

# Impact of Childbirth Complications on Postpartum Depression Occurrence: A scoping review

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**Abstract:** Postpartum depression (PPD) is worldwide known as one of the most common complications of childbearing. It affects the health and wellbeing of many mothers, their infants, and their families. Globally, childbirth is a period of women's life content an intense and strong emotion, both negative and positive and transition naturally health. This transition in a woman's life has been subjected to change in location. This study aimed to investigate if maternal childbirth complications affect postpartum depression. A Searches were completed using PsycINFO, Medline and PubMed databases through the Saudi Digital library database. The eligibility criteria included: full text articles, researches in English language, researches which studied the relationship between maternal childbirth complications and occurrence of postpartum depression. All the included studies were critically appraised. After the selection process, 13 studies matching the inclusion criteria identified and were incorporated into the review. **Results:** The literature review content categorized into four themes: preterm labor; perineal injury; cesarean birth; postpartum hemorrhage and the most common among them was the cesarean birth.

**Keywords:** Impact, effect, delivery complications, childbirth complications, relationship, postpartum depression, women.

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## 1. INTRODUCTION

Experiences that are likely to be stressful or unpleasant for women before, during, or right after childbirth are referred to as maternal birth problems. These include difficulties, unexpected emergency interventions, or the requirement for extensive medical care. Sexual dysfunction, anxiety about future pregnancies, and postpartum mental health issues, such as postpartum depression (PPD), are linked to maternal delivery difficulties. (Weobong et al., 2015). PPD, often defined as depression within 1 year of childbirth, is a highly prevalent condition (Aris-Meijer et al., 2019). Besides, Childbirth is a major life event, particularly, if delivery followed by a complication. For instance, when the newborn needs admission to an intensive care unit or delivered via an emergency caesarian section (Aris-Meijer et al., 2019).

According to Weobong (2015), Four million women give birth each year in the United States, and approximately half of women report stressful events or complications during childbirth. (Weobong et al., 2015).

Postpartum depression (PPD) is worldwide known as one of the most common complications of childbearing, and it is mental disorder dispelling which can be treatable (Weobong et al., 2015). Approximately, within the first year, postpartum 13% and 19% of mothers experience symptoms of depression (Stewart & Vigod, 2016). While, during women's life, the incidence of postpartum depression may not be higher than at other times.

Evidence by Bell and his colleagues supported the relationship between maternal depression and mothering behavior, quality of mother-infant interaction and subsequent child development (Bell et al., 2016). Women with postpartum depression have long and short term complications affecting mother, newborn and family (Ogbo et al., 2018). There has been an increasing focus on the range of postpartum psychiatric illness, a recent study highlighted that the postpartum period associated with increased risk of multiple psychiatric disorders (Meltzer-Brody et al., 2017).

## 2. THE RATIONALE OF THE STUDY

Many mothers' health and well-being, as well as that of their babies and their families, were negatively impacted by postpartum depression (Yim, Tanner Stapleton, Guardino, Hahn-Holbrook, & Dunkel Schetter, 2015). Numerous research have examined the risk factors for postpartum depression; however, because these studies have only included a small number of participants, the prevalence of postpartum depression varies greatly (Fiala, Švancara, Klánová, & Kašpárek, 2017). Furthermore, to consolidate the base of current evidence, a comprehensive understanding of obstetrical factors leading to postpartum depression is needed for best practices in translation.

## 3. AIM

To investigate Impact of childbirth complications on the occurrence of postpartum depression among women.

## 4. PICOT QUESTION

Dose laboring women who have childbirth complications compared to those without childbirth complications at risk for postpartum depression during the postpartum period?

## 5. METHODS AND DESIGN

This review was conducted in systematic approach and was guided by Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009). Utilizing three or more data electronic databases has the advantage of providing a broad range of studies, which is necessary to address the suggested PICOT research question. The review included studies that had met the same inclusion and exclusion criteria based on the study PICOT question in section. The inclusion criteria for this review entailed: full-text articles of weighted research quality, published between 2019 to 2023, in the English language, which studies the impact of maternal childbirth complications on postpartum depression. The initial studies identified were of both qualitative and quantitative design and all met at least one of the inclusion criteria. Based on the inclusion and exclusion criteria the studies gathered in this review included participants of one group: postpartum mothers.

## 6. SEARCH STRATEGY

A review of the literature was conducted using different databases including Psychinfo, MEDLINE, and PubMed through the Saudi Digital library database. Google scholar was used for searching gray literature. The electronic search was completed on November 20, 2023, of CINAHL, Medline and PubMed databases, resulting in a total of 650 records. 400 was founded in Psychinfo and Medline. They remain, 250 studies extracted from PubMed. All peer-reviewed articles and unpublished dissertations were eligible for inclusion in the analysis. The following search terms were used with the explode feature: delivery complications, childbirth complications, postpartum depression, women.

Search limits were applied and the duplicate articles were removed, the remaining 170 articles were screened by title which then resulted in 40 potentially relevant articles based on the abstract and full-text electronic copy availability.

The research team then reviewed each of the 40 articles using the inclusion criteria, which included articles where the sample were postpartum women including all ages. The final number of articles included in the review was 13 articles: with 6 articles retrieved from Psychinfo, 3 articles from Medline, and 4 articles from PubMed.

## 7. FINDINGS/RESULTS

The findings are presented in this review in the following order: a description of the features of the included research, a critical evaluation procedure, and then the presentation of the themes that were extracted.

The literature search turned up a wide variety of research that addressed various issues related to childbirth. Every study that was included was examined separately by contrasting its goals and/or objectives, design, techniques for gathering and analyzing data, and key conclusions. Furthermore, to identify the research themes, a review matrix was used to organize the key studies by themes. This process helped to highlight common themes emerging across the studies and identify what the studies shared in common and what differences could be isolated from them. Data were extracted from 40 studies.

The data extraction table contains a description of several elements that are essential for identifying unique and pertinent data from each of the included articles. These elements include the study: study references (author, year of publication), country of study, study design, total sample size, types of participants, intervention group, control/placebo/ comparisons group, duration of interventions, follow up and outcome measured. Of the 13 studies, most of them were conducted in Europe(n=6), then, equality studies in each of South Asia(n=2), Australia(n=2), Middle East(n=2), with a minority of included studied published in Africa(n=1).

The study design of the included studies can be divided into different two types which are cohort and cross-sectional studies. The majority of studies are cohort study(n=10) and the remaining are cross-sectional study(n= 3 ). Eight articles had a relatively large sample ( a total of 500 postpartum mothers or more) and 5 articles had samples of less than 500 postpartum mothers.

For the childbirth complications, 13 articles concentrated on the mode of delivery( 6 of them discussed cesarean section. four studies also focused on preterm labor and 3 studies on the perineal injury. Finally, postpartum hemorrhage was 4 studies.

The tools used by the researchers in conducting their studies which come in the form of questionnaires(n=12), one of them started with a survey, other combined by biomarkers and one were the participants whom non-respondents were contacted by telephone, while telephone contact was (n=1).

Critical appraisal is defined as examining the trustworthiness, value, and relevance of research in a particular context. Furthermore, it helps researchers to find the most relevant papers and evaluate the validity of researches, and to exclude weak and irrelevant studies. Thus, the critical appraisal tool designed by Hawker and colleagues (2002), have been used by the authors for appraising the quality of the studies included in this systematic review. The Hawker and colleagues appraisal tool consists of nine items that help in the evaluation process of abstract and title, introduction and aim, method and data, sampling, data analysis, ethics and bias, results, generalizability and implications and usefulness. The four-point Likert scale: (1) Very poor (2) Poor (3) Fair (4) Good was used to measure the quality of all the included studies. The score of the overall studies' quality could be estimated by adding up the nine items. The poor-quality study is represented by a score ranging from 9 – 18, fair quality study ranging from 18 – 27 while good quality study ranging from 28 – 36. During the critique of the studies included, the revealed results were that all the studies considered high-quality studies. Twelve among the studies included have got the rate of good-quality studies, however, one study only has got the rate of fair-quality study and that because the description of the ethical issues, that the researchers have encountered, was inadequate. In regards to the research studies which evaluated as good, the abstracts were well organized and structured, giving clear titles and complete information. Also, the findings were understandable. Tables and graphs if present, were explained in text and results related directly to the researches' aims and questions (Hawker, Payne, Kerr, Hardey, & Powell, 2002).

A total of four themes emerged from the literature relating specifically to the association between childbirth and postpartum depression. These themes are preterm labor, perineal injury, mode of delivery and postpartum hemorrhage. These themes are examined in more detail in the subsequent subsections of this review.

### **7.1. Relationship between preterm labor and postpartum depression**

Preterm labor (PTL), defined as the occurring of labor before 37 completed weeks of gestation (Handelzalts et al., 2016). Constitute about nine percent of all live deliveries (Handelzalts et al., 2016). Women with preterm labor had been observed to be associated with an increased risk of postpartum depression may be due to stress (Ihongbe & Masho, 2017).

Many studies had concerns about the presence of a relationship between preterm labor and postpartum depression (Weobong et al.,2015; Ihongbe & Masho, 2017; Barroso, Hartley, Bagner, & Pettit,2015; Handelzalts et al.,2016). In these studies, it was found that preterm labor may predispose to postpartum depression.

Ihongbe and Mssho (2017) conducted an across-sectional study in U.S.A on 55,681 multiparous women who have singleton live births in the index delivery. The study aim was to examine if preterm birth in women who have a previous history of preterm birth is linked to an increased risk of postpartum depression symptoms. They have found that women who have preterm births only in the index delivery and mothers with preterm births in the penultimate and index deliveries both have a significant risk of experiencing postpartum depressive symptoms (Ihongbe & Masho, 2017). However, very preterm birth, specifically, in the index delivery, is linked to postpartum depressive symptoms, while a previous history of preterm birth does not bring an incremental risk in postpartum depressive symptoms (Ihongbe & Masho, 2017).

Furthermore, a quantitative cross-sectional study conducted on 102 mothers in the United States showed that preterm labor had a significant direct impact on the incidence of symptoms of postpartum depression (Barroso, Hartley, Bagner, & Pettit, 2015). On the other hand, a prospective longitudinal study conducted in Palestine among 58 postpartum women, indicated that there is no association between preterm labor and postpartum psychological consequences including postpartum depression (Handelzalts et al., 2016).

### 7.2. The impact of occurrence of perineal injury during childbirth on postpartum depression

Some studies had concerns about the relationship between perineal injury during childbirth and postpartum depression. Perineal injury is categorized from first to a fourth-degree according to the anatomical structures involved in the tissue impairment (Steen & Diaz, 2018). According to Steen & Diaz (2018), the impairment in the first degree just involving the skin, in the second degree, the impairment involve the perineal muscles while the anal sphincter is involved in the third degree. In the fourth degree, the impairment will reach anal epithelium (Steen & Diaz, 2018).

In Ohio and Colorado, a quantitative longitudinal study conducted on 153 women, the aim was to explore the relationship between perineal injury and the development of depressive symptoms in the first six months postpartum. The study concluded that women who complained of any degree of perineal injury had increased risk for postpartum depression (Dunn, Paul, Ware, & Corwin, 2015). In particular, persistent and considerable relationships exist between having a second degree or more severe perineal injury and symptoms of depression beginning at first month postpartum and lasting through at least three months postpartum (Dunn, Paul, Ware, & Corwin, 2015).

Likewise, in a cohort study conducted in Brazil among 768 puerperal Brazilian women. The study aimed to assess the repercussions of the type of delivery on neonatal and maternal consequences of puerperal women who attended the 11 maternities of a Northeastern Brazilian state. The study revealed that there is a relationship between perineal injury, which considered the most frequent maternal complication, and postpartum depression (Prado et al., 2018).

### 7.3. Cesarean birth and postpartum depression

The impact of mode of delivery and postpartum depression was arguable. The mode of delivery can be one of these three types: spontaneous vaginal delivery, instrumental vaginal delivery that includes vacuum and forceps and operational delivery that includes an elective and intrapartum cesarean section (Cirik et al., 2016).

Many studies supported a relationship between the mode of delivery and the postpartum experience of depression, (spontaneous vaginal delivery, cesarean elective, emergency, ventious). First of all, a cross-sectional study conducted by Kunwar and colleagues in 2015 on 100 postpartum women in Nepal revealed that there is a relationship between postpartum depression and the mode of delivery (Kunwar, Corey, Sharma, & Risal, 2015). The study reported that postpartum depression was significantly associated with vaginal delivery (Kunwar et al., 2015).

Similarly, in Denmark, a study conducted by Meltzer-Brody (2017) involved of 329458 primiparae in cohort longitudinal study Meltzer-Brody found that one of the factors increased the postpartum depression was Cesarean section (Meltzer-Brody et al., 2017).

In a recent study conducted by Ogbo et al., (2018) to compare between normal vaginal delivery and cesarean section among 17,564 women. The study found that the mother who had a cesarean section were more likely to experience postpartum depression compared to those who had normal vaginal delivery (Ogbo et al., 2018)

Furthermore, a cohort study with a sample that consists of 13,360 mothers identified that the factors related to obstetric history, pregnancy, birth, and the baby were associated with risk of postnatal depression (Weobong et al., 2015). The same study confirmed that vaginal delivery was more associated with PPD comparing to the cesarean section (Weobong et al., 2015).

On the other hand, 4 studies found that there was no association between type of delivery and postpartum depression Prado et al., 2018, Maharjan et al., 2019, Bell et al., 2016 and Cirik et al., 2016. A cohort study conducted in Sergipe, Brazil by Prado (2018) among 768 postpartum women, indicated that no association between type of delivery and urinary incontinence and depression (Prado et al., 2018).

A study conducted in Nepal by Maharjan et al., 2019 which concluded the same finding in a quantitative descriptive cross-sectional study with a sample size of 330 post-partum mothers after delivery to 12 weeks (Maharjan et al., 2019). Additionally, a prospective longitudinal cohort study with a non-random sample of 4946 pregnancies conducted in the United Kingdom aims to investigate the associations between childbirth and rise postpartum symptoms of depression and anxiety by Bell et al., 2016. The study identified that a null relationship between the type of birth and postpartum depression (Bell et al., 2016). Similarly, in Ankara, Turkey a study used a questionnaire of Hospital Anxiety and Depression Scale to collect the data of 149 women and found that no association between normal vaginal and cesarean delivery and postpartum depression (Cirik et al., 2016).

## 8. CONCLUSION

This study aimed to explore the impact of childbirth complications on the incidence of postpartum depression. This study used a systematic review approach. The articles obtained from Psycinfo, medline, and Pubmed. The criteria's applied be restricted. As many as 13 journals are found. Complication during childbirth are one of the risk factors of postpartum depression, i.e., cesarean birth, preterm labor, perineal injury and hemorrhage during labor. Future researchers are expected to be able to conduct research based on primary data.

Thus, special attention should be paid to women in the postpartum period with emphasizing on providing professional psychological education and support.

The major limitation of this literature review is the availability of the studies themselves. The number of studies that were exclusive to childbirth complications was limited; there were only 13 studies articles identified. Another drawback was that only quantitative research were included in this evaluation of the literature, even though qualitative studies could provide a deeper understanding of this subject. Furthermore, the studies included in this review are from a wide range of countries that have differences in the healthcare delivery system than those in Saudi Arabia, which may affect the occurrence of postpartum depression.

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