

12-2019

## Identifying the Risk Factors to Postpartum Depression

Jannica Bondoc Santos  
*Dominican University of California*

<https://doi.org/10.33015/dominican.edu/2019.NURS.ST.01>

**Survey: Let us know how this paper benefits you.**

---

### Recommended Citation

Santos, Jannica Bondoc, "Identifying the Risk Factors to Postpartum Depression" (2019).  
*Senior Theses*. 125.  
<https://doi.org/10.33015/dominican.edu/2019.NURS.ST.01>

This Senior Thesis is brought to you for free and open access by the Student Scholarship at Dominican Scholar. It has been accepted for inclusion in Senior Theses by an authorized administrator of Dominican Scholar. For more information, please contact [michael.pujals@dominican.edu](mailto:michael.pujals@dominican.edu).

Identifying the Risk Factors to Postpartum Depression  
Jannica Santos  
Dominican University of California  
Spring 2019

## Table of Contents

<b>Acknowledgements</b>	3
<b>Abstract</b>	4
<b>Introduction</b>	5
<b>Problem Statement</b>	5
<b>Problem Question</b>	6
<b>Literature Review</b>	6
<b>Introduction</b>	6
<b>Postpartum Depression in Europe</b>	7
<b>Postpartum Depression in Asia</b>	9
<b>Postpartum Depression in Africa</b>	14
<b>Postpartum Depression in South America</b>	15
<b>Postpartum Depression in North America</b>	17
<b>Literature Review Conclusion</b>	18
<b>Theoretical Framework</b>	18
<b>Proposal for Further Study</b>	19
<b>Conclusion</b>	21
<b>References</b>	23
<b>Appendix</b>	<b>25</b>

### **Acknowledgements**

A special thank you to my Senior Thesis professor, Dr. Patricia Harris for guiding, proofreading, and consulting with me throughout this semester. Her input and time have definitely helped in refining this thesis.

An immense amount of gratitude extends to my own mother who suffered from postpartum depression after giving birth to me. Sharing her story holds great value in my life and has inspired me to research into this particular topic. She has pushed and driven me to finish this thesis to the best of my abilities.

### **Abstract**

A woman's life instantly changes after the birth of their child. Furthermore, culture influences the stigma that a mother is the primary caregiver of their children and are accountable for the health and upbringing of the child. Giving birth to a baby and taking up the responsibility of another human life is a great impact in a female's existence. In addition to the new tasks that come with motherhood, women are also challenged to cope with their emotional and mental state after giving birth. The most chronic mental illness that can develop after labor is postpartum depression (PPD). Women who suffer from PPD are faced with the common symptoms of depression while still trying to uphold their duties as mothers. Since this mental crisis affects a large number of women around the country, it is pivotal to recognize the risk factors that influence the development of postpartum depression. Identifying the root sources of postpartum depression can improve the education, support, and care for these mothers. As healthcare providers, we can enhance the advocacy for mothers suffering from PPD which can improve the lives of the women, their families, and their children. This thesis contains a literature review, summarizing nine recent studies, followed by a proposal for further research.

### **Introduction**

Postpartum depression is a universal mental illness that affects women of any age, race, or social background. In the United States alone, approximately 600,000 women have been diagnosed with postpartum depression (PPD) within the first year after birth and over 100 million global cases of postpartum depression have been reported annually (*Statistics on Postpartum Depression, 2019*). During this insurgence of PPD, it is the responsibility of healthcare professionals to identify women who are at risk of developing this disease. In particular, nurses are at the forefront of patient care during the first 48-72 hours of the postpartum period, but this does not allow enough time for the healthcare team to properly assess for postpartum depression. Symptoms of PPD are described to begin as early as a “few days after delivery or sometimes as late as a year later” (*Depression Among Women, n.d.*) therefore, women most usually experience postpartum depression symptoms after their discharge from the hospital. This problem leaves postpartum mothers vulnerable to more harm or unable to seek the care that they may require. As this epidemic rises within mothers, it is in the best hope that various methods of research can help to identify risk factors of PPD to precipitate which women are endanger to developing postpartum depression.

### **Problem Statement**

Pregnancy and birth are described to be one of the most life changing experiences in a woman’s existence. As a society, people are accustomed to viewing pregnancy as a time for new life and celebration. Though this stigma may be accurate for some cases, there still lacks a full understanding of what occurs emotionally, physically, and mentally to mothers after the birth of their child. Although there is evidence that explains postpartum “baby blues” as a “normal” experience after birth, there remains a larger need for research and understanding of postpartum

depression. An estimate of 1 in 5 women experience postpartum depression after pregnancy, but the causes of this issue are still a mystery (*Depression Among Women*, n.d.). The purpose of this paper is to explore and expose the risk factors of this major complication to ultimately shine a light towards prevention, advocacy, and effective care for women who are diagnosed with PPD. In addition, this particular problem is incredibly important to me because my own mother suffered from postpartum depression after I was born. I find that research on this topic will be beneficial and pivotal to understand the root influencers of PPD in order to better prepare and assist women who are diagnosed or experiencing this issue at the moment.

### **Problem Question**

How does psychosocial environment and stressors in a female's life determine or increase the probability of postpartum depression occurring during the postpartum stage of pregnancy?

### **Literature Review**

#### **Introduction**

Within this paper, there are nine different literature reviews of various research articles that were thoughtfully chosen from the Dominican University of California Library Database and Google Scholar. In particular, the databases that were utilized for this specific paper were CINAHL and Iceberg. During the time of research, the keywords that were inputted into the search engine were: postpartum depression (PPD), risk factors of postpartum depression (PPD), and causes of postpartum depression (PPD). Cumulatively, all nine of the researchers investigate and conduct their own research to identify risk factors that can influence the development of postpartum depression.

Furthermore, this literature review will be categorized into five parts which is based off of the continents the studies were conducted in. Two articles are based in Europe, four articles are based in Asia, and one article each is based in Africa, South America, and North America. These studies will be analyzed for strengths, weaknesses, and their pertinent findings of postpartum depression risk factors.

### **Postpartum Depression in Europe**

Authors Fiala, Svancara, Klanova, and Kasparek (2017) conducted a longitudinal study and quantitative analysis to identify the main risk factors that influence the development of postpartum depression. This article primarily concentrated their research on sociodemographic and delivery risk factors that may contribute to the development of postpartum depression. The population of interest were mothers who were in their 20th week of pregnancy and lived in either the United Kingdom, Czech Republic, Slovakia, Greece, or Russia (n= 7589). In order to achieve viable findings, the researchers administered questionnaires to the mother, the father, their children, and doctor at three points in time: prenatal, 6 weeks postpartum, and 6 months postpartum. In addition to self reporting through the questionnaire, the mothers were asked to fill out the Edinburgh Postnatal Depression Scale (EPDS) 6 weeks and 6 months postpartum. Although an initial sample size of 7, 589 women were enrolled in the study, only 3, 233 mothers were able to successfully self report through the questionnaires at the specific time points of the study.

With that in mind, it was found that the “prevalence of depressive symptoms before delivery was 12.8%, 6 weeks after delivery 11.8%, and 6 months after delivery 10.1%” (Fiala et al, 2017). Other major findings that were significant risk factors to PPD included: women who had feelings of unhappiness during pregnancy, women who came from low socioeconomic

background, women who had personal or family history of depression, mothers who decided to not breastfeed, and mothers without partners. This article did have strengths and limitations throughout the study. As a strength, the authors took an innovative approach towards studying the risk factors through exploring the mother's postpartum period, prenatal history, and experience during pregnancy. The article's limitations are that self-reporting questionnaires may leave room for misguided interpretation or misunderstanding of a question, leading to skewed results, not all 7, 589 participants were able to complete their questionnaires at the certain time points of the study, and the findings may not be generalizable to all countries. In conclusion, the research team explained that their findings are linked with the experience of psychosocial stressors and that increased psychosocial support can assist in preventing or decreasing the risk of PPD in mothers (Fiala et al, 2017).

Authors Unsal, Ozturk, Gulec, Ildan, Karaoz, Amanak, and Akercan (2018) utilized their study to investigate if birth interventions, birth experiences, and the type of labor are influencing factors towards developing postpartum depression. This specific research article was a descriptive, cross sectional study that aimed to analyze women from four different provinces and hospitals in Turkey who gave birth to a child or children between January and December 2011 (n= 1010). Data was collected through the Mother Self-Description Form, Perception of Birth Scale (POBS) and the Edinburgh Postpartum Depression Scale (EPDS). The POBS was conducted during a face to face meeting two days after giving birth and the EPDS was administered 6 weeks postpartum.

Through the study, it was found that there is a significant link between vaginal birth and a higher risk for postpartum depression than women who experienced a c-section (Unsal et al, 2018). The research also identified that an EPDS score of 13 or higher was prevalent in women

who had longer labor time, needed oxytocin for induction, and who needed their membranes artificially ruptured to induce labor. As a last major discovery, there is a negative correlation between birth interventions and an increased risk for postpartum depression (Unsal et al, 2018). Strengths of this research article are: large sample size, chose women from different provinces of Turkey to establish different socioeconomic background, ensured understanding of the POBS by reanalyzing the word choices of the questionnaire, and administered the surveys at appropriate time points to achieve accurate results. Limitations included: possible misinterpretation of both questionnaires, leading to skewed results and only studying women in Turkey which may not be generalizable to other women in various countries. Following the conducted research, the authors concluded that the type of labor and labor experience can ultimately influence the development of postpartum depression. With this knowledge, the researchers emphasize the need for proper preparation and education of labor to decrease the risk of postpartum depression occurring (Unsal et al, 2018).

### **Postpartum Depression in Asia**

The research article, "*Postpartum Depression and Risk Factors among Vietnamese Women,*" explored whether the level of education, diseases during pregnancy, first time motherhood, dissatisfaction with family, or limited communication and interaction with others influence the risk of developing PPD. Authors: Do, Nguyen, and Pham (2018) conducted a cross sectional quantitative study among women of the age 18 years or older who were living in Hanoi, Vietnam with children under the age of one (n= 116). In the study, the authors utilized the Edinburgh Depression Scale (EPDS) to obtain their data and once the data was collected, the 116 mothers were split into two groups. The two groups were categorized into the following: those who scored 12 or more on the EPDS were classified into one group while those who scored less

than 12 on the EPDS were classified into another group. Prior to administering the EPDS, each mother involved in the study was interviewed for their background information, demographics, health history, education, and interpersonal skills.

Through the study, the authors found that, “the majority of women were over 25 years old and graduated from college or higher (N = 116, 59.5%). There were 66 women who lived in rural areas (56.9%) and 50 women who lived in urban areas (43.1%). In this study, most people were non-religious (88.8%) and just 11.2% have religions such as Buddhism, Christianity, and others” (Do et al, 2018). It was discovered that new mothers with a lower education and women who were satisfied with their family were less likely to experience postpartum depression. Additionally, first time mothers were two times more likely to suffer from PPD and that first time mothers who also had limited interaction or communication with others were four times more susceptible. Lastly, gestational diseases such as diabetes, hypertension, hepatitis, and gynecological inflammation were linked to the increased risk of developing postpartum depression. The strengths of this article are that the authors conducted a pilot interview on ten samples to ensure understanding of the EPDS and that background information were obtained on each mother. Limitations included: small sample size, the authors only interviewed ten women for the pilot interview which left room for misinterpretation or misunderstanding of the EPDS, and the findings may not be generalizable to various countries other than Vietnam. In conclusion, the researchers shared that postpartum depression is believed to be a burden in the community, but that this contributing knowledge of PPD can assist in breaking down that stigma (Do et al, 2018).

A quantitative, comparative study that was conducted in Japan by Honjo, Kimura, Baba, Ikehara, Kitano, Sato, and Iso (2018), investigated whether co-resident family members affect

the probability of developing postpartum depression. Specifically, this research study explored the effects of partner involvement and household income in association with co-resident family members and its possible risks towards developing PPD. The population of interest were Japanese women who were one month into their postpartum period (n= 86, 490). These women were to self-report on a questionnaire at three time points during the study. At the time of registration, the mothers were asked to fill out the first questionnaire, during the second or third trimester of pregnancy the second questionnaire was administered, and the last questionnaire was self-reported one month postpartum. With the consent of the women involved, the authors were able to retrieve medical information pertaining to the first trimester of pregnancy, the delivery of the baby, and one month postpartum. In order to analyze the risk for postpartum depression in each mother, the Edinburgh Postpartum Depression Scale (EPDS) was also employed.

From the data collected, it was evident that women who developed postpartum depression were more likely to live with their parents, parents-in-law, alone, or not with their partner. Women who were considered less educated or lived in a low-income household were linked to an increased likelihood of developing PPD. Mothers who were living with their domestic partners, but were experiencing postpartum depression symptoms at the time of the study were most likely abused at home. A last major finding was that living with other children was a protective barrier from developing PPD regardless of household income (Honjo et al, 2018). Strengths of this article included: a large sample size, the ability to examine the association between co-resident family members and developing PPD, and receiving consent from the women to retrieve patient data on the pregnancy, delivery, and postnatal visits. Limitations included: specific age limits of the samples were not stated, the data collected may not be generalizable to other countries, and the specific areas of Japan that were analyzed were

not stated in the research. As the researchers came to the end of their study, it was stated that, “our study suggests that interventions to increase perceived partner's support for childcare may be effective in preventing PPD, regardless of a woman's living arrangements. It may also be suggested that public health practitioners identify possible high-risk populations using basic demographic information such as family structure and economic situation” (Honjo et al, 2018). Though this research article may not be generalizable to other countries, the findings that were identified can help bring a better awareness of what information are possible risk factors to PPD.

*“Risk of Depressive Symptoms Associated with Morbidity in Postpartum Women in Rural Bangladesh,”* by Surkan, Sayki, and Christian (2017) identified the possible correlation between maternal morbidity after pregnancy and experiencing postpartum depression after delivery. The research performed was a quantitative, descriptive, correlational study among married rural Bangladeshi women aged 13-44 (n= 39,000). Data was achievable through the women self-reporting any alterations in reproductive, urinary, neurological, nutritional status, and other illnesses endured between childbirth and three months postpartum. After six months postpartum, the mothers were assessed for postpartum depression through a questionnaire.

The study distinguished that all postpartum illnesses posed a great risk for developing PPD 6 months postpartum (Surkan et al, 2017). Postpartum illnesses that were connected to postpartum depression included: uterine prolapse, UTI, headache, convulsions, anemia, pneumonia, gastroenteritis, and hepatobiliary disease. In particular, the two maternal diseases that were mostly linked to the development of PPD were hepatobiliary disease and convulsions. Women who developed morbidities during the first three months of their postpartum stage were at the highest risk of experiencing PPD symptoms. Strengths that were seen throughout this article were: large sample size, the authors assessed women three and six months postpartum,

and the study utilized questionnaires to assess for postpartum depression. Limitations that were recognized were: that past medical history and delivery complications could have been extraneous variables, but were not analyzed or considered and the results of this research may not be generalizable outside of rural Bangladesh. Furthermore, this specific study emphasized the importance of physical health during and after pregnancy as it may become a defining influencer towards a mother's mental health.

Through a cross sectional prevalence study, the article, "*Postpartum Depressive Symptoms and Associated Factors in Married Women: A Cross-Sectional Study in Danang City, Vietnam*" determines a common denominator between married women and PPD. Authors Vo, Hoa, and Hoang (2017) collected data from 600 women who gave birth four weeks to six months prior to the recruitment interview of the study. This particular research was conducted from July 2013 to August 2014, where women were interviewed with a structured questionnaire that assessed their demographics and background. The authors also used the Edinburgh Postpartum Depression Scale in order to determine which samples are at risk of PPD and categorized the score of 12 or 13 as "at risk."

It was identified that the most evident link between marriage and the development of postpartum depression was influenced by the interaction between husband and wife. Women who felt that they could not rely on their significant other and who believed that their husband did not make enough time to discuss family relations were at risk for experiencing postpartum depression symptoms after birth. Mothers who shared their struggles with anxiety, other psychosocial stressors, or caring for an ill baby were also at higher risk of encountering PPD. As a last major finding, the authors stated that, "37.9% of the women studied were suffering from suicidal ideations and those financially dependent on their husbands were at the highest risk" (Vo

et al, 2017). This article pertained certain strengths such as: having a specific cohort of women, conducting face to face interviews with a questionnaire, administering the EPDS, and concentrating the study primarily on married women. In addition, the biggest limitation of this research study was that it was only conducted in Vietnam which may not be generalizable to other countries. Near the end of the research article, Vo, Hoa, and Hoang (2017) shared that, “the prevalence of PPD symptoms and the factors related to PPD (relationships with husbands and family, exercise, and infant health) should be considered when developing preventive, diagnostic, and therapeutic programs that will promote the long-term health of mothers and their newborns” (Vo et al, 2017). With that in mind, the data achieved through this study highlights the need to recognize all of the factors of PPD to better understand and treat this illness.

### **Postpartum Depression in Africa**

Authors Rogathi, Manongi, and Mushi (2017) examined the prevalence of intimate partner violence among pregnant women and their partners and how it may correlate to the development of postpartum depression. A total of 1,013 pregnant women from Tanzania who were less than 24 weeks of gestation were enrolled into a prospective cohort, quantitative study. In order to adequately obtain data, the women were interviewed at four time points: 1) upon recruitment, where they were asked about demographics and reproductive health, 2) at 34 weeks of gestation, where they were assessed for depression using the Edinburgh Postpartum Depression Scale (EPDS) and for experience of intimate partner violence using the WHO’s questionnaire, and 3) 40 days postpartum, where the women were screened for postpartum depression again using the EPDS.

The research found that, “304 women out of the sample reported some form of exposure to domestic abuse during their pregnancy and that 122 women out of the sample had an

Edinburgh Postpartum Depression Scale (EPDS) score of 13 or higher” (Rogathi et al, 2017). It was evident in the study that women who were exposed to domestic violence during their pregnancy would be three times more likely to experience postpartum depression. Primarily, women who were between the age of 18-24 years old and who have encountered domestic violence were at highest risk for developing PPD. In contrast, the study revealed that women who were emotionally abused, but had no history of depression were still at higher risk for PPD compared to women who have been diagnosed with depression before their pregnancy.

This research study was successful in: assessing the women at different stages of pregnancy, examining the odds between women who have a history of depression and those who have no history, and obtaining a relatively large sample size. Limitations to this article were the following: it was only studied in Tanzania which potentially limits the data, some women may have been afraid to admit or share their experience with domestic violence, and the study only examined women who were attending antenatal clinics. Studying women who only attend antenatal clinics ignores the fact that there may be a larger population of women who may not attend clinics but are experiencing intimate domestic violence. In addition, this specific limitation leads to a larger investigation between access to healthcare, socioeconomic status, and domestic violence.

### **Postpartum Depression in South America**

*“Sociodemographic Risk Factors of Perinatal Depression: A Cohort Study in the Public Health Care System,”* by Silva, Jansen, and Souza (2012) focused on examining the sociodemographic risk factors that can contribute to the development of postpartum depression. The research was a quantitative cohort study that assessed women between the ages of 13 to 46 years old in the perinatal period of pregnancy (n= 1019). Women who were enrolled in the study

were examined during their perinatal period by answering questionnaires that analyzed their socioeconomic status, marital status, gestational period, previous pregnancies, psychiatric history, family history, and specific stressful traumas. After giving birth, the mothers were then asked to fill out the Edinburgh Postpartum Depression Scale (EPDS) to determine their risk for postpartum depression.

Based off of the research that was conducted, it was discovered that there were specific risk factors that would increase the chance of experiencing postpartum depression. The following risk factors are linked to the development of PPD: low socioeconomic status, not living with a partner, history of a psychiatric disorder(s), and tobacco use during pregnancy (Silva et al, 2012). Experiencing depression during the antenatal stage of the pregnancy was also strongly associated with experiencing symptoms of postpartum depression. Strengths to this study were the large sample size, the utilization of the EDPS, and examining women during the antenatal stage for depressive symptoms to establish the correlation between antenatal depression and PPD. Silva, Jansen, and Souza (2012) emphasized and explained their biggest limitation:

In the study, depression symptoms were assessed using the EPDS, which is a screening instrument for depressive symptoms. Although this instrument was validated for this population, it had a limitation in that when the objective is to assess the prevalence of relevant depressive symptoms in pregnancy or the postpartum period, it tends to overestimate the rates of relevant depressive symptoms, and therefore, this instrument may be very sensitive but less specific. (p. 145)

Through the utilization of the Edinburgh Postpartum Depression Scale, the researchers believed that the EPDS lacked specific depressive symptoms and may not encompass other symptoms related to PPD which may lead to misguided answers to the questionnaire. Although the EPDS is

a worldwide tool to screen for PPD, it remains important to stay observational during the postpartum period since the signs, symptoms, and risk factors of postpartum depression are unique to every patient.

### **Postpartum Depression in North America**

In the article, “*Exploring the Link Between Maternity Leave and Postpartum Depression*,” by Kornfeind and Sipsma (2018) investigated the possible relationship between the duration of maternity leave and the risk for developing postpartum depression. This cross-sectional quantitative study examined 177 employed women who returned back to full time work after giving birth (n=177). The mothers that were involved in the research study were asked to fill out a Patient Health Questionnaire that assessed their depressive symptoms in the past two weeks. Scores of three or higher were considered positive screens for postpartum depression. Additionally, women were specifically asked, “how long after giving birth did you return to working for pay” (Kornfeind & Sipsma, 2018) and if they received paid or unpaid leave.

Research found that longer maternity leaves are associated with decreasing the risk of postpartum depression and that there is no correlation between paid or unpaid maternity leave and PPD. The strengths are that the authors examined the women who were under employment of a management and were not labeled as “self-employed” and assessed the time range women were going back to work after giving birth. Comparatively, this particular study was only limited to the United States and may not be generalizable to other countries. Another evident limitation was the population of interest, where “75% of the sample size were highly educated and 66.5% were white or of non-hispanic ethnicity” (Kornfeind & Sipsma, 2018), leaving no room for examination of other ethnicities. Lastly, the Patient Health Questionnaire was only provided in English, but interpreting this questionnaire in other languages may have broadened the sample

size. At the conclusion of this article, the authors stressed that maternity leave is a vital time for a pregnant woman's physical, mental, and emotional health and should be utilized to their advantage regardless of its possible short duration. A short maternity leave is more beneficial than no leave and can essentially decrease the chances of developing PPD in the future.

### **Literature Review Conclusion**

The research studies that were culminated in this literature review recognizes that there are a multitude of risk factors that can contribute to the development of postpartum depression. Though these articles may only be limited to specific countries, the studies can still bring forth particular key indicators that can assist in identifying PPD. Influencing elements of postpartum depression cannot be defined by one cause or risk factor because they are unique to a mother's health history, background, and story. Through the constant utilization of the Edinburgh Postpartum Depression Scale and willingness to examine the history of diverse women, more findings of PPD risk factors are bound to appear to better understand how to conquer this maternal mental illness.

### **Theoretical Framework**

Cheryl Tatano Beck is a theorist, researcher, and author who focuses her work on postpartum depression and postpartum anxiety in mothers. She received her Bachelor of Science in Nursing from Western Connecticut State University, her Masters in Maternal-Newborn Nursing from Yale University, and her Doctorate in Nursing from Boston University (Cheryl Tatano Beck, 2019). For over 20 years, Beck has worked to bring research and awareness towards postpartum depression and received various recognitions such as the Eastern Nursing Research Society's Distinguished Researcher Award (Cheryl Tatano Beck, 2019). Through her

efforts, she has “published over 100 journal articles and has developed the Postpartum Depression Screening Scale (PPDS) which is published by Western Psychological Services” (Cheryl Tatano Beck, 2019). Her work in research has brought a better understanding and light towards a woman’s emotional and mental state during a postpartum depression crisis.

Beck is well known for her research theory titled, *Teetering on the Edge*. Through her research, she obtained data from twelve qualitative interviews from women who were attending a postpartum depression support group during an 18 month period of time. Beck analyzed that women who suffered from postpartum depression felt a loss of control. In theory, Beck believes that mothers who are coping with PPD endure a process called “Teetering on the Edge.” The process is described as “walking the fine line between sanity and insanity” and includes three stages: encountering terror, dying of self, struggling to survive, and regaining control (Beck CT, 1993). This theory and research study recognize the psychological burdens a woman faces during PPD and challenges more research to be conducted in order to find the major culprits that can cause this psychological trauma.

### **Proposal for Further Study**

Identifying the major risk factors of postpartum depression is a vital stepping stone towards early diagnosis, proper treatment, and support for women. Throughout the literature review of this paper, it is evident that there are various studies that examine the psychosocial risk factors that predispose a woman to this mental illness. Although there are numerous amounts of literature that can assist in identifying extrinsic risk factors of PPD, there seems to lack written research on the hormonal changes that occur in a woman’s body during and after pregnancy. Studying and analyzing the hormonal aspect of postpartum depression is an important piece of

PPD research because it may ultimately aid in effectively preventing, treating, and understanding this condition.

The major question that remains unanswered is: what are the hormonal alterations during the postpartum period and how can identifying the alterations aid in preventing, treating, and understanding the coping mechanisms to this disease? It is known that a woman's hormonal pattern changes throughout the duration of her pregnancy which may be an incredible influencer towards the development of PPD. Analyzing which hormones decrease or increase before, during, and after pregnancy can help in comprehending what physiologically occurs when a mother is diagnosed with postpartum depression.

The research study that will be conducted to answer the research question aims to find the common pattern of hormones and hormone levels found in mothers diagnosed with postpartum depression. Before conducting the research, internal review board members must review the study for ethical issues and approve the proposal. The potential participants of this study need to sign a consent form that explicitly explain that their health history and medical records will be analyzed. In addition, the volunteers of this study will sign a waiver understanding that their blood draws will be analyzed for specific hormones and lab values. This study will be a quantitative longitudinal study that will be performed during a period of twelve months. It will be conducted solely in Northern California and will study 100 pregnant women from their first trimester of pregnancy to one month postpartum. Women from various cities of Northern California may volunteer to register for the study, but must be between the ages of 18-35. The women who volunteer must be first time mothers and who do not have pre-existing chronic illnesses such as diabetes, hypertension, high cholesterol, etc., before pregnancy.

Upon registration, women will be asked basic history and background such as: age, major health history, gestational age, and feelings about their pregnancy. They each will be assigned a study identification number to protect their privacy. In addition, blood draws will be performed four times during the: first trimester, before labor, one hour after labor, and one month postpartum. During the first and last blood draws, the mothers will be asked to fill out the Edinburgh Postpartum Depression Scale.

Once the data is obtained, the numbers will be statistically analyzed, using a multiple regression model, to find which hormones increase and decrease in the majority of the mothers and how it may compare to their feelings after pregnancy. Completing the blood draws at the specific time frames are imperative to the research in order to determine whether or not there is an important relationship between extreme hormonal increases or decreases and PPD.

### **Conclusion**

Through the research process and critiquing of the nine articles, it has been presented that there is an innumerable number of psychosocial stressors and determinants that can contribute to postpartum depression. Marital status, education, economic status, co-residency, domestic violence, gestational morbidity, social interaction, and more are a few of the many risk factors that influence the development of PPD. Although the research question of this paper has been partly answered, there remains further room for research to determine more risk factors to this mental illness, including the hormonal imbalances that may occur after birth. With the data that has already been collected and with the prior knowledge that has been taught, the field of medicine can progress into improving their treatment of postpartum depression in mothers.

In particular, nurses who work with mothers during the postpartum period must understand the various risk factors of PPD and recognize that every woman's situation is

different. Acknowledging that a mother's story is unique to their own circumstances can better assist in supporting, tending, and advocating for a woman diagnosed with postpartum depression. Recognizing the *Teetering on the Edge* theory by Cheryl Tatano Beck can also help in educating women who suffer from postpartum depression on how to better manage and cope with their current illness. The mother and the newborn's health, wellness, and safety are of highest priority for the medical team. With that in mind, we fulfill our duty as healthcare professionals through the constant research, data, and education that are collected to offer better care for this vulnerable population of mothers.

## References

- A. Fiala, J. Svancara, J. Klanova, and T. Kasperek, "Sociodemographic and delivery risk factors for developing postpartum depression in a sample of 3233 mothers from the Czech ELSPAC study," *BMC Psychiatry*, vol. 17, no. 1, 2017.
- Beck CT. (1993). Teetering on the edge: a substantive theory of postpartum depression. *Nursing Research*, 42(1), 42–48. Retrieved from [https://search-ebscohost-com.dominican.idm.oclc.org/login.aspx?direct=true&db=rzh&AN=107462943&site=ehost-live](https://search.ebscohost.com/dominican.idm.oclc.org/login.aspx?direct=true&db=rzh&AN=107462943&site=ehost-live)
- Cheryl Tatano Beck, DNSc, CNM, FAAN. (n.d.). Retrieved from <https://www.postpartum.net/staff/cheryl-tatano-beck>
- Depression Among Women | Depression | Reproductive Health | CDC. (n.d.). Retrieved from <https://www.cdc.gov/reproductivehealth/depression/index.htm>
- Do, T. K., Nguyen, T. T., & Pham, T. T. (2018). Postpartum Depression and Risk Factors among Vietnamese Women. *BioMed Research International*, 2018, 1-5.  
doi:10.1155/2018/4028913
- Honjo, K., Kimura, T., Baba, S., Ikehara, S., Kitano, N., Sato, T., & Iso, H. (2018). Association between family members and risk of postpartum depression in Japan: Does "who they live with" matter? -The Japan environment and Children's study. *Social Science & Medicine*, 217, 65–72. <https://doi-org.dominican.idm.oclc.org/10.1016/j.socscimed.2018.09.043>
- J. Rogathi, R. Manongi, D. Mushi et al., "Postpartum depression among women who have experienced intimate partner violence: A prospective cohort study at Moshi, Tanzania," *Journal of Affective Disorders*, vol. 218, pp. 238–245, 2017.

Kornfeind, K. R., & Sipsma, H. L. (2018). Exploring the Link between Maternity Leave and Postpartum Depression. *Womens Health Issues, 28*(4), 321-326.

doi:10.1016/j.whi. 2018.03.008

P. J. Surkan, K. S. Sakyi, P. Christian et al., “Risk of Depressive Symptoms Associated with Morbidity in Postpartum Women in Rural Bangladesh,” *Maternal and Child Health Journal*, vol. 21, no. 10, pp. 1890–1900, 2017.

R. Silva, K. Jansen, L. Souza et al., “Sociodemographic risk factors of perinatal depression: a cohort study in the public health care system,” *Revista Brasileira de Psiquiatria*, vol. 34, no. 2, pp. 143–148, 2012.

Statistics on Postpartum Depression - Postpartum Depression Resources. (n.d.). Retrieved from <https://www.postpartumdepression.org/resources/statistics/>

Unsal Atan, Ş., Ozturk, R., Gulec Satir, D., Ildan Çalim, S., Karaoz Weller, B., Amanak, K., Akercan, F. (2018). Relation between mothers’ types of labor, birth interventions, birth experiences and postpartum depression: A multicentre follow-up study. *Sexual & Reproductive HealthCare, 18*, 13–18. <https://doi-org.dominican.idm.oclc.org/10.1016/j.srhc.2018.08.001>

Y. Zhao, I. Kane, J. Wang, B. Shen, J. Luo, and S. Shi, “Combined use of the postpartum depression screening scale (PDSS) and Edinburgh postnatal depression scale (EPDS) to identify antenatal depression among Chinese pregnant women with obstetric complications,” *Psychiatry Research*, vol. 226, no. 1, pp. 113–119, 2015.

Running Head: IDENTIFYING THE RISK FACTORS TO POSTPARTUM DEPRESSION 1

Authors/Citation	Purpose/Objective of Study	Sample - Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p><b>A. Fiala, J. Svancara, J. Klanova, T.Kasperek</b></p> <p>A. Fiala, J. Švancara, J. Klánová, and T. Kašpárek, “Sociodemographic and delivery risk factors for developing postpartum depression in a sample of 3233 mothers from the Czech ELSPAC study,” BMC Psychiatry, vol. 17, no. 1, 2017.</p>	<p>To identify the main risk factors that influence the development of postpartum depression. This study specifically researches sociodemographic and delivery risk factors for developing postpartum depression (PPD).</p>	<ul style="list-style-type: none"> <li>• Mothers who live in the United Kingdom, Czech Republic, Slovakia, Ukraine, Greece, and Russia</li> <li>• Specifically, mothers who were at the 20th week of pregnancy were encouraged to enroll in the study</li> <li>• n= 7589</li> </ul>	<ul style="list-style-type: none"> <li>• Longitudinal study</li> <li>• Secondary Quantitative Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Self-reported questionnaires from mothers, fathers, children, and doctors at three time points: prenatal, 6 weeks postpartum, and 6 months postpartum</li> <li>• This study also used the Edinburgh Postnatal Depression Scale</li> </ul>	<p>Major risk factors that were identified in this study are:</p> <ul style="list-style-type: none"> <li>• Personal or family history of depression (50-62% chance if there is HX)</li> <li>• Socioeconomic factors</li> <li>• Number of living children</li> <li>• Child gender</li> <li>• Breastfeeding</li> <li>• Attitude toward pregnancy</li> </ul>	<ul style="list-style-type: none"> <li>• Innovative approach in exploring women’s risk factors not only during postpartum stages, but also investigating prenatal history and experience.</li> <li>• May lead to broader understanding of risk factors leading to postpartum depression.</li> </ul>	<p>Self-report may leave room for misguided interpretation or misunderstanding of a question</p> <p>Not all participants were not able to complete questionnaires at a certain time points</p> <p>Attrition of participants can lead to skewed results.</p> <p>May not be generalizable to other countries</p>

Authors/Citation	Purpose/Objective of Study	Sample - Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p><b>Do, T.K., Nguyen, T.T., Pham, T.T.</b></p> <p>Do, T. K., Nguyen, T. T., &amp; Pham, T. T. (2018). Postpartum Depression and Risk Factors among Vietnamese Women. <i>BioMed Research International</i>, 2018, 1-5. doi:10.1155/2018/4028913</p>	<p>To explore whether the: level of education, diseases during pregnancy, being primiparous, dissatisfaction with family, or limited communication and interaction were influencers towards developing PPD.</p>	<ul style="list-style-type: none"> <li>• Women living in Hanoi, Vietnam. These women specifically are older than 18 years old and have a child(ren) who are less than 1 year of age.</li> <li>• n= 116</li> </ul>	<p>Cross sectional quantitative study</p>	<p>The Edinburgh Postpartum Depression scale. 116 women were split into two groups: those who scored 12 or more were grouped together while those who scored less than 12 were grouped together. Mothers were also interviewed for their background information, such as demographics, health hx, education, and interpersonal skills. Lastly, prior to the study, 10 women were asked for a pilot interview to determine their understanding of the EPDS.</p>	<ul style="list-style-type: none"> <li>• New mothers with a lower education were less likely to experience PPD</li> <li>• First time mothers are 2 times more likely to suffer from PPD than those who are multiparous</li> <li>• New mothers with limited interaction or communication were 4 times more likely to experience PPD</li> <li>• Gestational disease also increase the risk of PPD developing</li> <li>• Women who were satisfied with their family were least likely to develop PPD</li> </ul>	<ul style="list-style-type: none"> <li>• Received background information on the women</li> <li>• Utilized an SPSS software to manage and analyze their data</li> </ul>	<ul style="list-style-type: none"> <li>• May not be generalizable to other countries</li> <li>• Relatively small sample size</li> <li>• Findings may not be generalizable to broader population</li> <li>• Only interviewed 10 women for a pilot interview to ensure understanding of the questionnaire</li> <li>• Without more extensive assessment of understanding, questionnaire may not be reliable</li> </ul>

Authors/Citation	Purpose/Objective of Study	Sample - Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p>Honjo, K., Kimura, T., Baba, S., Ikehara, S., Kitano, N., Sato, T., Iso, H.</p> <p>Honjo, K., Kimura, T., Baba, S., Ikehara, S., Kitano, N., Sato, T., &amp; Iso, H. (2018). Association between family members and risk of postpartum depression in Japan: Does “who they live with” matter? -The Japan environment and Children’s study. <i>Social Science &amp; Medicine</i>, 217, 65–72. <a href="https://doi.org.dominican.idm.oclc.org/10.1016/j.socscimed.2018.09.043">https://doi-org.dominican.idm.oclc.org/10.1016/j.socscimed.2018.09.043</a></p>	<p>Investigates whether or not co-resident family members affects the probability of developing postpartum depression. In addition, this study explores the effects of partner involvement and household income in association with co-resident family members and its risk towards the development of PPD.</p>	<ul style="list-style-type: none"> <li>• Japanese women 1 month postpartum</li> <li>• sample size: 86,490</li> </ul>	<p>Quantitative, comparative</p>	<p>Women were to self-report on a questionnaire at three time points. First questionnaire was distributed at the time of registration, second questionnaire was given during second or third trimester, and last questionnaire was administered 1 month after postpartum. With the consent of the women involved, their medical information was retrieved for info on the first trimester, at delivery, and 1 month postpartum</p> <p>The EPDS was also utilized to determine risk for PPD</p>	<ul style="list-style-type: none"> <li>• Women who developed PPD were more likely to live with their parents, parents-in law, be unmarried, less educated, or have low household income</li> <li>• Women who developed PPD most likely experienced domestic abuse</li> <li>• Increase risk of PPD was only seen in women who did not live with their partner and had low household income</li> <li>• Living with other children was a protective barrier from developing PPD regardless of income</li> </ul>	<ul style="list-style-type: none"> <li>• Large sample size</li> <li>• Examined the association between co-resident family members and income and their effects on PPD development</li> <li>• Utilized EPDS</li> <li>• Retrieved patient data on prenatal visits, delivery, and postnatal visits.</li> </ul>	<ul style="list-style-type: none"> <li>• May not be generalizable to other countries</li> <li>• Specific age limits were not stated</li> <li>• Specific areas of Japan that were studied were not stated</li> </ul>

Authors/Citation	Purpose/Objective of Study	Sample - Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p><b>Kornfeind KR &amp; Sipsma, HL</b></p> <p>Kornfeind KR &amp; Sipsma, HL (2018) Exploring the Link between Maternity Leave and Postpartum Depression. <i>Womens Health Issues</i>, 28(4), 321-326</p> <p>PMID: 29729837 DOI: <a href="https://doi.org/10.1016/j.whi.2018.03.008">10.1016/j.whi.2018.03.008</a></p>	<p>Investigate the possible relationship between maternity leave and the development of postpartum depression.</p>	<ul style="list-style-type: none"> <li>• Employed women who returned back to work full time after giving birth</li> <li>• n= 177</li> </ul>	<p>Cross sectional quantitative study</p>	<p>Mothers were asked to fill out a Patient Health Questionnaire that assessed their depressive symptoms in the past two weeks</p> <p>Scores of three or higher were considered positive for postpartum depression</p> <p>Women were asked if their leave was paid or unpaid</p> <p>Women were asked how long after giving birth did they start working again for wages</p>	<ul style="list-style-type: none"> <li>• Longer maternity leaves are associated with decreasing the risk of postpartum depression</li> <li>• No correlation between paid or unpaid leave</li> <li>• A short maternity leave is better than no leave at all</li> </ul>	<ul style="list-style-type: none"> <li>• Examined the women who were under employment of a management and not considered "self- employed"</li> <li>• Assessed the time range women were taking between the time of giving birth to going back to work</li> </ul>	<ul style="list-style-type: none"> <li>• Only limited to the United States which may not be generalizable to other countries</li> <li>• Population of interest were 75% highly educated and 66.5% were of Caucasian or non-Hispanic ethnicity- this leaves no room for examination of other ethnicities</li> <li>• Patient Health Questionnaire was only administered in English, limiting the sample size to only women of English language</li> </ul>

<p><b>J. Rogathi, R. Manongi, D. Mushi</b></p> <p>J. Rogathi, R. Manongi, D. Mushi et al., "Postpartum depression among women who have experienced intimate partner violence: A prospective cohort study at Moshi, Tanzania," <i>Journal of Affective Disorders</i>, vol. 218, pp. 238–245, 2017.</p>	<p>Examine the prevalence of intimate partner violence amongst pregnant women and their significant others and how it correlates to the development of postpartum depression.</p>	<ul style="list-style-type: none"> <li>• Pregnant women less than 24 weeks gestation attending antenatal clinics. These women are specifically from Tanzania.</li> <li>• n= 1013</li> </ul>	<p><b>Prospective cohort Quantitative study examining the statistical relationship between their findings</b></p>	<p>Women were interviewed at four time points:</p> <ol style="list-style-type: none"> <li>1) upon recruitment, where they were asked demographics and reproductive health was assessed</li> <li>2) At 34 weeks gestational age, where they were assessed for depression using the EPDS and self-reported any experience of intimate partner violence through the "WHO's Multi country study on women's health and domestic violence" questionnaire</li> <li>3) 40 days postpartum, women were screened for postpartum depression again using the EPDS</li> </ol>	<ul style="list-style-type: none"> <li>• 304 women out of the sample reported exposure to some type of domestic abuse during their pregnancy</li> <li>• 122 women out of the sample had an EPDS score of 13 or more</li> <li>• Women who were exposed to domestic violence during pregnancy were three times more likely to experience PPD</li> <li>• Women between the ages of 18-24 who were exposed to physical violence are at high risk</li> <li>• Women who were exposed to emotional abuse with no history of depression were still at higher risk than those women who do have previous history of depression.</li> </ul>	<ul style="list-style-type: none"> <li>• Assessed the women at different points of their pregnancy</li> <li>• Examined the odds between women who have a history of postpartum depression and those who have no past history</li> <li>• Relatively large sample</li> </ul>	<ul style="list-style-type: none"> <li>• The study was only performed in Tanzania, potentially limiting</li> <li>• Some women in this cohort may have been afraid to admit to experiencing domestic violence which can alter results</li> <li>• This study only examines women who are attending antenatal clinics, there is a larger population of women who do not attend antenatal clinics and who may be experiencing intimate domestic violence.             <ul style="list-style-type: none"> <li>• There might be a relation between access to health care, socioeconomic status, and domestic violence</li> </ul> </li> </ul>
---	---	---	---	--	---	--	--

Authors/Citation	Purpose/Objective of Study	Sample - Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p><b>P.J. Surkan, K. S. Sayki, P. Christian</b></p> <p>P. J. Surkan, K. S. Sakyi, P. Christian et al., "Risk of Depressive Symptoms Associated with Morbidity in Postpartum Women in Rural Bangladesh," <i>Maternal and Child Health Journal</i>, vol. 21, no. 10, pp. 1890–1900, 2017.</p>	<p>Identify if there is a correlation between maternal morbidity after pregnancy and experiencing postpartum depression after delivery.</p>	<ul style="list-style-type: none"> <li>Married rural Bangladeshi women aged 13-44</li> <li>n= 39,000</li> </ul>	<p>Quantitative, descriptive, correlational questionnaire</p>	<p>Women were to self report any alterations in reproductive, urinary, neurological, nutrition, and other illnesses experienced between childbirth and 3 months postpartum.</p> <p>6 months postpartum, women were assessed for PPD</p>	<ul style="list-style-type: none"> <li>All postpartum illnesses posed a great risk for developing PPD 6 months postpartum</li> <li>The following illnesses were identified that pose a risk: uterine prolapse, UTI, headache, convulsions, anemia, pneumonia, gastroenteritis, hepatobiliary disease</li> <li>Developing morbidities during the first 3 months postpartum were the highest risk factors towards developing PPD</li> <li>Convulsions and hepatobiliary disease have the strongest relationship between maternal disease and PPD</li> </ul>	<ul style="list-style-type: none"> <li>Large sample size</li> <li>Assessed women 6 months postpartum for postpartum depression</li> <li>Utilized questionnaire</li> </ul>	<ul style="list-style-type: none"> <li>Past medical history and delivery complications could have been extraneous variables, but were not examined</li> <li>Results may not be generalizable outside of rural Bangladesh.</li> </ul>

Authors/Citation	Purpose/Objective of Study	Sample - Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p><b>R. Silva, K. Jansen, L. Souza</b></p> <p>R. Silva, K. Jansen, L. Souza et al., "Sociodemographic risk factors of perinatal depression: a cohort study in the public health care system," <i>Revista Brasileira de Psiquiatria</i>, vol. 34, no. 2, pp. 143–148, 2012.</p>	<p>Examine the sociodemographic risk factors that can influence the development of postpartum depression</p>	<ul style="list-style-type: none"> <li>• Women of the ages between 13 and 46 years old in their perinatal period of pregnancy</li> <li>• n= 1019</li> </ul>	<p>Quantitative survey, cohort study survey.</p>	<p>Women were examined during perinatal period and postnatal period. The EPDS was utilized to assess for postpartum depression. In addition, women were also asked to answer a questionnaire regarding socioeconomic status, marital status, gestational period, previous pregnancies, psych history, family history, stressful trauma, etc</p>	<ul style="list-style-type: none"> <li>• There is a correlating factor between the following risk factors and developing PPD: low socioeconomic status, not living with a partner, history of a psychiatric disorder, and tobacco use during pregnancy</li> <li>• these risk factors increases the chance of a woman developing PPD</li> <li>• Antenatal depressive symptoms are also a risk factor to postpartum depression</li> </ul>	<ul style="list-style-type: none"> <li>• Large sample</li> <li>• Utilized questionnaires such as the Edinburgh Postpartum Depression Scale</li> <li>• Examined women during their antenatal stage for depressive symptoms to establish if there is a correlation between antenatal depressive symptoms and postpartum depression developing.</li> </ul>	<ul style="list-style-type: none"> <li>• The study stated that one of their limitations was the use of the EPDS.</li> <li>• Authors stated that the EPDS lacked specific depressive symptoms.</li> <li>• Authors mentioned that EPDS does not encompass other depressive symptoms that a woman may be experiencing, leading to misguided answering to the questionnaire.</li> </ul>

<p>Unsal Atan, S., Ozturk, R., Güleç Satir, D., Ildan Calim, S., Karaöz Weller, B., Amanak, K., Akercan, F</p> <p>Unsal Atan, Ş., Ozturk, R., Gulec Satir, D., Ildan Çalim, S., Karaoz Weller, B., Amanak, K., Akercan, F. (2018). Relation between mothers' types of labor, birth interventions, birth experiences and postpartum depression: A multicentre follow-up study. <i>Sexual &amp; Reproductive HealthCare</i>, 18, 13–18. <a href="https://doi-org.dominican.idm.oclc.org/10.1016/j.srhc.2018.08.001">https://doi-org.dominican.idm.oclc.org/10.1016/j.srhc.2018.08.001</a></p>	<p>To investigate if the type of labor, birth interventions, and birth experiences are influencing factors towards developing postpartum depression.</p>	<p>Women who have given birth to a child or children; specifically chosen from four different provinces in Turkey. n= 1010</p>	<p>Descriptive, cross sectional study</p>	<p>Women were purposely selected from four different hospitals from four different provinces. These women have given birth between January and December 2011. Data was collected through the Mother Self Description Form, Perception of Birth Scale (POBS) and the Edinburgh Postpartum Depression Scale The POBS was reviewed by gynecologists before administering the survey to ensure that the terms used in the scale were in laymen's term and easy to understand for those who are not in the medical field. The POBS was conducted in a face to face meeting 2 days postpartum and EPDS was administered 6 weeks after</p>	<ul style="list-style-type: none"> <li>• Vaginal birth is linked to a higher EPDS score (higher risk of PPD) than those women who experienced a C-section</li> <li>• EPDS scores were higher in women who had longer labor time, needed oxytocin induction, and artificial rupture of membranes</li> <li>• There is a negative correlation between birth interventions and the risk for PPD</li> </ul>	<ul style="list-style-type: none"> <li>• Large sample size</li> <li>• Picked women from different provinces of Turkey to establish different socioeconomic background</li> <li>• Ensured understanding of the survey by reanalyzing the word choices of the questionnaire</li> <li>• POBS questionnaire was administered 2 days after birth and the EPDS was administered 6 weeks after birth, which is pivotal protocol for accurate results</li> </ul>	<ul style="list-style-type: none"> <li>• Women were only studied in Turkey, potentially limiting</li> <li>• May not be generalizable to other countries</li> <li>• Misinterpretation of both questionnaires could have been an issue still</li> </ul>
---	--	--	---	---	--	--	---

Authors/Citation	Purpose/Objective of Study	Sample - Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p><b>T. V. Vo, T. K. D. Hoa, and T. D. Hoang,</b></p> <p>T. V. Vo, T. K. D. Hoa, and T. D. Hoang, "Postpartum depressive symptoms and associated factors in married women: A cross-sectional study in Danang City, Vietnam," <i>Frontiers in Public Health</i>, vol. 5, 2017</p>	<p><b>To determine a common denominator between married women and PPD</b></p>	<p><b>Women who gave birth 4 weeks to 6 months prior to interview recruitment n= 600</b></p>	<p><b>Cross sectional, prevalence study</b></p>	<p><b>Study was conducted from July 2013 to August 2014</b> Interviews were conducted using a structured questionnaire to assess demographics and background of the sample <b>The EPDS was also utilized with a score of 12/13 was the cut off point</b></p>	<p><b>It was found that the factors associated with PPD symptoms were: not being able to rely on their husband for help, having a significant other who does not give the time to discuss problems, having anxiety or other stressors, lack of exercise, and an ill baby.</b> <b>37.9% of the women were suffering from suicidal ideations</b> <b>Those financially dependent on their husbands were at higher risk</b></p>	<ul style="list-style-type: none"> <li>• <b>Concentrated their study primarily on married women</b></li> <li>• <b>Had a specific cohort of women (ie women who gave birth 4 weeks to 6 months prior to interview)</b></li> <li>• <b>Face to face interviews were conducted with a structured questionnaire</b></li> <li>• <b>EPDS was administered</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Small sample size</b></li> <li>• <b>Study was only conducted in Danang City, Vietnam</b></li> <li>• <b>May not be generalizable to other countries</b></li> </ul>

