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**Symptoms, Contributing Factors, and Screening
For Perinatal Mood and Anxiety Disorders in U.S. Latinas:
A Literature Review**

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Abstract:

This literature review was conducted to gather the published information on the topic of perinatal mood and anxiety disorders in the Latina population in the United States. Academic databases were searched for articles published between 2005 and 2016. 60 articles were considered, and a final sample of 36 articles and websites was included in this review.

Evidence suggests that Latina women in the perinatal period (pregnant and up to one year postpartum) in the United States of America tend to have a higher risk and incidence of perinatal mood and anxiety disorders than White women, and a higher risk and incidence of mental health issues in general. This may be due to lower general socioeconomic status, lower access to and usage of mental health services, cultural stigma, and lack of knowledge on the part of health practitioners about differences in cultural presentations of perinatal mood and anxiety disorders. More targeted research on the topic of culturally and linguistically sensitive assessment for perinatal mood and anxiety disorders (PMD) is needed in the fields of nursing, medicine, psychology, public health, and social work.

Introduction:

The emerging trend in the health fields (nursing, social work, psychology, medicine) is to refer to the issue at hand as perinatal mood and anxiety disorders; no longer just postpartum depression. The newer terminology is more inclusive of the pregnancy period up through the first year after delivery of the baby, and is more inclusive of the wide range of mood and anxiety disorders (not just focused on depression). This more expansive view of the health problem has brought a wider understanding of the causes and symptoms of perinatal mood and anxiety disorders, and a greater awareness of how untreated PMD can affect a woman, her fetus/newborn, and her family in general.

Several professions are creating or have recently created national policies about perinatal depression and associated disorders (including advance practice nurses and obstetrician/gynecologists) (ACOG; Selix). In addition, the US Preventative Services Task Force, "an independent, volunteer panel of national experts in prevention and evidence-based medicine", recently recommended screening for depression in pregnant and postpartum women and notes that: "screening should be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up" (USPTF). These policy recommendations are not a guarantee of follow-through with their respective professions, and do not guarantee a follow-through with their respective professions, but they are a start to the conversation that should manifest into concrete practice changes in the near future.

The incidence of mood and anxiety disorders (including depression) in the perinatal population of the United States in general is consistently reported to be from 10%-20% (Hoertel, Lopez, & Peyre, 2015; Callister, Beckstrand, & Corbett, 2010), with some disorders more common during pregnancy and some more common once the baby is delivered. The most commonly present mood and anxiety disorder in the perinatal population is anxiety, followed by depression. Some women experience obsessive-compulsive disorder, bipolar mood disorders, perinatal post-traumatic stress disorder, and/or postpartum psychosis (Postpartum Support International; Fairbrother, Janssen, Antony, Tucker, & Young, 2016). The symptoms can vary from woman to woman, and have different cultural presentations (as different cultures view mental health in different ways), but are just as impactful and potentially devastating to each woman who has them.

Common symptoms of a perinatal mood and anxiety disorder include irritability, difficulty bonding with the child, sleeplessness, eating problems, panic, generalized anxiety,

sadness, racing thoughts, crying, guilt, and fear of harming the child (Postpartum Support International). These symptoms can be discounted by friends, family, and some healthcare providers as being normal or typical after a baby is born. For a short time frame, many of these symptoms can be considered normal, but if the symptoms persist for more than a few weeks after the child's birth (or if there are thoughts of harming the child or that the mother has of harming herself), immediate assessment and intervention is needed. The negative results of untreated perinatal mood and anxiety disorders include poor physical and mental health for mother, baby, and family; impaired mother-child bonding; implications for child's future learning abilities; and potential child neglect (Postpartum Progress). This does not take into account the extra stresses of being a minority woman in the United States (e.g. Latina), the potential negative effects of being an immigrant woman in the United States, or the conceivable negative impact of being a person of lower socioeconomic status - all of which can have an impact on maternal mental health (and in turn child and family well being) and can compound on each other.

Methods:

A literature review was conducted of articles published in the last 15 years on the topic of perinatal mood and anxiety disorders, focusing on those disorders in the Latina population in the United States. Articles older than 10 years were eliminated from consideration in part since most of the relevant articles found were from the last 10 years, and in part since this topic has increased in appearance in journals in the last decade.

First, an online search was conducted using PubMed, CINAHL, ProQuest, EBSCO Host, SAGE Journals, Scopus, and SpringerLink. Key identified search terms included "prenatal", "postnatal", "perinatal", "postpartum", "depression", "anxiety", "postpartum depression", "mood

disorder", "Latina", "assessment", "screening", "baby blues", "symptoms", "cultural sensitivity", "EPDS (Edinburgh Postnatal Depression Scale)", and "PHQ-9 (Patient Health Questionnaire)."

Initially, 60 articles were considered for inclusion in this review. To be included, the article (or website) had to be published in English between January 2005 and August 2016 and include some combination of the above-mentioned search terms (though not all of them in each article). Articles that were written in English speaking countries other than the United States were considered, though the focus was on articles written about women in the United States of America. Priority was given to articles that mentioned both the target population and the target group of conditions, though articles that were on the target population and general mental health outcomes as well as articles on the target condition in non-Latina populations in the USA were also considered as a means of comparison and general knowledge.

After the final selection of 36 articles and websites was made, they were grouped by theme and summarized using a matrix to organize the content in an easy-to-refer-to format (matrices are included in the Appendix section at the end of the paper). Then the articles were analyzed, and conclusions were drawn, limitations noted, and recommendations made.

Synthesis:

Risks and Predictors for Perinatal Mood and Anxiety Disorders in US Latinas:

Many articles in the professional literature have talked about predicting factors and risks of perinatal mood and anxiety disorders, a certain sub-set of which in the Latina population. Amongst the eight articles chose for this section, the rates of PMD amongst Latinas ranged from 30% (Fortner, Pekow, Dole, Markenson, & Chasen-Taber, 2011) to 54.2% (Lucero, Beckstrand, Callister, & Sanchez-Birkhead, 2012). This is a higher incidence rate than amongst the

population in general in the United States, which is commonly cited to be between 10% and 20% (PostPartum Progress). Different studies used different screening tools and had varying methodologies, but the higher incidence of postpartum depression and other perinatal mood disorders in the Latina population is well documented in both the academic and non-academic literature. The discrepancy in rates between studies could be "because of inconsistent screening and diagnosis" (Lucero et al., 2012); it is also important to note that because of cultural stigma and differences in mental health terminology, some believe that Latinas are under-diagnosed with PMD (compared to other ethnic groups). Regardless, some believe that "socio-demographic variables rather than race and ethnicity account for different levels of postpartum depression" while some say that Hispanic/Latina women have higher rates even after accounting for all other risk factors (Liu & Tronick, 2013).

There are many potential reasons for this increased rate of perinatal mood and anxiety disorders amongst Latinas. Studies talk about high levels of stressors such as low education and/or literacy levels, perceived racial discrimination, cultural stigma against mental health care use, low income, and lack of social support as factors that can contribute to high levels of perinatal mood and anxiety disorders in this population (Walker, Ruiz, Chinn, Marti, & Ricks 2012; Lucero et al., 2012; Lara, Le, Letechipia, & Hochhausen, 2009; Fortner et. al, 2011; Liu & Tronick, 2013). Other factors can include pre-existing mood or anxiety disorders, immigration related trauma, relationship trauma (such as intimate partner violence), unsafe neighborhoods, and healthcare access barriers (Lucero et. al, 2012; Liu & Tronick, 2013; Avni-Barron, Hoagland, Ford, & Miller, 2010). In addition, the more risk factors a pregnant person has, the more likely it is she will have a perinatal mood and anxiety disorder. While there is no formula,

some women have many risk factors and do not have a PMD, and some women might have one risk factor and do get diagnosed with one of these disorders.

One of the risk factors that can lead to perinatal mood and anxiety disorders, as mentioned above, is a pre-existing mood or anxiety disorder. Many of the same factors that lead to a PMD can also be risk factors for a mood or anxiety disorder prior to pregnancy. In general, the rate for depression in the United States is considered to be 6.7% of the adult population (Kessler, Chiu, Demler, & Walters, 2005). In one particular study, the average rate of people reporting/showing high levels of depressive symptoms in the Latino study population was 27% (Einstein/YU), though there was a range depending on country of origin (Mexicans were lowest, Dominicans were highest). The same study also noted that the use of antidepressants in the Latino community was significantly lower than in the White US population (5% versus 13.6%). This is one potential indicator that depression is going untreated or is undertreated in the Latina community, and is an indicator to why rates of PMD are so high in this specific group.

One study (Walker et. al, 2012) with a somewhat unique focus described the greatest predictor of a perinatal mood disorder in Latinas as frequency of racial discrimination (self-reported). In this study, the authors concluded that the age at which discrimination occurred and the experience of said discrimination "has an effect on depressive symptoms during pregnancy." While the focus on acculturation (defined as the process of adopting the culture and social patterns of another group) and discrimination may have been the authors' focus going into the study, their focus was somewhat unique amongst the studies considered for this section. Discrimination was noted to be of many different forms - racial/ethnic (anti-Latina), language-based (anti-Spanish speaking, or pro-English speaking), and country-of-origin based (anti-Mexican, for example), to name but a few. The study authors did note that discrimination was

self-reported, and called it "perceived racial discrimination". This is not to discount the impact of discrimination on the person reporting it, just acknowledging that self-report can be not always reliable or accurate - because the researchers were not present to witness the discrimination, they called it "perceived racial discrimination."

Another study with a distinctive focus was the study that looked at the effects of literacy on depressive symptoms in pregnant Latinas with limited English proficiency (Bennett, Culhane, McCollum, Mathew, & Elo, 2007). Other studies mention educational achievement and/or literacy as risk factors for perinatal mood and anxiety disorders, but this particular study was unique in that literacy was the only main variable studied. In addition to measuring the subjects' level of PMD, the authors also measured their literacy level (and did not depend on self-report) in Spanish. They found that the prevalence of PMD in those subjects with inadequate literacy levels was more than double than in those women with adequate literacy levels. Taking Mexico as an example of Latin American countries (as the largest percentage of Latinos/Latinas in the United States are Mexican), only 53% of 15-19 year olds are in school and many 15-19 year olds are expected to work instead of study (OECD), which could explain the low literacy levels obtained by this particular study (where most of the participants were of Mexican origin). In addition, immigration can interrupt many people's educational trajectory/achievement, thus leading to lower literacy levels in the immigrant Latina population - and by extension, higher possibilities of perinatal mood disorders. Taking potentially lower literacy rates into account is thus very important when planning systems of referral or intervention for this population.

Common Symptoms of Perinatal Mood and Anxiety Disorders, and Risks if Untreated:

Once informed about risks and predictors of perinatal mood and anxiety disorders (PMD) in Latinas in the United States, it is important to be aware of and to recognize the most common symptoms and signs of these disorders in this population. Many of the symptoms and signs of PMD are similar across cultures and backgrounds, but it can be the way in which the women describe them or that the health providers observe them that can be different. Commonly reported symptoms include crying, worrying, anxiety, depression, and mood swings (American Academy of Pediatrics, 2010). Difficulty sleeping, feeling miserable, and racing thoughts are also commonly reported symptoms (Dolbier, Rush, Sahadeo, Shaffer, & Thorp, 2013), as are being socially withdrawn, excessive fatigue, and not eating properly (Balbierz, Bodnar-Deren, Wang, & Howell, 2015). Less commonly reported but still present symptoms include feelings of obsession and/or compulsion, fear of harming the child or one's self, post-traumatic stress, panic, and actively psychotic symptoms such as paranoia and hallucinations (PostPartum Progress; UNC).

Frequently referenced dangers of untreated perinatal mood and anxiety disorders in the baby/child are decreased weight gain and other health concerns for the baby, cognitive problems in school-aged children, and emotional adjustment issues in children (Morgan & Yount, 2012). For the pregnant or parenting mother, the dangers of untreated PMD can be "increased absenteeism from work, extended medical disability after a normal birth, difficulties adjusting to returning to work after childbirth, and relationship conflicts or divorce" (Selix & Goyal, 2015). In addition, having a perinatal mood or anxiety disorder or chronic prenatal stress predisposes a woman to greater risk of preterm labor, low birth weight, and fetal morbidity (Li & Odouli, 2008; Silveira, Pekow, Dole, Markenson, & Chasan-Taber, 2013). Also, having a perinatal mood

or anxiety disorder during pregnancy also raises a woman's risk for preeclampsia, a potentially dangerous medical condition that can affect both mother and fetus (Palmsten, Setoguchi, Margulis, Patrick, & Hernandez-Diaz, 2012).

Cultural Contributors to Perinatal Mood and Anxiety Disorders in the Latina Community:

Specific to the Latina population is the cultural value of *marianismo*, or "the pressure to be a perfect mother, a martyr mother, just like the Virgin Mary" (Seleni.org). This pressure can lead to the Latina mom feeling inadequate no matter her efforts, and also makes it difficult for a Latina to express her feelings of depression or anxiety, even if she knows that something is wrong. When a healthcare provider meets a person who holds this cultural value or feels its pressure, they should be aware that the woman might not express her problems as "I am depressed", "I feel anxious", or "I want to die, it's all too much." She might instead talk about being a bad mom, an inadequate wife, or a failure - if she says anything at all. This is but one situation where it is useful to know the culture of one's patients, so that their symptoms do not go unnoticed and they do not fall through the cracks.

The value of *marianismo* goes along with the Latino/Latina cultural value of *fatalismo*, defined as "an external locus of control and acceptance that human limitations are unable to be changed, which may inhibit help seeking" (Pollard, Nievar, Nathans, & Riggs, 2014). This is one way to understand an aspect of the stigma associated with diagnosing and treating mental health issues in the Latina community. *Fatalismo* could make clinic or program access for the Latina population (for evaluation of a perinatal mood or anxiety disorder) difficult due to the inhibition of help seeking associated with this cultural value. Unfortunately, if a Latina openly expresses

symptoms of a perinatal mood and anxiety disorder, she might state that there is nothing she feels she can do about it, that "this is just the way things are."

There is also a significant mistrust of the healthcare system, the insurance system, and the pharmaceutical system in the Latina community (Seleni.org) - and many Latinas are more likely to ask a friend or a clergy member for help than to go to a health or mental health clinic when battling symptoms of a perinatal mood and anxiety disorder. With 17.4% of the United States identifying as Hispanic/Latino (US Census Bureau) but only 1% of psychologists identifying as Hispanic/ Latino (Mental Health America), this could also contribute to the mistrust in the standard psychological systems in this country, due to many people preferring to see someone of their own background for services, or at least someone who they perceive to speak their own language and/or understand their culture. That being said, some Latinas might trust a social worker more than a psychologist or even a physician, and this could be an entree into providing services to this community (Mental Health America).

Importance and Challenges of Screening for Perinatal Mood and Anxiety Disorders:

Once risks and predictive factors for perinatal mood and anxiety disorders (PMD) in the U.S. Latina population are identified, and symptoms and cultural factors are discussed, it is possible to move on to the subject of screening for PMD and its importance and challenges. Over the past six years, several professions have come out with policy papers/positions on screening for perinatal mood and anxiety disorders (PMD). In 2010, the American Academy of Pediatrics (AAP) wrote "Incorporating Recognition and Management of Perinatal and Postpartum Depression Into Pediatric Practice". In 2015, the American College of Obstetricians and Gynecologists (ACOG) wrote their committee opinion on "Screening for Perinatal Depression."

In 2015, Dr. Nancy Selix, DNP, CNM wrote "Creation of a National Policy on Perinatal Depression: Role of the Advanced Practice Nurse." All three position papers have the same recommendation - universal screening for perinatal mental health issues, albeit from their different professional perspectives. All three papers note that screening alone for PMD is not enough, that follow-up with referrals and services are needed. All three papers mention the need for advocacy within their respective professions (pediatrics, OB/GYN, and nursing) to promote the goal of universal screening.

The American Academy of Pediatrics (AAP) talks about perinatal depression as an issue that impacts the whole family - mothers, fathers, siblings, and babies. As such, the AAP posits they have a unique role to play in helping prevent and assess perinatal mental health issues, and recommend screening the mother for PMD at the 1, 2, 4, and 6 month pediatric visits (with the Edinburgh Postnatal Depression Scale/EPDS). They also state "treatment [for perinatal mental health issues] must address the mother-child dyad relationship." The American College of Obstetrician Gynecologists (ACOG) talks about perinatal depression as "one of the most common medical complications during pregnancy and the postpartum period" and recommend screening "at least once" during the perinatal period. ACOG also states "screening alone is not sufficient to improve clinical outcomes" and that screening must be followed by referrals for diagnosis and treatment as indicated and necessary. Dr. Nancy Selix, DNP, CNM, writes about universal screening for perinatal depression being in line with nursing values and principles, "regardless of clinical specialty, practice setting, or service population." Like the ACOG, Dr. Selix mentions perinatal depression as "the most common postpartum complication." Though none mention Latinas specifically, all three professions mention that certain disadvantaged or vulnerable populations have a greater risk for PMD, and that all women should be screened for

perinatal mood and anxiety disorders (the only difference of opinion being the timing of said screenings).

Above and beyond the professional organizations' recommendations for universal screening, there have been many studies done on practical applications and plans for said screening in community/healthcare settings (Perry, Le, Villamil, Yengo, & Boateng, 2015; Kaiser Permanente, 2016; Price, Corder-Mabe, & Austin, 2012; Harrington & Greene-Harrington, 2007; Flanagan & Avalos, 2016). Multiple professions (nursing, medicine, social work, social services) have the possibility to conduct screenings in their respective office/clinic/community settings, and the variety of studies conducted reflects this diversity. Two of the included studies focused on disadvantaged/higher risk populations - those receiving assistance from WIC (Women Infants and Children; a federal nutrition assistance program for lower income families) (Perry et al., 2015) and those who were part of the Healthy Start program (a program designed to "reduce the level of infant mortality" and which includes "maternal and child case management") (Harrington & Greene-Harrington, 2007).

The WIC-related study posits that the "WIC program offers an optimal setting to reach higher risk populations, given that it enrolls low-income pregnant women, serves them during the first year postpartum, and provides services for their infants and young children up to the first 5 years" (Perry et al., 2015). Though it was difficult to implement change (there was resistance amongst some workers who were conducting the screening for perinatal mood and anxiety disorders in the WIC clinic), the value of screening for PMD was clear. The Healthy Start-related study found that using one of three common screening tools for depression was useful in gathering information on rates and characteristics of perinatal mental health issues. They found that the Healthy Start program is a good location for "being able to identify women early

[through screening] and intervene early (Harrington & Greene-Harrington, 2007). Anecdotal evidence has also shown that in certain geographical areas (such as New York City, the Bay Area, Los Angeles, and Chicago), where there are large numbers of Latinas who use both WIC and Healthy Start services.

Another location/healthcare system that has had success in increasing screenings for and identification of perinatal mental health issues is the Kaiser Permanente(KP) system (specifically in Northern California) (Kaiser Permanente, 2016; Flanagan & Avalos, 2016). KP implemented their universal screening program in 2007 (with the commonly-used PHQ-9 screening tool), screening for perinatal mental health issues at the "first prenatal visit, 24-28 weeks of gestation, and at three to eight weeks following birth" (Kaiser Permanente, 2016). Screenings were conducted by the woman's obstetrician. That doctor then gave the patient information about classes, treatment, and medication as necessary. They were also able to refer the patient to another Kaiser specialist or counselor if needed. KP made the administration of the screening easier and more automatic by "streamlining office workflow" (Flanagan & Avalos, 2016) - placing PHQ-9 forms in every exam room and medical assistant station, and by asking each patient to fill out the form (which was then reviewed by the obstetrician). Kaiser deemed their screening program successful since out of the 20+% diagnosed with depression, 40% had improvement in symptoms of PMD by 6 months postpartum and 25% with a depression diagnosis had clinical remission (Flanagan & Avalos, 2016). One advantage Kaiser Permanente has over other community-based systems (be they hospitals, clinics, or community settings) is that it is a largely self-contained system of healthcare with centralized research and leadership to make decisions - thus making systematic change in perinatal mood and anxiety disorder screening policies easier to implement. As mentioned above, however, there was no specific

focus on the Latina population, though the screening tool used (PHQ-9) is validated in Spanish and KP has many Latina patients in Northern California.

Limitations:

Amongst all the studies evaluated for this literature review, there were some limitations noted. Some studies had solid evidence for the need for and success of universal screening for perinatal mood and anxiety disorders, but did not mention the Latina population in specific. Some studies were done on small sample sizes, thus potentially limiting their generalizability. In addition, some of the studies focusing on the risks for and predictors of perinatal mood and anxiety disorders did not specifically mention Latinas (but may have mentioned some categories into which Latinas might fall, such as low socioeconomic status and lower education levels). Many of the studies analyzed were reports written prior to the passage of the Affordable Care Act (2010), which also had some impact on funding of mental health related services. Another limitation that is important to mention is that some studies focused only on perinatal depression and did not seem to be inclusive of other mood and anxiety disorders, a notable omission. Many of the studies that measured depression or depressive or anxiety symptoms using validated screening tools used different screening tools - some used the Edinburgh Postnatal Depression Screening (EPDS) tool, some used the Patient Health Questionnaire (PHQ-2 or PHQ-9), some used the Beck Depression Inventory (BDI) and some used the Center for Epidemiologic Studies-Depression Scale (CES-D). While all these tools have been validated with diverse perinatal populations, it is not clear if their standards for diagnosis or likelihood of diagnosis of a perinatal mood and anxiety disorder are the same.

Conclusions/Recommendations:

There is currently an increasing awareness of the impact of perinatal mood and anxiety disorders amongst the health professions and an increase in the amount of academic research on this topic. Now that there is a solid base of knowledge, the next step is putting this knowledge into action through mandates on universal screening for perinatal mood and anxiety disorders and into policies that make this possible and easy to execute - recognizing that screening alone is not enough, and that any good screening program will also need a program of referrals and/or services attached (this, too, needs more research). There also seems to be a burgeoning interest in and knowledge base about perinatal mood and anxiety disorders in the Latina population - but not enough to feel comprehensive on the topic. Regardless of one's political point of view, the reality is that Latinos are a fast growing segment of the population in the United States and it is not probable, possible, or ethical to ignore this large group of potential patients. More research is thus needed on development of culturally and linguistically appropriate screening tools for PMD and on development of culturally and linguistically appropriate treatment services. No matter the program, it must take into account the current reality of the patient population in terms of language, culture, politics, insurance, accessibility, and incidence of perinatal mood disorders. In the name of the most comprehensive picture of someone's life as possible, it is important to consider all potential risk factors and not to presume that any one patient has or doesn't have certain risk factors based on their appearance, immigration status, or for any other reason. It is also important to take into account a perinatal patient's resilience factors; otherwise the model becomes deficit instead of strengths based, which ultimately is less useful.

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Appendix A / Introduction

Title/Author/Year	Location	Design	Results	Limitations
Screening for perinatal depression; ACOG, 2015	USA	N/A	Policy paper. Recommendations on perinatal depression screening for OB/GYNs	N/A
Creation of a national policy on perinatal depression: Role of the advanced practice nurse; Selix, 2015	USA	N/A	Policy paper. Recommendations on perinatal depression screening for advance practice nurses	N/A
Are symptom features of depression during pregnancy, the postpartum period, and outside the peripartum period distinct? Hoertel et al., 2015	USA	National study using "item response theory". Participant information drawn from previous national epidemiological surveys. Meta-analysis of data.	Depression symptoms during pregnancy almost the same as depression symptoms outside of pregnancy.	Retrospective nature of assessment. Analyzed surveys did not include information on "stage of pregnancy" or pregnancy loss.
Postpartum depression and help-seeking behaviors in immigrant Hispanic women; Callister et al., 2011	Utah	Qualitative study. Interviews of immigrant Hispanic women who had refused mental health services.	Need to address healthcare barriers, limited social networks. Need integrated mental health for better access.	Small sample size (n=20).
Perinatal anxiety disorder prevalence and incidence; Fairbrother et al., 2016	Vancouver, British Columbia, Canada	Screening questionnaires, in-home interviews, data analysis.	Anxiety more common than depression postpartum. OCD relatively common also.	Small sample size for prevalence study (n=310). Retrospective self-report from women. Defined geographic area.

Appendix B**Risks and Predictors for Perinatal Mood and Anxiety Disorders in US Latinas**

Title/Author/Year	Location	Design	Results	Limitations
Risk factors for prenatal depressive symptoms among Hispanic women; Fortner et al., 2016	Massachusetts	Admin. EPDS screening tool to 921 women. Also demographic questionnaire. Analyze data.	30% depressive symptoms. Higher education less depression. Smoker/drinker higher risk.	Geographically limited, but could likely be reproduced elsewhere.
Prevalence of postpartum depression among Hispanic immigrant women; Lucero et al., 2012	Utah	Screening for postpartum depression with Beck PDSS-Spanish version, then data analysis.	54.2% depressive symptoms. Many w/depression had suicidal thoughts.	Small sample size (n=96). Geographically limited.
Rates and predictors of postpartum depression by race and ethnicity: Results from the 2004-2007 New York City PRAMS survey; Liu & Tronick, 2013	New York	Analysis of pre-existing data set/survey on maternal behaviors/experiences.	Prenatal depression increased risk for PPD. API women high rates of PPD. Other results vary by ethnicity.	No direct contact with participants as retrospective analysis of data from 6-10 years previous.
Discrimination, acculturation, and other predictors of depression among pregnant Hispanic women; Walker et al., 2012	Texas	Prospective observational design. Psychosocial surveys @ 22-24 weeks pregnant. Used BDI to measure depression.	More discrimination strongest predictor of increased depressive symptoms.	Geographically limited. Self-report responses can be biased.
Prenatal depression in Latinas in the U.S. and Mexico; Lara et al., 2009	Washington, D.C. and Mexico	Chart reviews in USA, interviews in Mexico. Screened for depression with CES-D. Data analysis.	High rates of depression in both groups. Hx. of suicidal thoughts predictor of depression in both groups.	Chart review in one, interviews in another - not quite equal? Small sample size (n=108 US, n=117 Mexico).

Preconception planning to reduce the risk of perinatal depression and anxiety disorders; Avni-Barron et al., 2010	USA	Systematic analysis of risk factors for perinatal depression/ anxiety disorders. Not a research study.	Risks include: biological, stress, lack of social support, nutrition, physical activity, and sleep. Take these into account for preconception planning.	Would be nice to see follow-up with cohort of conceptional and pregnant women to validate this analysis.
Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey replication; Kessler et al., 2005	USA	Nationally representative face-to-face survey with diagnostic interview. Goal to estimate 12-month prevalence, severity, and comorbidity of DSM-IV disorders.	"Although mental disorders are widespread, serious cases are...relatively small proportion of cases with high comorbidity."	Not perinatally related. Would prevalence be different with newer DSM-V?
Literacy and depressive symptomatology among pregnant Latinas with limited English proficiency; Bennett et al., 2007	Pennsylvania	Face-to-face interviews on depression and literacy levels.	Inadequate literacy related to increase in depressive symptoms.	Small sample size (n=99).

Appendix C**Common Symptoms of Perinatal Mood and Anxiety Disorders, and Risks if Untreated**

Title/Author/Year	Location	Design	Results	Limitations
Relationships of race and socioeconomic status to postpartum depressive symptoms in rural African American and non-Hispanic white women; Dolbier, et al., 2013	North Carolina	Availability sample, from maternity clinics/ community outreach. Interviewed about demographics, income, depression	"Subjective socioeconomic status most consistent predictor of postpartum depression."	Not related to Latina population. Geographically limited (Eastern North Carolina).
Maternal depressive symptoms and parenting practices 3 months postpartum; Balbierz et al., 2015	New York	Data from 2 randomized trials analyzed.	Depressive symptoms affect parenting practices.	Geographically specific (New York City), and results from 1 urban hospital.
Postpartum depression in a primary care setting; Morgan & Yount, 2012	USA	Not a study/ trial. Description of causes/risks rel. to PMD. Recommendations on assessment/tx.	PCPs help women with PMD. Need procedure for assessment, tx.	No limitations, just questions: How many feel well-enough equipped to deal with PMD
Presence of depressive symptoms during early pregnancy and the risk of preterm delivery; Li & Odouli, 2009	California	Population-based prospective cohort study. Depression assessed with CES-D screening tool.	Depression > 2X risk of pre-term delivery. Stress, obesity can exacerbate this.	Can this be replicated outside self-contained system like Kaiser?
Correlates of high perceived stress among pregnant Hispanic women in W. Massachusetts; Siveira et al., 2013	Massachusetts	Admin. Perceived Stress Scale (PSS-14) to 1491 women (English and Spanish).	Important to routinely screen for psychosocial stress in prenatal visits, counseling for those at risk.	Geographically limited (Western Massachusetts).
Elevated risk of preeclampsia in pregnant women with depression; Palmsten et al., 2012	British Columbia, Canada	Analyzed population based healthcare utilization databases.	Use of antidepressants in pregnancy increases risk of preeclampsia.	"Confounding by depression severity cannot be ruled out."

Appendix D**Importance and Challenges of Screening for Perinatal Mood and Anxiety Disorders:**

Title/Author/Year	Location	Design	Results	Limitations
Incorporating recognition and management of perinatal and postpartum depression into pediatric practice; American Academy of Pediatrics/AAP, 2010	USA	Policy paper. Recommendations on perinatal depression screening/ management for pediatricians.	N/A	N/A
Screening for perinatal depression; ACOG, 2015	USA	Policy paper. Recommendations on perinatal depression screening for OB/GYNs	N/A	N/A
Creation of a national policy on perinatal depression: Role the advanced practice nurse; Selix, 2015	USA	Policy paper. Recommendations on perinatal depression screening for advance practice nurses	N/A	N/A
Integrating perinatal depression screening into WIC at a federally qualified health center; Perry et. al; 2015	Washington, D.C.	Process model to integrate PMD screening	1/3 positive for PMD on PHQ-2, 80% of those did PHQ-9, and of those, 58% had mild-severe symptoms of PMD.	Resistance of WIC staff to integrate PMD screening.
Improved perinatal depression screening, treatment, and outcomes with a universal obstetric program; Kaiser Permanente, 2016	California	Universal screening for PMD using PHQ-9 tool by obstetrician. Outcomes compared before-after.	Universal screening for PMD effective to improve PMD outcomes.	Can this be replicated outside self-contained Kaiser Permanente system?

Perinatal depression screening and intervention: Enhancing health provider involvement; Price et al., 2012	Virginia	Survey of VA healthcare providers analyzed with confirmatory factor analysis and structural equation modeling.	Motivational Interviewing techniques can influence provider attitudes to PMD screening and tx. Should include MI in provider training.	Not clear if MI techniques implemented in future trainings, nor if MI helped providers give better care to patients.
Healthy Start screens for depression among urban pregnant, postpartum, and interconceptional women; Harrington & Greene-Harrington, 2007	Nebraska	Random sample of clients from Omaha Healthy Start program	3 methods ID'd women with different risk profiles; better than 1 method alone.	Small sample size, few Latinas
Perinatal obstetric office depression screening and treatment; Flanagan & Avalos; 2016	California	Monitor screening efforts for PMD, educate clinicians, collaborate between departments, track statistics	Universal PMD screening effective. 96% of women screened ≥ 1 time. 80% with mod./severe symptoms received treatment	Kaiser Permanente only (well-coordinated, self-contained healthcare system).
A community-based screening initiative to identify mothers at risk for postpartum depression; Horowitz et. al; 2010	Massachusetts	Women recruited from 2 medical centers and screened postpartum by phone or email with EPDS.	Apx. 5,000 screened. 13% had high EPDS scores, of which 27% completed dx. interview and 75% of those dx. with PMD. Non-white and low education patients had higher PMD scores.	Discrepancy between mail in vs. phone results (Higher % of mail in responses had PMD vs. lower rates in phone screening).

Appendix E**Websites referenced**

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