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## Risk Factors in Women for Postpartum Depression versus Postpartum Psychosis: An Integrative Literature Review

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RISK FACTORS IN WOMEN FOR POSTPARTUM DEPRESSION VERSUS  
POSTPARTUM PSYCHOSIS: AN INTEGRATIVE LITERATURE REVIEW

by

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A thesis submitted in partial fulfillment of the requirements  
for Honors in the Major Program in Nursing  
in the College of Nursing  
and in the Burnett Honors College  
at the University of Central Florida  
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## **ABSTRACT**

The purpose of this literature review was to identify differentiating risk factors in women for postpartum depression and postpartum psychosis. By understanding differentiating risk factors health care professionals, and nurses in particular, can be alert to women who are at higher risk for postpartum depression or postpartum psychosis. This information allows for early nursing intervention and the development of appropriate treatment plans. Fifteen peer-reviewed, English language research articles published between 2000 and 2015 were analyzed for the purpose of this literature review. Study results were inconclusive for the intention of this review, but do provide valuable information on independent risk factors for both disorders. A history of depression and significant life stressors are strong predictors for postpartum depression. Whereas a history of bipolar disorder is strongly associated with the development of postpartum psychosis. Further research is needed to examine the role of genetics in both postpartum depression and postpartum psychosis and to further evaluate risk factors for postpartum psychosis, specifically in women with no history of bipolar disorder. Moreover, additional research needs to be conducted within the United States due to a lack of generalizability of studies conducted in other nations.

## **DEDICATION**

To my loving family for standing behind me through all of my endeavors, and believing in me.

To my fiancé, Austin Campbell, for your unwavering love and support.

To one of my best friends, Kelsey Gaffka, for your endless encouragement.

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## INTRODUCTION

The birth of a child is often described as one of the happiest moments in a woman's life. Mothers and fathers anticipate the birth of their child for a long 9 months; then, make it through the challenging process of labor, to finally meet their new baby. While this time in life is perceived as joyous by most new mothers it is not unusual for a woman to experience a bout of short term depression termed 'baby blues' associated with postpartum physiological changes in the body (Buttner, O'Hara, & Watson, 2012). For some women, depression after child birth can become a more serious and long term condition. In the United States, approximately 10% to 15% of women will experience severe postpartum depression ("Beyond the 'baby blues'," 2011). Severe postpartum depression affects the new mother, as well as her ability to care for her newborn and impacts the entire family ("Beyond the 'baby blues'," 2011). Postpartum depression has been identified as a risk factor for poor bonding between mother and baby. In turn, improper maternal bonding is strongly associated with subsequent parental neglect and abuse. Poor bonding can be a risk factor for delayed developmental milestone achievement and long term mental health disorders in the child (Katon, Russo, & Gavin, 2014).

Postpartum depressive disorders in a woman are described according to three different levels of severity: postpartum blues, postpartum depression, and postpartum psychosis. Conversely, it has not been established if these disorders are separate entities or a continuum of one disorder (Miles, 2011). To facilitate early detection and treatment of postpartum emotional and behavioral disorders healthcare providers, and nurses in particular, should understand the risk factors and behavioral cues associated with postpartum depressive disorders. Recognition of risk factors for these conditions early in pregnancy or during preconception counseling could

result in improved postpartum outcomes for the mother, her baby, and the family (Yonkers, Vigod, & Ross, 2011).

## **PROBLEM STATEMENT**

The problem statement for this thesis is: Explore differentiating risk factors among women for postpartum depression versus postpartum psychosis.

## **PURPOSE**

After uncomplicated vaginal deliveries women are usually discharged from the hospital in less than two days (Farhat & Rajab, 2011). Associated with shorter lengths of stay after child birth, diagnosis and treatment of postpartum psychiatric disorders is inadequate and can go unnoticed and without appropriate follow up. In other words, health professionals no longer are able to assess the woman for symptoms of depressive disorders or differentiate early symptoms of more severe mood disorders (Rai, Pathak, & Sharma, 2015). Perinatal mood disorders including postpartum depression and postpartum psychosis are frequently undiagnosed and therefore, under-treated. Yet, early identification and treatment for both postpartum depression and psychosis are essential for the well-being of mother and baby (Stoltz, 2013). In order to identify and treat these two disorders in the early stages, healthcare professionals must be able to assess for the presence of risk factors and then respond accordingly. Awareness of risk for more severe postpartum disorders will allow the healthcare team, and nurses in particular, to provide anticipatory guidance and early prophylactic interventions that can prevent postpartum depression or even psychosis in a woman.

This thesis will explore the literature to identify and examine both common and unique risk factors for the development of postpartum depression and postpartum psychosis. Several risk factors are common to the development of postpartum depressive disorders (Rai et al., 2015). Knowledge of differentiating risk factors can empower nurses to assess women who might be at risk for developing one or both disorders. My thesis will examine risk factors of postpartum depression and postpartum psychosis that are independent of expected natural physiological occurrences in the postpartum woman. Understanding these risk factors, whether modifiable or

not, can enable nurses to identify high risk pregnancies in women in order to initiate timely treatment; and thereby, improving the long term health outcomes for the mother, baby, and family. This information will be useful for the education of women who are pregnant as well as healthcare professions who care for them and contribute to the evidence for the diagnosis and treatment of these conditions.

## **METHOD**

An integrative literature review was performed to establish a better understanding of the differentiating risk factors between postpartum depression and postpartum psychosis. The databases explored include Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, PsychINFO, and Cochrane. Searches were limited to peer-reviewed, English-language, original research articles published between 2009 and 2015. A combination of the key terms postpartum, depression, psychosis, and risk factor\* were utilized to reveal 986 initial search results. Thirteen articles were hand selected for further review, of which eleven were included in this review of the literature. Inclusion criteria included articles pertaining to predicting factors of postpartum depression and psychosis aside from anticipated hormonal shifts after childbirth. Exclusion criteria encompasses unavailable full-text articles, future outcomes of postpartum psychiatric disorders, and extraneous focus in relation to review topic. Additional searches were conducted utilizing the same key terms with expanded inclusion dates of 2000 to 2015, resulting in 1,464 studies. Consequently, three additional articles were selected for this review of the literature. Supplementary studies were hand selected through search of additional key terms and credible reference citations. Those meeting inclusion criteria were utilized. A total of 15 research articles were analyzed for this review (Figure 1).

Each of the articles was analyzed and then organized into a table highlighting the research findings (Table 1). Subsequently, the findings from all studies were synthesized to note consistent, inconsistent, and gaps in the literature. Recommendations for evidence-based practice are discussed, along with areas needing future research. Implications for nursing practice, policy, and education are highlighted. Study limitations are noted.

## **BACKGROUND**

### What is 'baby blues'?

Baby blues, or mild maternal depression, is a common mild mood disorder, associated with physiological changes, occurring in 50% to 85% of all women, peaking around the fourth postpartum day (Patel et al., 2012). This condition is a non-psychopathological mood disorder evidenced by mild depressive symptoms that tend to be self-limiting; resolving approximately ten days postpartum (Patel et al., 2012). Estrogen and progesterone levels rapidly decline immediately after childbirth. Changes associated with a massive fluctuation in hormones following child birth have been shown to trigger depression in the postpartum woman (Buttner et al., 2012). Consequently, mild, maternal depression is an expected postpartum event for many women. Mild, maternal depression is considered benign and clinically nonsignificant. None-the-less, in some women the condition progresses to a more severe depressive disorder in the months following childbirth (Yonkers et al., 2011).

The woman experiencing mild, maternal depression maintains constant contact with reality; her ability to function in the maternal role and provide effective care for the newborn are unaffected. Symptoms of mild maternal depression include anxiety, irritability, feeling overwhelmed, mood swings, fatigue, insomnia, and tearfulness (Patel et al., 2012). Postpartum blues generally requires no medical intervention other than providing maternal support and reassurance to the new mother (Joy, Templeton, & Mattingly, 2014).

A woman who is aware of the possibility of mild postpartum depression will be in a better position to comprehend what she is experiencing. In turn, she will be more likely to seek and accept help if the condition persists. Therefore, anticipatory guidance and education of the

physiological postpartum changes that contribute to a mood disorder is an important primary prevention strategy. After the delivery, the nurse should encourage the woman to vent her feelings, demonstrate understanding, and validate the new mother's feelings. The nurse can also solicit emotional support from the woman's family and friends and if needed refer her to other professional resources. Post discharge follow up care in the form of a home visit or telephone contact is another important intervention for a new mother who is at risk for experiencing baby blues with the possibility of progression to postpartum depression or psychosis (Miles, 2011).

#### What is postpartum depression?

Postpartum depression (PPD) is the most common psychiatric disorder affecting women during the postpartum period. Yet, this condition often remains undiagnosed. The Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> edition (DSM-V; American Psychiatric Association, 2013) does not recognize postpartum depression as a separate diagnosis. PPD is classified as major depressive disorder with peripartum onset. In other words the onset of symptoms must occur during pregnancy or within four weeks postpartum (Stone, 2013). Studies show that the onset of most cases of PPD occur at any time following the delivery and up to three months postpartum; in some cases up to a year postpartum (Blackmore & Chaudron, 2012). While research indicates approximately 10% to 15% of women are plagued by postpartum depression the DSM-V recognizes only between 3% and 6% (Stone, 2013).

Aside from the timing of depressive symptoms, PPD is very difficult to distinguish from depression occurring at any time in a woman's life. One differentiating symptom of PPD compared to non-PPD is the new mother's thoughts and obsessions are directed at the child (Rai et al., 2015). Common symptoms exhibited in a woman with PPD include restlessness, feelings

of guilt, hopelessness, sadness, being overwhelmed, frequent crying spells, withdrawal from friends and family, lack of energy and motivation, loss of enjoyment, and in some cases suicidal thoughts (Miles, 2011). The DSM-V identifies that woman with perinatal depressive episodes typically have severe anxiety and associated panic attacks (Stone, 2013).

Research indicated a multitude of negative effects that untreated postpartum depression can have on the mother, infant, and family as a whole. The negative effects include, but are not limited to, maternal withdrawal and detachment, poor mother-infant bonding, risk for delayed cognitive and emotional development of the child, risk for the development of depression in the child, and added stress to the entire family ("Beyond the 'baby blues'," 2011; Miles, 2011). In order to minimize negative outcomes, treatment for depression should begin immediately upon diagnosis (Davalos, Yadon, & Tregellas, 2012). In 50% of postpartum cases the depressive disorder actually starts during pregnancy (Stone, 2013). For this reason, screening tools could be used during prenatal care to identify at risk women. Prophylactic treatment could then begin during the third trimester of pregnancy or immediately after birth. Management of PPD parallels recommended treatment protocols for major depression, including antidepressant medications, antianxiety medications, and psychotherapy in an inpatient or outpatient setting (Wylie, Hollins, Marland, Martin, & Rankin, 2011). Ideally, the risk of the disorder should be identified prior to conception or very early in the pregnancy in order to best care for and more effectively manage the course of postpartum depression. This goal is only achievable when women and healthcare providers are aware of the risk factors.

### What is postpartum psychosis?

The most severe postpartum depressive disorder is postpartum psychosis (PP), occurring in one to two of every 1,000 births. This disorder is accompanied by the depressive symptoms of postpartum depression, and can also be life threatening to the mother and sometimes the infant or even other family members (Doucet, Jones, Letourneau, Dennis, & Blackmore, 2011). Even though only a small percentage of women are affected, the possible consequences of this psychiatric disorder can be devastating. PP is considered a psychiatric emergency, requiring immediate medical and behavioral interventions. Generally there is an abrupt onset, with symptoms occurring in the woman approximately one to two weeks postpartum, but can be seen as late as three months postpartum (Rai et al., 2015). Manifestations of PP include sleep disturbances, depression, delirium, hallucinations, anger, delusions, mood lability, bizarre behavior, and mania. A woman with PP should not be left alone with her baby due to the possibility of suicidal or infanticidal ideation. Early symptoms of PP closely resemble those of PPD but can quickly escalate to acute manifestations of PP (Doucet et al., 2011). For this reason it is important for healthcare providers to be aware of risk factors that differentiate PP from PPD in order to be proactive and initiate appropriate interventions. Treatment for PP includes psychotropic drugs, individual psychotherapy, support group therapy, and sometimes long term hospitalization. Associated with the life threatening risks such as suicide, infanticide, and child abuse; early diagnosis and treatment are imperative. By understanding risk factors for more serious forms of postpartum psychiatric disorders healthcare professionals can facilitate early diagnosis and treatment in postpartum women (Doucet et al., 2011).

The DSM-V does not recognize postpartum psychosis as its own diagnosis. Alternatively, the specifier “with peripartum onset” is used to distinguish if onset occurs during pregnancy or 4 weeks following delivery. The DSM-V specifier can be added to brief psychotic disorders, current or most recent depressive, manic, or mixed episodes of major depressive disease or bipolar disease with psychotic features (Monzon, Lanza di Scalea, & Pearlstein, 2014).

In recent years, postpartum psychosis diagnosis has been used by lawyers as a defense for women accused of child abuse or infanticide. In these cases the woman uses the plea of insanity in order to receive treatment for a mental illness versus receiving a prison time or even the death sentence. According to Nau, McNeil, and Binder (2012), the insanity plea has been used successfully in less than 0.1% of all criminal cases; but, when used in infanticide cases the defense is successful 15% to 27% of the time. These statistics suggest that the law treats women involved with infanticide with greater leniency than other legal cases. Even so, criteria for insanity defenses vary across jurisdictions resulting in a wide range of case outcomes related to maternal infanticide (Nau et al., 2012).

## RESULTS

Fifteen studies related to risk factors or predictors of postpartum depression and postpartum psychosis were analyzed for this literature review. All were original research studies published between the years 2000 and 2015. Studies were conducted in multiple countries including Turkey, United States, Denmark, United Kingdom, Canada, Sweden, Malaysia, and Brazil. Nine studies included personal interviews with study participants. Nine studies utilized questionnaires and surveys. Medical records and national health registries were used for data collection in six studies.

### Postpartum Depression

Nine studies focused on risk factors or predictors of postpartum depression (PPD).

In Turkey, psychiatrists interviewed women ( $N=302$ ) on the day of their childbirth and again six weeks postpartum (Akman, Uguz, & Kaya 2007). The interviewers screened for previous and current obsessive compulsive disorder, mood disorders, psychiatric disorders, and major depression. The study concluded that avoidant, dependent, and obsessive-compulsive personality disorders were predictors of postpartum depression. Women diagnosed with postpartum depression showed higher rates of primiparity, but this study was unable to determine if this was an independent risk factor for the development of PPD (Akman et al., 2007).

Women ( $N=1,568$ ) at large urban hospitals in Utah (United States), 24 to 48 hours after giving birth were included in this study (Banker & LaCoursiere, 2014). A structured interview or chart review was conducted to gather demographic data and a 13 item questionnaire was utilized to identify pregnancy stressors. Six to eight weeks postpartum the Edinburgh Postnatal

Depression Scale was used to identify PPD in the women. This study noted relationship stress and traumatic stress to be significant risk factors of PPD. Protective factors, including a supportive couple's relationship during pregnancy, were also identified. This study shows the mediating role of interpersonal relationships in contribution to the development of PPD (Banker & LaCoursiere, 2014).

In a Canadian study, telephone interviews were conducted with pregnant women ( $N=1,403$ ) as part of the initial assessment, during the women's third trimester, and at eight weeks postpartum (Davey, Tough, Adair, & Benzies, 2011). Information on demographics, lifestyle, health, social supports, expectations, and pregnancy experience was collected. The Edinburgh Postnatal Depression Scale was completed at eight weeks postpartum. This study noted risk factors for both sub-clinical and major postpartum depression. While none of the risk factors were statistically significant, important anecdotal information was obtained in this study (Davey et al., 2011). Validating prior research, this study found high rates of PPD in women with a previous history of depression. Other risk factors were having been born outside of Canada, anxiety during pregnancy, low parenting self-efficacy, and failure with breast feeding (Davey et al., 2011).

A case-control, prospective study was conducted at the University of California to assess genetic and environmental risk factors in women for postpartum depression ( $N=48$ ). At six weeks postpartum women went through a series of assessments that provided information on demographics, reproductive health, adjustment, medical outcomes, social support, life threatening events, and depressive symptoms (El-Ibiary, Hamilton, Abel, Erdman, Robertson, & Finley, 2013). Subsequently, a clinical interview was conducted to confirm PPD diagnosis

( $n=24$ ), along with a venous blood sample for genetic testing. The results of this study showed that distressed relationship, history of depression, difficult pregnancy, difficulty caring for the baby, and low levels of support were significant risk factors for PPD (El-Ibiary et al., 2013). A history of perinatal depression in the woman as well as family history of depression, anxiety, bipolar disorder, or alcohol abuse were risk factors trending towards significant. This study also found a statistically significant genetic association, specifically with three of the five gene codes for the 5HT2A serotonin receptor and PPD (El-Ibiary et al., 2013).

A prospective cohort study was conducted with pregnant women ( $N=1,423$ ) in the United States to examine multiple factors as predictors of postpartum depression (Katon et al., 2014). The variables in this study included sociodemographic factors, pregnancy-related stress and depression, risky health behaviors, medical and psychiatric history, pregnancy-related illnesses, and birth outcomes. Questionnaires and medical records were used to gather data during women's second or third trimester and again six weeks postpartum (Katon et al., 2014). This longitudinal study noted several risk factors for postpartum depression. The variables showing the most significance included: depressive symptoms during pregnancy, antidepressant use during pregnancy, younger maternal age, unemployment, pre-pregnancy diabetes and neurological conditions, smoking, and high levels of psychosocial stress (Katon et al., 2014).

Researchers in the United States examined risk factors in women ( $N=3,732$ ) for postpartum depression in relation to ethnicity. The ethnicities evaluated included White ( $n=1,043$ ), Black ( $n=1,027$ ), Asian/Pacific Islander (API) ( $n=425$ ), and Hispanic ( $n=1,253$ ) (Liu & Tronick, 2013). Information from birth certificates and the Pregnancy Risk Assessment Monitoring System (PRAMS) survey was used in this study. The results indicated prenatal

depression as the highest predictor of PPD across all ethnicities with the highest rate of PPD observed in Asian/Pacific Islanders (Liu & Tronick, 2013). API women having from six to thirteen stressors such as financial hardship, recent death of a friend or family member, or a recent change of residence were significantly more likely to be diagnosed with PPD (Liu & Tronick, 2013).

A prospective longitudinal cohort study was conducted with women in Malaysia ( $N=2,072$ ) with the aim of investigating risk factors for postpartum depression occurring within six months postpartum (Mohamad Yusuff, Tang, Binns, & Lee, 2015). A questionnaire was given to women at 36 to 38 weeks gestation to gather baseline data. Follow-up assessments, including the Edinburgh Postnatal Depression Scale, were conducted at one, three, and six months postpartum (Mohamad Yusuff et al., 2015). Depressive symptoms during pregnancy and constant worries about the infant were found to be predicting factors for PPD. Conversely, women who received help from their spouse and were happy in their marital relationship were less likely to be diagnosed with PPD (Mohamad Yusuff et al., 2015).

A prospective epidemiological longitudinal study was carried out with women in the United Kingdom ( $N=273$ ) having an aim to examine whether prominent personal life events were more strongly related to postpartum depression in first time mothers than other life events (Wright, Hill, Pickles, & Sharp, 2015). Women included in this study were interviewed at 20 weeks gestation, then again at 32 weeks gestation, and 29 weeks postpartum. The interviews focused on mental health symptoms, life events, relationship functioning, demographic data, and personality traits (Wright et al., 2015). This study found that a history of depression, and negative relationship or non-relationship events significantly increase the risk for PPD.

Relationship events were associated with more severe depressive symptoms (Wright et al., 2015).

A study with women in Brazil was conducted to examine the association between quality of life standards and postpartum depression (Zubaran & Foresti, 2011). Participants ( $N=101$ ) were interviewed between the second and twelfth weeks postpartum to collect demographic data as well as complete questionnaires assessing quality of life, postpartum depression, and socioeconomic status (Zubaran & Foresti, 2011). Researchers found that lower socioeconomic status and low quality of life were predictors of postpartum depression in women not previously being treated for depression (Zubaran & Foresti, 2011).

### Postpartum Psychosis

Five studies focused on risk factors or predictors of postpartum psychosis (PP) in women.

A retrospective study conducted in the United Kingdom examined women ( $N=116$ ) who had experienced a psychotic episode within 6 weeks after childbirth. A psychiatrist conducted an in depth interview with each woman to collect information on manic, depressive, and psychotic episodes following childbirth and throughout her lifetime (Blackmore et al., 2013). Information on menstrual, obstetric, and gynecological events was also collected. Approximately 67% of women ( $n=78$ ) had no psychiatric history thus making it difficult to predict postpartum psychosis. In women with a psychiatric history 55% ( $n=21$ ) had unipolar depression and 34% ( $n=13$ ) had bipolar disorder (Blackmore et al., 2013). This study supports prior research showing a link between PP and bipolar disorder; and, a high risk of developing PP in subsequent pregnancies among women who previously experienced an episode of PP (Blackmore et al., 2013).

With the utilization of the Medical Birth Register and Swedish Hospital Discharge Register, Researchers focused on the association between previous psychiatric hospitalizations and postpartum psychosis or bipolar disorder in women ( $N=612,306$ ) (Harlow et al., 2007). Pre-pregnancy and prenatal psychiatric hospitalization history was assessed as well as onset of postpartum psychotic and bipolar episodes within 90 days after the woman's first birth (Harlow et al., 2007). The study found the incidence of hospitalizations for PP in women with no previous psychiatric hospitalizations was approximately 0.04% ( $n=244/610,047$ ) compared to 9.25% ( $n=209/2,259$ ) of women with any psychotic or bipolar psychiatric hospitalization before delivery (Harlow et al., 2007). Hospitalization for a psychiatric reason during pregnancy was associated with higher rates of PP compared to pre-pregnancy hospitalizations (Harlow et al., 2007).

Another study was conducted in Sweden using the Medical Birth Register and Swedish Hospital Discharge Register (Hellerstedt, Phelan, Cnattingius, Hultman, & Harlow, 2013). Data on prenatal, obstetric, postpartum, and infant health complications was gathered on women with first born singleton deliveries ( $N=1,842$ ). Associations between these variables and maternal hospitalizations for postpartum psychosis were noted. Inclusion criteria included having a pre-conception history of hospitalization with a diagnosis of bipolar or psychotic disorder (Hellerstedt et al., 2013). This study found more recent, longer duration, and multiple pre-conception hospital stays were independent risk factors for PP hospitalization. Another outcome of this study was an association between infant death and maternal psychiatric hospitalization (Hellerstedt et al., 2013). Women hospitalized for PP were 2.3 times more likely to experience

non-psychiatric (medical) complications, such as infection compared to women without PP hospitalizations (Hellerstedt et al., 2013).

In 2001 a study was conducted with women ( $N=221$ ) in the United Kingdom to examine the relationship between familial factors and postpartum psychosis in families multiply effected by bipolar disorder (Jones & Craddock, 2001). Trained investigators interviewed participants gathering diagnoses and detailed information on PP episodes. The results of this study conclusively show an increased risk of PP in women with bipolar disorder when they have a first-degree relative with a history of PP (Jones & Craddock, 2001). Seventy-four percent ( $n=20/27$ ) of women with a family history of PP experienced an episode while only 30% ( $n=38/125$ ) of women with no family history experienced PP (Jones & Craddock, 2001).

A prospective study in Canada was conducted to examine the association between a history of major depressive disorder and postpartum psychosis in primiparous women ( $N=60$ ). The influence of infant gender was also assessed (Mighton et al., 2015). Interviews were performed during pregnancy ( $>15$  weeks gestation), one week postpartum, one month postpartum, and three months postpartum. Psychosis symptomology assessments were administered at each interview. This study found that of primiparous women with a history of major depressive disorder 23% ( $n=14$ ) experience psychosis during the perinatal period and 10% ( $n=6$ ) experienced psychosis only in the postpartum period (Mighton et al., 2015). This finding shows that risk for postpartum psychiatric disorders is exacerbated by a prior history of mental illness (Mighton et al., 2015).

### Related Findings

An epidemiological cohort study was conducted on women in Denmark ( $N=400,717$ ) (Bergink et al., 2015). Nationwide registries were used to gather information including demographic data, diagnosis of preeclampsia during primiparous pregnancy, and the occurrence of psychiatric episodes (unipolar depression, adjustment disorders, and other) within the first 360 days postpartum. This study found primiparous women to be at the highest risk for psychiatric episodes in the early postpartum period, 0-3 months postpartum. This risk increased among women who experienced preeclampsia during pregnancy; this variable was associated with a marked increase of unipolar depression and adjustment disorders in these women (Bergink et al., 2015). The study also found that somatic and obstetric comorbidities, such as gestational diabetes, were associated with increased postpartum psychiatric episodes, especially in women who also experienced pre-eclampsia (Bergink et al., 2015).

## DISCUSSION

The purpose of this literature review was to determine differentiating risk factors in women for postpartum depression and postpartum psychosis. While the studies reviewed provide important insight into several predicting factors for each disorder a conclusion cannot be made as to which factors differentiate one condition from the other. Significant gaps in the literature result in inconclusive results for this literature review. The gaps in the literature will be discussed in the following paragraphs. Even though this review is inconclusive the information can be valuable for practice and to guide future research on this topic.

Nine studies were reviewed to examine several possible risk factors for postpartum depression. Of the nine studies reviewed, six indicated a history of depression in the woman either prior to or during pregnancy was significantly associated with the development of PPD (Davey et al., 2011; El-Ibiary et al., 2013; Katon et al., 2014; Liu & Tronick, 2013; Mohamad Yusuff et al., 2015; Wright et al., 2105). Five studies found life stressors specifically those involving relationships, traumatic events, and social factors were associated with the development of PPD (Banker & LaCoursiere, 2014; El-Ibiary et al., 2013; Katon et al., 2014; Liu & Tronick, 2013; Wright et al., 2015). The analysis of four additional studies revealed primiparity, difficult pregnancy, low levels of support, difficulty caring for the infant, younger maternal age, unemployment, and low socioeconomic status to be associated with PPD (Akman et al., 2007; El-Ibiary at al., 2013; Katon et al., 2014; Zubaran & Foresti, 2011). However, any one of these factors can be perceived as a potentially stressful event, further validating their relation to the development of PPD. Other significant predictors found in the reviewed literature included: avoidant, dependent, and obsessive-compulsive personality disorders; use of

antidepressants during pregnancy; pre-pregnancy diabetes and neurological conditions; as well as smoking, Asian/pacific islander ethnicity, constant worries about the infant, and low quality of life (Akman et al., 2007; Katon et al., 2014; Liu & Tronick, 2013; Mohamad Yusuff et al., 2015; Zubaran & Foresti, 2011). A study by El-Ibiary and colleagues (2013) suggested a gene mutation on HTR2A SNPs as a risk factor for PPD. Gaps in the literature regarding genetic involvement in postpartum depression prevents further examination of this finding.

There is a paucity of research and therefore a gap in the literature that specifically identifies risk factors for developing postpartum psychosis. Five studies focusing on postpartum psychosis were analyzed for the purpose of this literature review. A strong association was found between a history of bipolar disorder and the development of postpartum psychosis in women (Blackmore et al., 2013). More recent hospitalizations for bipolar or psychotic episodes before or during pregnancy, of longer duration or having multiple acute occurrences were significantly associated with PP (Harlow et al., 2007; Hellerstedt et al., 2013). In women with a history of bipolar disorder the risk for developing PP was significantly increased when a first degree relative had a history of PP (Jones & Craddock, 2001). Other significant risk factors identified in the studies included a history of unipolar depression and a past episode of postpartum psychosis (Blackmore et al., 2013; Mighton et al., 2015). Emotionally, the postpartum period is a highly vulnerable time for women associated with physiological, social, and role changes. The findings suggest these changes could exacerbate a previously identified, or possibly unidentified, mood disorder. Further research is necessary to ascertain risk factors for women who subsequently develop postpartum psychosis, especially when there is no history of an affective disorder.

The studies that were reviewed occurred in diverse settings. Moreover, studies conducted in other countries, such as Sweden and Malaysia, or localized to one geographical area of the United States cannot be generalized to all women (Hellerstedt et al., 2013; Katon et al., 2014; Mohamad Yusuff et al., 2015). Differences in cultures, living conditions, and life styles limit the generalizability of findings to areas beyond those included in the study. The studies also were limited by inclusion and exclusion criteria of study participants. For example, inclusion of only primiparous women or a sample deficient in demographic diversity, further limits generalizability (Banker & LaCoursiere, 2014; Bergink et al., 2015).

Several studies were limited by data collection methods. Studies that utilized direct participant interview or survey completion were subject to recall bias associated with women self-reporting on their conditions (Blackmore et al., 2013; Davey et al., 2011; Liu & Tronick, 2013; Wright et al., 2015). Self-report recall bias can skew the results of the studies and is therefore a limitation of the findings. Likewise, data collection methods including inter-rater reliability were not described in the studies.

This review of the literature was further limited by the collection of correlational data. Risk factors found in this review were found to have a correlational relationship with either postpartum depression or postpartum psychosis rather than causal relationships. Additional research is necessary to establish predictive causal mechanisms for each disorder.

In summary, this literature review identified evidence-based risk factors for postpartum depression and postpartum psychosis. However, I was not able to identify if these risk factors were solely for one or the other disorder because research has not been done focusing on each factor for each disorder. Postpartum depression has been associated with a past history of

depression and stressful life events or circumstances. Even with the limited amount of available research, a clear association between postpartum psychosis and a history of bipolar disorder was identified in this review of the literature.

## **LIMITATIONS**

Several limitations have been noted in this literature review. The initial search inclusion criteria of 2009 to 2015 revealed limited studies on risk factors for postpartum psychosis. Search parameters were then expanded to include studies from 2000 to 2015 which resulted in five original research studies on this topic. This limitation indicates a lack of recent research and suggests a need for further research on this topic. Secondly, the focus of this review was broad in nature, therefore the possibility of overlooking available research exists. Thirdly, subjective inclusion and exclusion criteria may further limit this literature review.

## **IMPLICATIONS AND RECOMMENDATIONS FOR NURSING**

### Research

Further research is needed on risk factors for postpartum psychosis. This literature review was able to identify an ample amount of research regarding postpartum depression, but the research on postpartum psychosis was scant. Strong associations were able to be made between a history of affective disorders, especially bipolar disorder, and the development of postpartum psychosis. However, a study by Blackmore and colleagues (2013) revealed that 67% of postpartum psychosis diagnoses were noted in women with no apparent history of affective disorder. Further research on risk factors for postpartum psychosis in women with no history of an affective disorder is needed.

One study included in this review of the literature identified a possible genetic link for postpartum depression. As identified by the study, a small sample size warrants follow up research on these findings (El-Ibiary et al., 2013). While it was not the focus of this review to explore genetic components of postpartum depression and postpartum psychosis, the need for further research regarding its involvement for both disorders is needed.

Many of the studies reviewed were conducted in countries around the world. Differences in culture, lifestyle, and healthcare systems limits the generalizability of the research. Therefore, studies specifically focusing on the effects of cultural differences on risk factors for PPD and PP are warranted. Additionally, studies need to be carried out within the United States population and healthcare system.

Most studies analyzed in this review used self-reported qualitative data. There is a need for research that collects quantitative data on risk factors for PPD and PP. Quantitative data on a

woman's history and physical changes over time coupled with chart reviews can offer a longitudinal perspective.

### Education

Education of nurses is instrumental in the implementation of findings brought forth in this literature review. While this review of the literature was inconclusive in differentiating risk factors for postpartum depression and postpartum psychosis, the findings have noted associated factors for each disorder. Nurses must be knowledgeable about these risks as well as early signs and symptoms of postpartum psychiatric disorders to accurately treat and educate women and their families. Educating women about predicting factors and clinical presentations associated with pregnancy and postpartum psychiatric disorders provides anticipatory guidance and support. Informing about early detection and treatment will yield the greatest benefit to the mother, baby, and family.

### Practice

Secondary intervention involves the screening of high risk populations in order to identify and prevent possible health complications. Nurses play a significant role in implementation of evidence-based screening measures. The risk factors identified in this review may serve as an additional resource for the development of a screening tool, such as the Edinburgh Postnatal Depression Scale, that can be utilized during pre-conceptual counselling and prenatal care. A screening tool could identify women who are at increased risk for the development of more serious postpartum psychiatric disorders. Use of a screening tool to identify high risk women can enable nurses and healthcare teams to recognize the potential for

developing such disorders, allowing for early treatment planning. Additionally, an understanding of differentiating risk factors focusing on postpartum depression and postpartum psychosis could improve outcomes for mom and baby. Thus, validating the necessity for further research on the topics of PPD and PP. Tertiary prevention focuses on supporting and coordinating care for women who have a diagnosis of PPD or PP.

### Policy

Nurses have an important role in advocating for institutional policies related to obstetrical assessment. As indicated by current evidenced-based research, it is essential for obstetric facilities to establish advanced screening measures, policies, and protocols. These measures will provide an opportunity for health care practitioners to initiate primary and secondary interventions to educate and screen for potential postpartum psychiatric disorders.

### Conclusion

Evidence-based research has identified several risk factors for postpartum psychiatric disorders. Postpartum depression most often is preceded by a history of depression as well as perceived stressful life events. Research identified a strong link between bipolar disorder and the development of postpartum psychosis. Although risk factors have been identified for each disorder, additional research is necessary to identify distinguishing factors. Furthermore, research should be conducted to discover risk factors, in addition to a history of affective disorder, for postpartum psychosis. Utilization of these findings for the education of nurses, women, and implementation of screening measures is of utmost importance for future improvement of postpartum psychiatric disorder identification and treatment. Enactment of

policies regarding psychiatric screening tools within obstetrical facilities will enhance health outcomes for mothers, babies, and families.

**APPENDIX A: FIGURE**

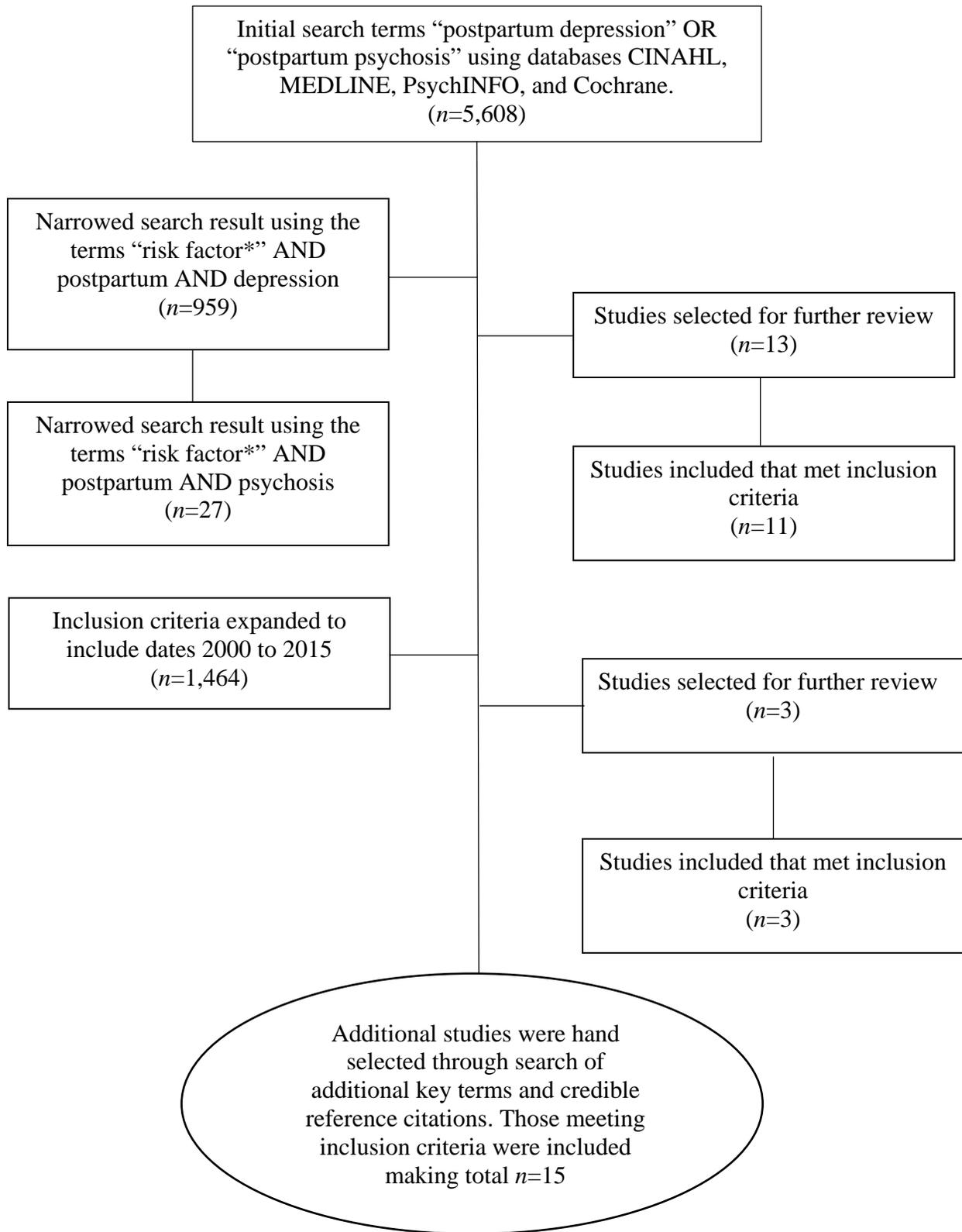


Figure 1: Selection Method of Literature

**APPENDIX B: TABLE**

Table 1: Table of Evidence

<b>Author(s) Year Location</b>	<b>Study Design and Purpose</b>	<b>Sample Size</b>	<b>Screening Measures</b>	<b>Outcome Measures</b>	<b>Key Findings and Limitations</b>
Akman et al. (2007) Turkey	Qualitative  The purpose was to examine associated socioeconomic characteristics, obstetric factors, and personality disorders of PPD as well as its incidence rate.	N=302	Subjects were recruited from Faruk Sukan Child and Maternity Hospital on first day of their child birth between August 2005 and November 2005  Exclusion criteria included: mental incompetence, current mood disorder, serious health problems of the baby, history/presence of psychotic disorder, current OCD, or history of neurological disorder  Written voluntary informed consent was obtained.	Two interviews were performed, on first day of childbirth and 6 weeks after, face-to-face by same psychiatrists at the same hospital. First interview screened for previous and current OCD, mood and psychotic disorders. Second interview only screened for major depression. Socioeconomic characteristics and obstetrical history provided by participants was included in the study.	Avoidant, dependent, and obsessive-compulsive personality disorders are predictors of PPD.  The rate of primiparity was significantly higher in women with PPD compared with non-depressed women. However it did not seem to be an independent factor in predicting PPD.  Limitations: sample may not be representative of all childbearing women, total refusal rate was high (221 of 580), there was no control group, did not examine family history of depressive disorders, did not explore other potential factors such as stressful life events, interviewers were aware of study goal, same psychiatrist performed both interviews, and did not examine past depressive disorder.
Banker & LaCoursiere (2014) United States	Secondary analysis of data from an earlier published study  The purpose was to examine previously identified	N=1,568	English speaking women were invited to participate 24-48 hours after delivery of a singleton, term (>37 weeks), live born infant at 4 large urban hospitals in Utah from 2005-2007.  Exclusion criteria included	A structured interview was conducted in the hospital or review of the patients chart was done to gather demographic data including maternal age, education, marital status, insurance status, and personal/family history of depression. Pregnancy stressors	Couples stress and traumatic stress are significant predictors of PPD. A supportive couple's relationship during pregnancy is a protective factor of PPD even when the woman is at high risk because of history of depression.  Limitations: sample was not very

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	stressors to learn which stressors put woman at more risk for PPD and look at possible buffers for at risk women.		diagnosis of or current treatment for a mood disorder based on self-report or patients chart.	were identified using 13 stressor questions. 6-8 weeks after delivery the Edinburgh Postnatal Depression Scale was used to identify mothers positive for PPD.	diverse in regards to demographics, PPD scores was missing 516 data points, and limited number of items measuring emotional stress.
Bergink et al. (2015) Denmark	Epidemiological population-based cohort study  The aim of the study was to determine if pre-eclampsia is a risk factor for first-onset postpartum psychiatric disorders.	N= 400,717	All singleton births to primiparous women between January 1 1995 and December 31 2011 were assessed. Only women born between January 1 1960 and December 31 1995 with no evidence of psychiatric history were included.	Women were followed from the time of delivery until a postpartum psychiatric episode, migration, death, or December 31 2012, whichever came first. Three nationwide registers were used to gather information. Civil Registration System for date of birth, personal identification numbers, vital status and migration status. Danish National Patient/Hospital Register to identify pre-eclampsia during primiparous pregnancies. Danish Psychiatric Central Research Register to identify psychiatric episodes within the first 360 days postpartum treated in in-patient or out-patient psychiatric facility.	Primiparous women are at high risk for first-onset psychiatric episodes during the early (0-3 month) postpartum period. Confirmation of a link between pre-eclampsia and first-onset psychiatric episodes especially unipolar depression and adjustment disorders. Elevated risk of psychiatric episodes in women with somatic and obstetric comorbidities.  Limitations: definition of main outcome- any type of psychiatric disorder treated at an in-patient or out-patient psychiatric treatment facility, generalizability to multiparous women questionable, underestimation of true psychiatric episode incidence, no information on less severe mental health problems, and other cofounding factors in included
Blackmore et al. (2013) United Kingdom	Retrospective study  The aim was to describe	N=116	Women were recruited from support groups for PP and bipolar disorder and from admissions to general and specialty perinatal	A brief telephone screening was conducted to make sure participants met inclusion criteria. Then a full interview was conducted by a psychiatrist	Research supports the link between PP and bipolar disorder. PP is difficult to predict in women with no antecedent history. High risk of another episode PP in subsequent

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	reproductive and mental health outcomes in women diagnosed with PP and examine clinical risk factors as predictors for further illness.		psychiatry units and clinics.  Inclusion criteria: at least one episode of PP, onset within 6 weeks on childbirth. Exclusion criteria: onset during pregnancy.	or psychologist using a modified Schedule for Assessment in Neuropsychiatry assessing experiences of manic, depressive, and psychotic symptoms after childbirth and in their lifetime. Menstrual, obstetric, and gynecological events were detailed by each woman. Data were collected by key informants who witnessed episodes when possible.	pregnancies. High risk of non-puerperal episodes after index PP.  Limitations: possible recall bias, potentially other risk factors not included in the study
Davey et al. (2011) Canada	Qualitative  The purpose was to identify prenatal and perinatal risk factors of sub-clinical and major postpartum depression among low medical risk women	N=1,403	Data were used from women who completed a randomized control trial of prenatal care. Women were recruited through prenatal clinics early in pregnancy in the Calgary Health Region between April 2001 and July 2004.  Exclusion criteria included women under 18 years old.	Telephone interviews were conducted at study intake, third trimester, and eight weeks postpartum. Information on demographics, lifestyle, physical and emotional health, social supports, social isolation, parental expectations, and thoughts/feelings of pregnancy experience was collected. Edinburgh Postnatal Depression Scale was completed during the third interview, 8 weeks postpartum.	A history of depression, increased stress in immigration related life events, anxiety during pregnancy, and failure to breastfeed at eight weeks postpartum are indicators of increased risk for postpartum depression.  Limitations: women self-report, dropout rate of the study, and translation of the questionnaires
El-Ibiary et al. (2013) United States	Case-control, prospective study  The purpose was to assess the influence of genetic and environmental	N=48  Cases- EPDS > 14 (n=24)  Controls- EPDS < 7 (n=24)	Participants were recruited from the University of California at San Francisco Obstetrics and Gynecology Clinic during a six week well visit. The Edinburgh Postnatal Depression Scale (EPDS) was used to	A series of assessments including demographic and reproductive health survey, Dyadic Adjustment Scale, Medical Outcomes Study (MOS), Social Support Survey, Life Threatening Events Survey, and Quick Inventory of	Distressed relationship, history of depression, difficult pregnancy, and difficulty caring for the baby are all associated with PPD. Genetic polymorphisms in HTR2A, the gene encoding the 5HT2A receptor, may be associated with postpartum depression.

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	risk factors on postpartum depression.		determine eligibility.  Exclusion criteria: non-English speaking, imminent suicidality or psychotic symptoms, evidence of current substance abuse, or receiving ongoing antidepressant treatment.	Depressive Symptomatology (Self-Report)-16 (QIDS-SR16) scale and a structured clinical interview to confirm diagnosis of depression were performed. A venous blood sample was obtained for genetic testing.	Limitations: limited number of research subjects
Harlow et al. (2007) Sweden	Retrospective longitudinal study  The aim was to determine the incidence of postpartum psychosis and bipolar disorder attributable to previous psychiatric hospitalization.	N= 612,306	From the Medical Birth Register in Sweden all women delivering their first born singleton, at term (37 weeks), with no congenital malformations between January 1 1987 and December 31 2001 were analyzed.	Using Medical Birth Register and Swedish Hospital Discharge Register data on postpartum onset of psychotic and bipolar episodes within 90 days after the woman's first birth was determined. As well as pre-pregnancy or prenatal psychiatric hospitalization history. An assessment of previous and postpartum hospitalizations for psychotic and bipolar episodes was performed.	The rate of hospitalization for postpartum psychosis of those who had any previous psychiatric hospitalization (psychotic or bipolar) before delivery was significantly higher than those with no previous hospitalizations. Almost 10% of women hospitalized for a psychiatric reason before birth developed PP. Approximately 90% of postpartum psychotic and bipolar episodes occurred within the 1 <sup>st</sup> 4 weeks of delivery.  Limitations: unable to validate ICD codes case by case, unable to determine if bipolar episode was psychotic in nature, use of hospitalized cases
Hellerstedt et al. (2013) Sweden	Retrospective study  Aim to examine associations	N=1,842	From the Medical Birth Register and Swedish hospital discharge register women with first born live singleton deliveries who	ICD codes were used to identify maternal prenatal, obstetric, and postpartum complications and infant health conditions. These variables	More recent, longer duration, and multiple pre-conception hospital stays were independent risk factors for PP hospitalization. Another outcome of this study was an

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	between maternal and infant complications and hospitalization for postpartum psychosis in women with pre-pregnancy history of psychiatric hospitalization.		had pre-conception psychiatric hospitalization for bipolar or psychotic disorder between January 1 1987 and December 31 2001 were analyzed.	were then assessed for their association with hospitalization for postpartum psychosis.	association between infant death and maternal psychiatric hospitalization. Postpartum hospitalized patients had higher occurrences of pregnancy-related medical problems not of psychiatric nature.  Limitations: generalizability may be limited to Sweden or the study period, precision of data relies on physicians and hospital staff, and some variables were not available in the data source
Jones & Craddock (2001) United Kingdom	Qualitative  The purpose was to test the hypothesis that familial factors play a role in vulnerability to postpartum psychosis.	N=221	All women interviewed as part of a molecular genetic study of bipolar disorder in sibling pairs were eligible for inclusion as well as families with at least one member with a life time diagnosis of bipolar I disorder and a 1 <sup>st</sup> degree relative that had a diagnosis of bipolar, schizoaffective, or recurrent unipolar disorder. Recruitment was based on personal and family history of affective disorder.	Participants was interviewed by a trained investigator using either the Schedule for Affective Disorders and Schizophrenia or the Schedules for Clinical Assessment in Neuropsychiatry. Best estimate life time diagnoses were made on the bases of available clinical information. Detailed information on the relationship of episodes to childbirth was assessed and categorized into narrowly (within 6 weeks of delivery) defined and broadly (up to 6 months following delivery) defined puerperal psychosis.	The results of this study conclusively show that history of an episode of puerperal psychosis in a first degree relative increases the risk of puerperal psychotic episodes in women with bipolar disorder by more than six fold.  Limitations: Cannot prove that genes are the cause of this resemblance and based on the direct interview of women
Katon et al. (2014)	Prospective cohort study	N=1,423	Women receiving prenatal care at University	Questionnaires and medical records were used to assess	Women with PPD experienced the following: more depressive

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United States	The purpose was to examine sociodemographic factors, pregnancy-associated psychosocial stress and depression, health risk behaviors, pre-pregnancy medical and psychiatric illness, pregnancy-related illnesses, and birth outcomes as risk factors for postpartum depression.		Obstetrics Clinical between January 2004 and June 2011 who delivered at the University of Washington Hospital who completed at least one survey during their second or third trimester and 6 weeks postpartum were eligible.  Exclusion criteria included less than 15 years old at time of delivery or inability to complete the questionnaire due to language or mental reasons.	mood, sociodemographic, medical, behavioral, and birth outcomes of women during their second or third trimester and at their 6 week follow-up.	symptoms during pregnancy, were younger, less likely to be married, less educated, more likely to be unemployed, had higher rates of diabetes and neurological conditions, were more likely to be current smokers, more likely to be taking antidepressants during pregnancy, more often victims of intimate partner violence, and showed higher levels of stress. Having an infant with low birth weight or having a preterm birth were more prevalent in woman with PPD.  Limitations: study of a population in one geographical area of the US, lack of use of structured psychiatric interviews for diagnosis of depression and history of depressive episodes, and not assessing BMI or social support
Liu & Tronick (2013) United States	Retrospective study  The objective of this study is to determine racial/ethnic disparities in PPD by identifying how known risk factors differ by racial/ethnic	N=3,732  White (n=1,043)  Asian/pacific islander (API) (n=425)  Hispanic (n=1,253)	The sample from this study included postpartum women in New York City who completed the Pregnancy Risk Assessment Monitoring System (PRAMS) survey from 2004 to 2007.	Birth certificates provided the following information; maternal race/ethnicity, nativity, maternal age, and education.  The PRAMS survey provided the following; income, stress events, gestational diabetes, social support from partner, NICU, unintended pregnancy, depression, mood, and PPD diagnosis.	API had the highest rate of PPD. Prenatal depression was the highest predictor in all races. Women who gave birth to females and had a discussion about mood were also more likely to receive PPD diagnosis. API women who had 6-13 stressful life events were more likely to have PPD.  Limitations: self-report recall problems, the race/ethnic groups

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	group.	Black (n=1,027)			were comprised of heterogeneous subgroups, and medical records were not used to support prenatal and PPD diagnoses
Mighton et al. (2015) Canada	Prospective study  The purpose was to assess the frequency of postpartum psychosis in primiparous women with a history of major depressive disorder and whether sex of the baby influenced symptoms.	N= 60	Women were recruited between March 10, 2007 and October 17, 2013 through events for pregnant women, internet advertisements, posters, and reproductive mental health program at BC Women's Hospital.  Inclusion criteria: Women were primiparous with singleton pregnancies who had a history of MDD.  Exclusion criteria included episodes of psychosis, mania, or hypomania.	A trained clinician administered the Structured Clinical Interview for the DSM IV (SCID) to confirm history of depression and rule out history of mania, psychosis, and hypomania. Participants were interviewed during pregnancy after 15 weeks gestation, 1 week postpartum, 1 month postpartum, and 3 months postpartum. Demographic information, family history, and use of psychotropic medications/hospitalizations was collected. The Positive and Negative Symptom Scale to assess for psychosis symptomology was administered at each interview.	Data found that 23% of women with a history of MDD only experience symptoms of psychosis in the perinatal period. This shows an increased risk for psychiatric disorders in this time and an even further increase in women with a history of mental illness. Non-significant trend towards higher frequency of symptoms in mothers of female babies.  Limitations: the PANSS screening was developed for inpatient patients with schizophrenia, the PANSS and SCID administered simultaneously gave differing results in regard to psychotic features in some women, some cases may have been missed due to discrete interview times, and the sample size to address influence of sex of the baby was small.
Mohamad Yusuff et al. (2015) Malaysia	Prospective longitudinal cohort study  The aim is to investigate the prevalence and risk factors of	N=2,072	Women between 36-38 weeks gestation attending 5 clinics in Malaysia for routine antenatal care between 2009 and 2010 were invited to participate in the study.	A baseline questionnaire at 36-38 weeks collected information on demographics, socioeconomic status, health characteristics, and depressive symptoms during pregnancy. Follow up assessments were made at 1, 3, and 6 months	Women who suffered depression during pregnancy and had consistent worries about the infant were more likely to develop postpartum depression. Women who received help from their husbands with child care and those satisfied with their marital relationship were less likely

<b>Author(s) Year Location</b>	<b>Study Design and Purpose</b>	<b>Sample Size</b>	<b>Screening Measures</b>	<b>Outcome Measures</b>	<b>Key Findings and Limitations</b>
	postnatal depression within six months postpartum.		Exclusion criteria included multiple pregnancy, illiteracy, or deemed unwell to participate.	postpartum. The Malay version of the Edinburgh Postnatal Depression Scale was used to assess depressive symptoms.	to become depressed.  Limitations: results may not be generalized beyond Sabah because of variations in culture, self-selection bias cannot be avoided, and high rate of loss to follow up
Wright et al. (2015) United Kingdom	Prospective epidemiological longitudinal study  The aim was to examine whether life events thought to be personally prominent, such as negative events related to partner relationship, would be more strongly associated with depression in first time mothers than other life events.	N= 273	An 'intensive' sample of women from the Wirral Child Health and Development Study was used. This included pregnant women with high psychosocial risk (psychological abuse in current or recent relationship) and women with low risk (no current or recent abuse).  Inclusion criteria: women were first time pregnant women	At 20 weeks gestation an initial brief interview was conducted gathering demographic data and partner psychological abuse measures. At 32 weeks gestation a more in-depth interview was conducted gathering information on mental health, recent life events, personality functioning, and relationship functioning. A similar interview was conducted again at 29 weeks postpartum. The Schedule for Affective Disorders and Schizophrenia-Lifetime was used for depression diagnosis. Life History Calendar was used to assess life events.	This study showed a significant association between past history of depression and postpartum depression. Negative relationship and non-relationship life events both have significant effects on the risk for depression but relationship events were significantly more depressogenic than other events.  Limitations: possibility of reporting bias, depression ratings and life events were frequently assessed together by the same interviewer but they were made blind to study hypotheses, generalizability is limited do to the high percentage of high psychosocial risk women in the study, and the study does not account for other likely causes of depression, genetic factors, or heterogeneity within depressive disorders.
Zubaran & Foresti (2011) Brazil	Qualitative  The aim of this study is to assess the association	N=101	101 adult volunteers who gave birth at the General Hospital of the University of Caxias do Sul in Southern Brazil were used	Volunteers were interviewed one time in their home between the 2 <sup>nd</sup> and 12 <sup>th</sup> week postpartum. Demographic information was collected	The research indicates socioeconomic deficiencies and, even more so, low quality of life can facilitate the expression of postpartum depression.

Author(s) Year Location	Study Design and Purpose	Sample Size	Screening Measures	Outcome Measures	Key Findings and Limitations
	between postpartum depression and quality of life standards.		<p>in this study.</p> <p>Inclusion criteria included: availability of the woman between the 2<sup>nd</sup> and 12<sup>th</sup> week postpartum, cognitive capacity to complete questionnaires, delivery of a live healthy baby, and completion of informed consent.</p> <p>Exclusion criteria included: delivery not in the General Hospital and women already under treatment for depression.</p>	<p>during the interview.</p> <p>Questionnaires used included: World Health Organization Quality of Life Assessment-Bref, Multicultural Quality of Life Index, Postpartum Depression Screening Scale, Edinburgh Postnatal Depression Scale, and Socio-economic assessment.</p>	<p>Limitations: the regression analysis was not controlled for history of previous depressive episodes or a family history of depression or any other mental illness</p>

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