 2007).

In addition, women who were born in the U.S. were more likely to seek mental health services than foreign-born women. Foreign-born women face several challenges that may impact their likelihood to seek professional mental health services including stigma, limited English language proficiency, and cultural barriers such as perceptions of mental illness (Kim et al., 2011; O'Mahony & Donnelly, 2007; Sentell, Shumway, & Snowden, 2007).

Is pre-pregnancy mental health help-seeking related to life stress?

Women who sought help for mental health concerns pre-pregnancy were more likely to report 3–5 or 6–18 life stressors relative to women who reported 0 stressors prenatally. Further, Hispanic and Black women were more likely to endorse 3–5 stressors as compared to White women. This is consistent with previous studies, which found that sociodemographic factors and life stressors accounted for increased rates of postpartum depression among Hispanic and Black women (Liu & Tronick, 2013). These findings emphasize a need to screen patients for life stressors during pregnancy and to identify sources of support that may buffer these effects.

Table 4
Logistic regression of pre-pregnancy mental health seeking in predicting postpartum maternal checkup.

Predictor	Outcome	
Pre-pregnancy mental health seeking	**Adjusted or Unadjusted OR**	**Postpartum Checkup for Self[a]**
	Unadjusted OR	0.5 (0.3-0.8)*
	Adjusted OR[b]	0.5 (0.3-0.8)*
	Adjusted OR[c]	0.5 (0.3-0.8)*

* p < .01
[a] Since your new baby was born, have you had a postpartum checkup for yourself?
[b] Adjusted for maternal race, maternal age, maternal years of education, income, and nativity
[c] Adjusted for maternal race, maternal age, maternal years of education, income, nativity, and PRAMS-3D

Is pre-pregnancy mental health help-seeking associated with depression consultation during pregnancy?

Women who sought help for mental health concerns pre-pregnancy were more likely to receive consultation during pregnancy for depression relative to those who did not seek help before pregnancy. Further, we observed racial differences in likelihood of receiving consultation around mental health prenatally with Hispanic and Black women more likely to receive consultation about their depressed mood during their pregnancies. Given the increased prevalence of mental illness in minorities and their underutilization of mental health services, (Diala et al., 2000; Garland et al., 2005; Liu & Tronick, 2013; Wells, Klap, Koike, & Sherbourne, 2001) physicians and medical staff may be more likely to engage Black and Hispanic women in conversation about

Table 3
Logistic regression of pre-pregnancy mental health seeking in predicting postpartum depression.

Predictor	Outcomes				
Pre-pregnancy mental health seeking	Adjusted or unadjusted OR	Postpartum depression[a]	Sadness[b]	Hopelessness[c]	Slowed down[d]
	Unadjusted OR	1.6 (1.0–2.4)*	1.3 (0.8–2.3)	1.2 (0.6–2.6)	1.5 (0.9–2.4)
	Adjusted OR[e]	1.6 (1.0–2.4)*	1.4 (0.8–2.4)	1.3 (0.6–2.9)	1.4 (0.9–2.1)
	Adjusted OR[f]	1.7 (1.1–2.5)**	1.4 (0.8–2.5)	1.4 (0.6–3.0)	1.4 (0.9–2.2)

* $p < .05$.
** $p < .01$.
[a] Scores > 9 on PRAMS-3D were used to determine depression.
[b] Endorsement of "often" or "always" to the statement "I felt down, depressed, or sad".
[c] Endorsement of "often" or "always" to the statement "I felt hopeless".
[d] Endorsement of "often" or "always" to the statement "I felt slowed down".
[e] Adjusted for maternal race, maternal age, maternal years of education, income, and nativity.
[f] Adjusted for maternal race, maternal age, maternal years of education, income, nativity, and depression consultation.

mental health concerns during doctor's visits. However, further investigation is needed to understand the nature of these consultations.

These findings highlight that history of depression puts women at an increased risk for future depressive symptoms including in the perinatal and postpartum periods (Beck, 1996, 2001; Leigh & Milgrom, 2008; Milgrom et al., 2008). Indeed, this finding reflects policy and practice-level efforts to increase screening practices for perinatal depression (American College of Obstretrics & Gynecologists, 2015). It also reflects efforts to address mental health concerns among particularly vulnerable groups that tend to underutilize mental health services (Hatzenbuehler, Keyes, Narrow, Grant, & Hasin, 2008; Keyes et al., 2012). However, screening on its own may be insufficient in improving clinical outcomes and does not guarantee patients' engagement or follow-through with services (Martin, Williams, Haskard, & Dimatteo, 2005; Myers et al., 2013). Additional concerns such as normalization of mental health symptoms or lack of psychoeducation around symptom recurrence are additional challenges that need to be addressed. Some effective strategies that may improve clinical outcomes and adherence to treatments include assessment of patients' knowledge and understanding of their symptoms and treatment, clear and effective communication between patient and healthcare provider, and establishing trust (Martin et al., 2005).

Is pre-pregnancy mental health help seeking associated with postpartum depression?

In our study, 16.8% of women scored above the recommended cutoff for PPD. Studies have reported that prevalence rates for PPD range between 13 and 20% (Falah-Hassani, Shiri, Vigod, & Dennis, 2015; O'Hara & Swain, 1996). Further, seeking mental health services 1 year prior to pregnancy predicted the likelihood of postpartum depression as assessed through the PRAMS-3D. This finding bolsters reports that family history of depression, personal history of mental illness and depression during pregnancy are predictors of developing postpartum depression (Beck, 1996, 2001; Leigh & Milgrom, 2008; Milgrom et al., 2008). Further, our results quantify incidence of help seeking within a 1-year timeframe pre-pregnancy and its relation to depression in the postpartum. This calls attention to the continuing need to better integrate mental health screening procedures and referral follow-up for mental health concerns with maternal care. Timing of mental illness may be especially important to pay attention to, given women's limited knowledge about mental illness and PPD as well as normalization of symptoms are barriers to help-seeking in the postpartum (Abrams, Dornig, & Curran, 2009; Dennis & Chung-lee, 2006; McIntosh, 1993). A question that should be resolved in future research involves determining the extent to which time between help-seeking and pregnancy predicts mental illness in the postpartum.

Is pre-pregnancy mental health help-seeking associated with postpartum checkups for the mother?

Seeking mental health services one year prior to pregnancy was associated with a greater likelihood of the mother not attending the 1-month postpartum checkup. This is particularly concerning as women who are vulnerable to developing postpartum depression are not engaging in services during a challenging transition to motherhood. These periods are often marked by increased stress from childcare responsibilities, employment, and reductions in sleep—all of which may exacerbate mental health concerns. During the postpartum, feelings of shame, guilt, or embarrassment associated with failing to meet maternal caretaking expectations may discourage mothers from seeking services for their health and childcare concerns. Additional barriers to mental health help-seeking in the postpartum include women's inability to disclose their feelings to family or friends as a result of stigma, lack of psychoeducation about postpartum depression, healthcare providers' tendency to normalize depressive symptoms as routine motherhood experiences and fears related to help-seeking (Abrams et al., 2009; Dennis & Chung-lee, 2006; McIntosh, 1993). Physicians and healthcare providers may need to be more diligent in screening for mental health concerns during maternal medical visits (McGarry, Kim, Sheng, Egger, & Baksh, 2009). Additionally, this finding challenges previous studies that suggested that women with a history of mental illness during pregnancy may be more aware of symptoms of depression and may thus be more likely to engage in mental health services postpartum (McGarry et al., 2009).

The heavy reliance on the maternal postpartum appointment for identification of risk and an opportunity for referrals for medical, emotional, and childcare challenges suggests the importance of its attendance for maternal mental health (Blenning & Paladine, 2005). Further, research suggests that women from low socioeconomic backgrounds are less likely to attend the postpartum checkup (Alemayeh et al., 2014; Izudi & Amongin, 2015). Given that postpartum checkups are critical to addressing challenges to infant caretaking and provide opportunities to assess for maternal well-being, screening for mental health symptoms earlier in the pregnancy or pre-pregnancy should be considered.

Limitations and future directions

Several limitations should be noted when interpreting the results from our study. As with all self-report surveys, there is a possibility for participant response bias, given recall problems. Furthermore, the PRAMS-3D used to screen for depressed mood in the postpartum is not a clinical diagnostic instrument and therefore should not be used in place of other clinical screening instruments. It is possible that women who scored above the cutoff for PPD may not have depression; it is also the case that women who scored below the cutoff may have depression. The survey also did not include additional items inquiring about the nature of consultations for depressed mood, prior mental health treatment or additional items regarding social support and other postpartum experiences that might moderate the outcomes. Further, the use of a single item to address mental health help-seeking does not capture the duration of treatment or its effectiveness. The one-item regarding attendance of the postpartum checkup also does not reflect whether this visit occurred in an office or home setting; the use of checkups may vary greatly depending on the type of setting it is in. This study did not investigate barriers to accessing care such as childcare or transportation, factors that may impact mothers' attendance to postpartum checkups. Furthermore, each of the racial/ethnic groups are not homogeneous and we were unable to examine subgroups within these categories due to low statistical power. As well, generalizability is a concern given the tendency for our respondents to be White, U.S. born, educated, older, and with higher incomes. However, it is quite possible that the association showing that pre-pregnancy mental health help seeking is positively associated with lower likelihood of postpartum visits may be even larger with a greater representation of vulnerable groups.

Importantly, our analyses, which examine pre-pregnancy mental health and its associations with perinatal outcomes, do not reflect causality.

Conclusions

Results from our study invite a nuanced understanding of the relationships between pre-pregnancy mental health concerns and psychosocial and healthcare experiences. Our study highlights that pre-pregnancy mental health help-seeking is related to increased depression consultation during pregnancy. Yet, our finding that pre-pregnancy help-seeking predicts decreased likelihood to attend a 1-month postpartum checkup indicates a need for more conscientious screening procedures around mental health history and symptoms during periods before, during, and following pregnancy. This calls attention to the

need for future research to examine moderators or mediators that will clarify the association between pre-pregnancy help seeking and postpartum service use. There is a further need to explore the nature of consultation around mental health and how it differs from help-seeking, a distinction that is clinically relevant to understanding how to serve women at risk for mental health concerns during the perinatal period. Also, ethnic differences found in our study point toward the need to examine ethnic-specific factors that predict maternal behaviors postpartum including infant care and self-care. Understanding these differences will help inform the racial and ethnic disparities that exist in health and mental health service utilization.

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Conflicts of interest

None of the authors have any conflicts of interests to report.

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