ISSN:2277-6907,
RNI NO.CHHHIN/2012/46660,
https://doi.org/10.56011/mind-mri-114-20224

Mind and Society
Vol. 11, No. 4, December 2022, 32-44

The Silent Suffering: A Perspective on Postpartum Depression

[1]**Anjana Bhattacharjee** [2]**Moutushi Bhowmik** [3]**Tatini Ghosh**

Postpartum Depression (PPD) is a major health concern as it is affecting around 15 per cent of the mothers after delivery. The present paper attempts to explore the different theoretical perspectives of PPD and its risk factors and impacts. For the purpose of the study, a detailed literature search was done and a total of 1467 articles were identified from the year 1950-2021 from various databases namely, PubMed, WebMD, SAGE, Springer, NCBI, Google Scholar, Research Gate, WHO, APA, Frontiers, Healthline, Scirp, PsycINFO and BMC pregnancy and childbirth, maintaining the inclusion and exclusion criteria. At last, only 91 articles were selected, and a detailed discussion and conclusion have been made accordingly. Findings suggest that it is essential nowadays to protect the health of both the mother and child, and it is a matter of great medical and social importance. Hence, keen attention must be paid to the maternity quality care.

Keywords: Postpartum Depression, Risk Factors, Impact, Maternal Mental Health, Child Health

Introduction

For most women, having a new child is usually a difficult time in their lives (APA, 2020). Nevertheless, the severity of the incapacity of many moms during the postpartum period is so excessive that a few moms perceive this as a phase of tribulation (Beck et al., 2006), whereas other moms consider their parturition as the "cheerful phase" (Corwin et al., 2003).

Clinical and diagnostic issues of Postpartum Depression (PPD) begin until the postnatal duration causing a range of emotional/ mental turmoil linked to childbirth (Guardino& Dunkel Schetter, 2014). Tearfulness, guilt feelings, decreased appetite, cognitive and sleep problems, feeling fatigued and irritated, negative emotions, and poor coping with the infant are all symptoms of PPD.Some women may also be overly concerned about their infants' health and feeding behavior, labelling them as "worst," "incapable," or "indifferent" mothers (Robinson & Stewart, 2001).

The postpartum period, which is frequently perceived as difficult by some new mothers, can be divided into the following phases (Figure 1):

Baby blues: This period lasts at least two weeks after delivery and it is normal for a woman to feel stressed, dejected, worried, isolated, and exhausted (McKelvey & Espelin, 2018).

Postpartum Depression: There are some women (approximately 1 in 10 new moms) who suffer from a much more serious mood disorder—particularly depression, which usually occurs within the first few weeks after delivery and extends up to a year after parturition (McKelvey &Espelin, 2018).

Postpartum psychosis is a rare but serious condition characterized by low or high mood, disorganized behavior, mood lability, delusions, and hallucinations (Brockington et al., 1981).

Postpartum PTSD is characterized by worries, nightmares, and autonomic hyperarousal that last for

[1]*Associate Professor, Department of Psychology, Tripura University, Tripura, India.*
[2,]*Research Scholars, Department of Psychology, Tripura University,Tripura, India.*
[,3]*Research Scholars, Department of Psychology, Tripura University,Tripura, India.(Corresponding Author)*
Email- tatini.psychology@tripurauniv.in

several weeks or months and may reoccur near the end of the next pregnancy, if there is one (Menage, 1993).

Anxiety issues related to puerperium: It can be characterized by the mother's frequent wakefulness and checking of the baby's condition, resulting in sleep deprivation (Weightman et al., 1998).

Postnatal OCD: Postpartum onset of OCD occurs during pregnancy or within 6 weeks following delivery, and the obsession theme is often related to the thought of harming a child (Brockington, 2004).

PHASES	PREVALENCE	ONSET	DURATION
Baby Blues	**30per cent-75per cent**	**3rd or 4thday**	**Hours to2 weeks**
Postpartum Depression	10per cent-15per cent	Within 12 months	First few weeks-months or even a year
Postpartum Psychosis	**0.1per cent-0.2per cent**	**First week after delivery**	**Weeks-months**
Postpartum PTSD	5 per cent - 8 per cent (in community sample) 9.6 per cent - 27.3 per cent (clinically significant symptoms in parturient	Within first six months after birth	3 months and more
Anxiety issues related to puerperium	20.7 per cent	12 or 8 months to several years after delivery	12 or 8 months to several years after delivery
Postnatal OCD	2.47 per cent	Within 6 weeks following delivery	6 months and more

(Adapted from Ayers et al., 2018; Dekel et al., 2017; Fawcett et al., 2019; Martínez-Vazquez et al., 2021; Nonacs& Cohen, 1998; Sharma &Sommerdyk, 2015)

Figure 1: Showing the Onset and Duration of PPD

Postpartum depression is one of the major mental illnesses among women after child birth and adversely affects not only the mother but also her infant and entire family. A woman with PPD often finds it very difficult to deal with this phase, and the lack of proper care during this time makes the situation even worse for both, mother and child. The outcome of PPD can be faced by any woman after delivery-any woman with an easy or problematic pregnancy, a first-time mother or a mother of one or more children, or a woman of any age, race, socio-economic status, culture, etc (APA, 2013).

The global prevalence of PPD is estimated to be 100-150 per 1,000 live births (O'hara& Swain, 1996).Àáäèåâà et al. (2020) found that the average prevalence rate of PPD globally is 15 to 20 per cent. In Asia itself, prevalence of PPD ranges from 3.5per cent to 63.3per cent among the new mothers, whereas, it is 23 per cent among Indian mothers (Goyal et al., 2020). The Southern part of India topped in the highest rate of PPD with a predicted occurrence of 26 per cent, followed by Eastern (23 per cent), South-Western (23per cent) and Western part (21per cent) and northern region (15per cent) occurrence (Upadhyay et al., 2017). About 22 percent of Indian moms are found to have PPD (Gavin Norma et al., 2005).

Objectives

The objectives of this article are threefold (Fig. 2). First, it tries to explore the theoretical perspectives of PPD among new mothers. Second, the paper tries to identify the different risk factors associated with PPD. Third; it attempts to ascertain the impact of PPD on maternal and child health. The contextual frame of the article is given below.

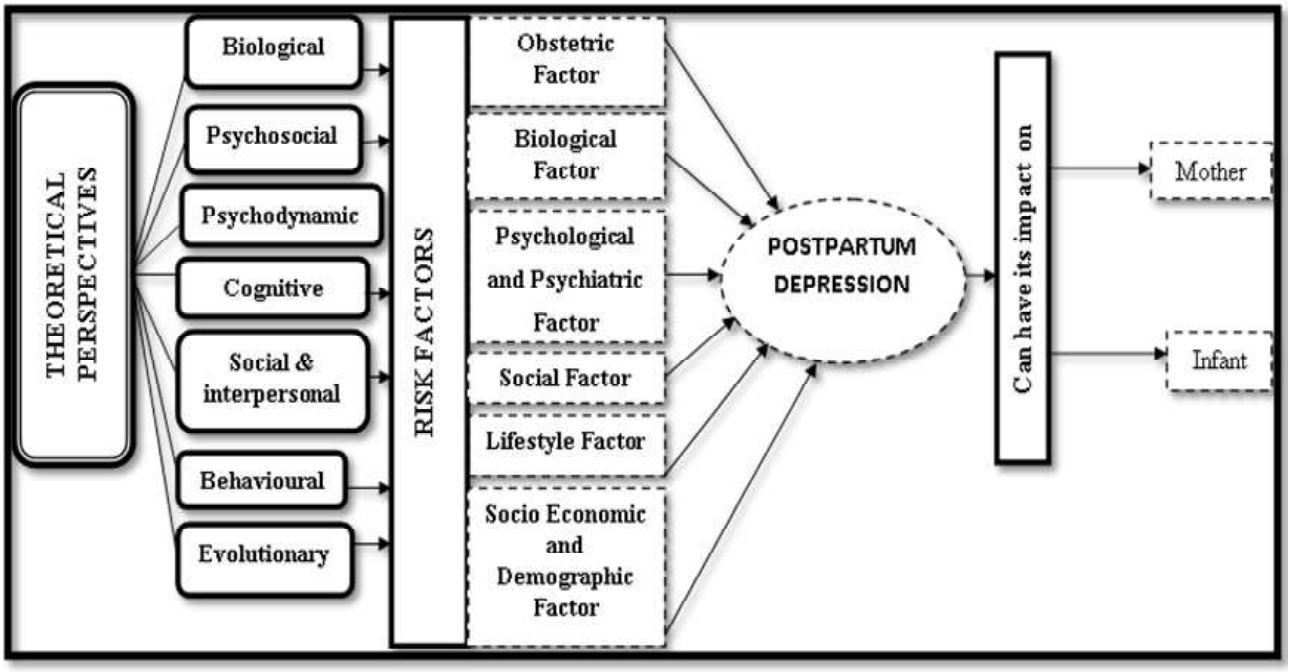

Figure 2: Showing the Overall Context of PPD

Methodology

A systematic literature review (SLR) has been done for classification of the theoretical perspectives of PPD and examination of different risk factors of PPD along with its far-reaching impacts on maternaland child'shealth. SLR has been done through identifying keywords for searching different online databases (Figure. 3).

Postpartum depression	Per partum depression
Postnatal depression	Psychosocial factors
Risk factors	Predictors
Marital discord	Social support
Theoretical perspective	Impact
Maternal health	Mental health
Physical health	Child development
Paternal PPD	PPD
Prevalence	Depression
Maternal age and PPD	Personality types and patterns

Figure 3: Identification of Keywords for SLR

Databases related to the keywords were explored using specific screeningcriteria and search terms, to identify studies that relate with the objectives of the paper and to evaluate critically to synthesize our findings. The PRISM diagram of the SLR has been illustrated in figure 4.

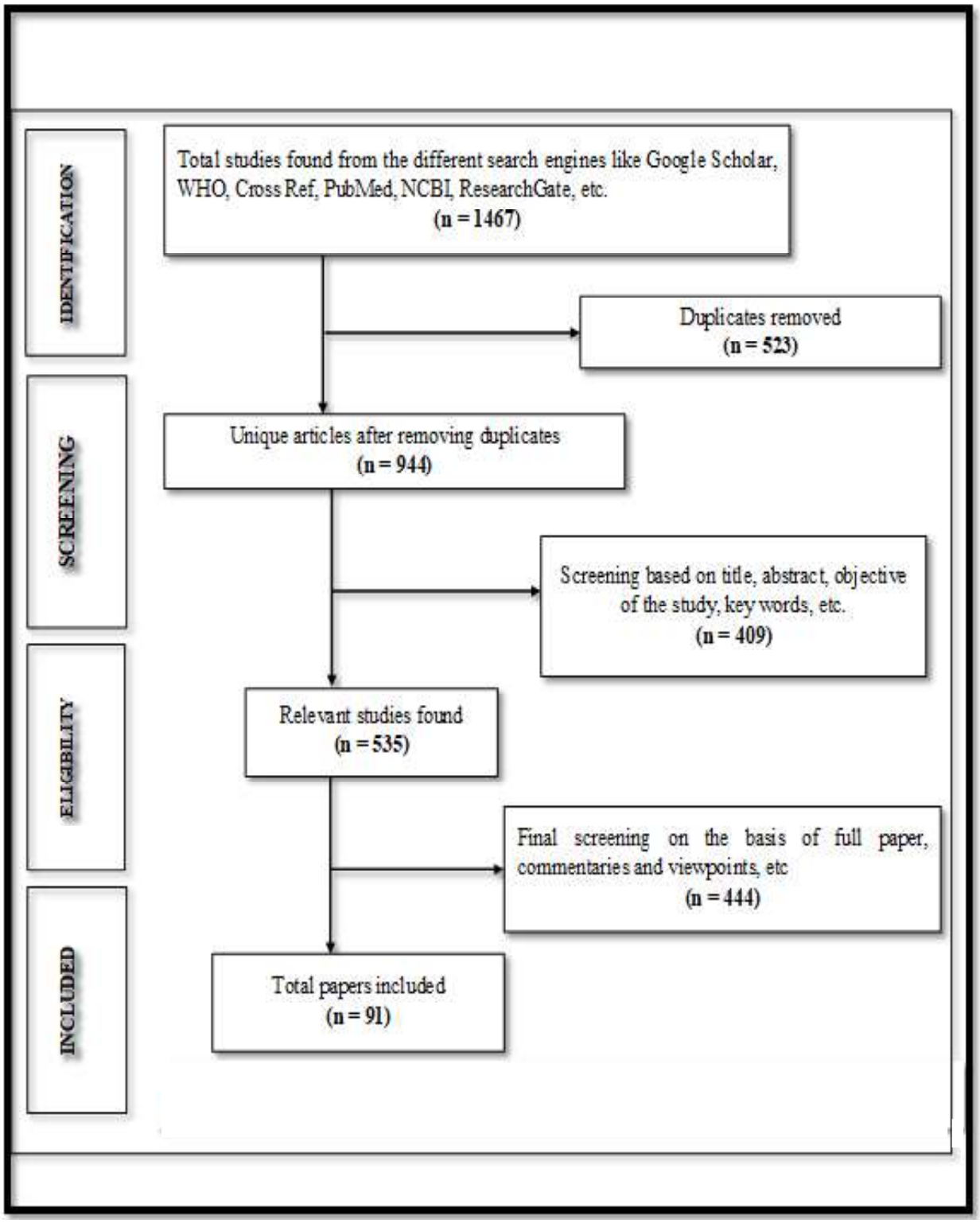

Figure 4: PRISM Diagram of Systematic Literature Process

Interpretation and Discussion

Theoretical Perspectives of PPD

Various theories of PPD can be summarized under the following heading (figure 5)

***Biological Theory*:** Beck C.T. (2002) emphasizes that PPD is a medical model of an illness or a medical condition where it is considered a pathological mood disorder not resultingfromany socio-environmental conditions.Hormonal secretion imbalances during pregnancy(Soares & Zitek, 2008); low ranges of reproductive hormones(Hoefliger, 2003) and fluctuations of stress hormones (Kammerer et al., 2006) are the contributors to PPD.Serotonin (5HT) system and Cytochrome P4502D6 (CYP2D6) plays an important role in prenatal and postpartum depression (Hatters Friedman, 2009) and the CYP2D6 metabolism rate is higher in pregnant and PPD women than the normal population (Josefsson, 2003).

Psychosocial Theory:Association between depression and stress has been mentioned in diverse psychosocial theories from time to time (Kaplan & Sadock 2010). The Psychological Models consisting of the Stress Process Model (Pearlin et al., 1981) and the Cognitive Behavioral Model (O'Hara et al., 1982) emphasized the adverse function of stress on our cognitive functions and overall life.

Psychodynamic Theory: The psychodynamic view point stated that women who have unresolved childhood or family conflicts may experience higher emotional troubles after childbirth (Nemade et al., 2011). It has been observed that when a woman becomes a mother, she tends to copy her own mother's role, but if she has any difficulty in imitating that role, it can cause emotional problems to her (Kaplan & Sadock, 2010). Researchers found that giving childbirth often results in loss of mother's identification and independence which in turn leads to deprivation of love and affection from family (Nemade et al., 2011).

Cognitive Theory:This approachaddresses some of the personality traits that lead new mothers to develop PPD and makes them more vulnerable to anxiety, perfectionism and compulsive tendencies (Abela & D'Alessandro, 2002). Difficulty in thinking process and pessimistic viewpoint of everything plays an important role in developing depression (Beck C.T., 2002; Nemade et al., 2011).

Social and Interpersonal Theory: Egeline (2008) claims that environment performs an essential role in someone's lifestyle. According to Attachment theory, if personal needs in a relationship are not fulfilled, it can lead to uncertainty, worries and even interpersonal struggles in their life (Grupe & Nitschke, 2013). Childbirth influences woman's mental health andthus unexpected psycho-social ups and downs during this period (like stress) can be triggering to PPD (Halbreich, 2005).

Behavioral Theory:The operant conditioning principle proposes thatdepression is the result of decrease in effective behaviour and a sign of punishment for inconsistent behaviour (Davidson et al., 2004). Stress susceptibility model suggested that, stress might also additionally cause PPD in women with various impairments related to genes, hormones and cognition (O'Hara et al., 1991).

Evolutionary Theory: According to Evolutionary Perspective of Hagen (1999), poor infant-mother bonding, low maternal and social health, father abandonment, and negative family environment are important predictors of PPD.`

Risk Factors of PPD

Based on these different theories, previous researches, and articles the risk factors identified for PPD can be classified in the following manner (figure. 6)

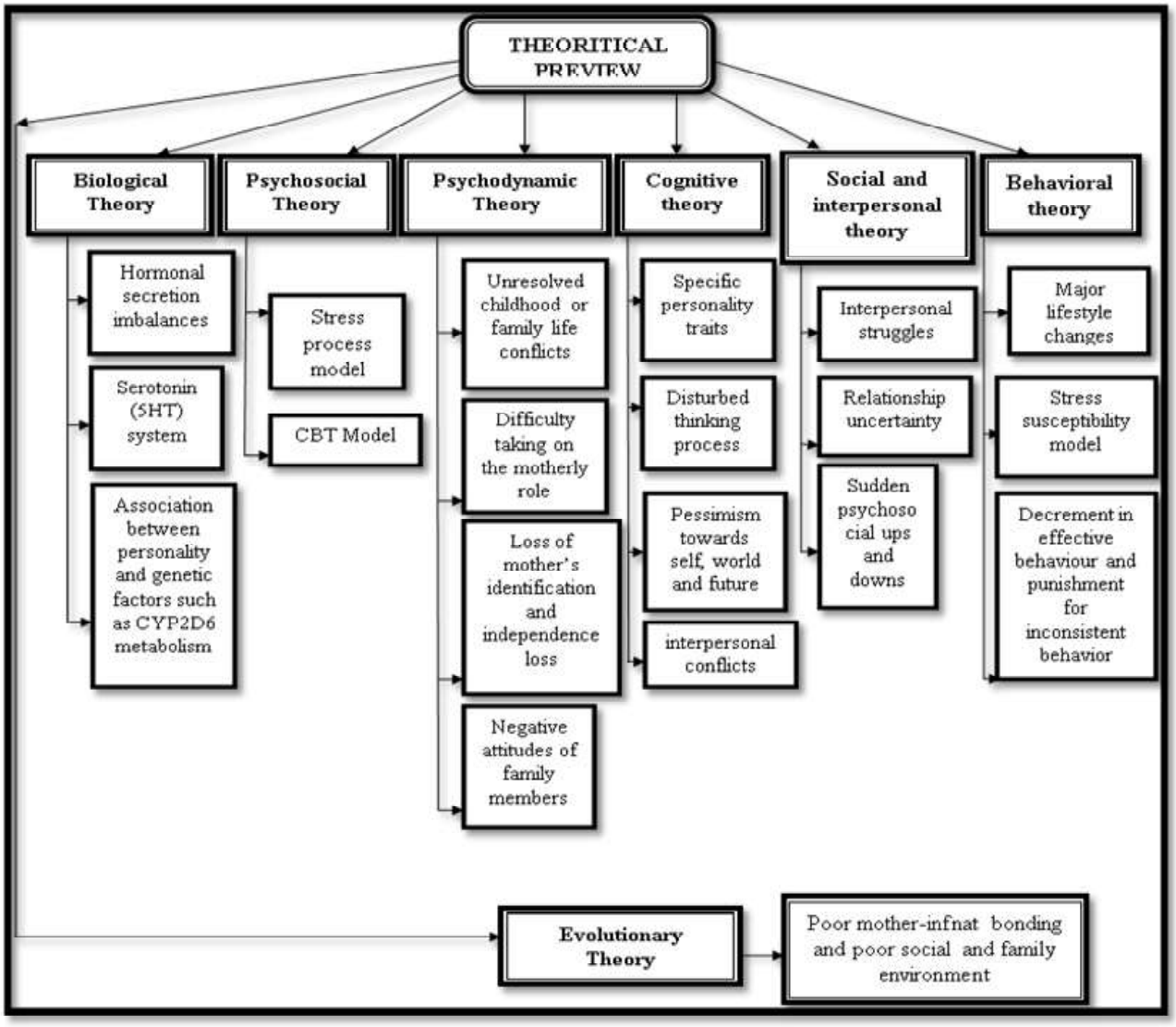

Figure 5: Showing the Theoretical Perspectives of PPD

Obstetric Factors: Beck (1996) explainedhow unplanned or undesirable pregnancy and untimely delivery can lead to PPD. Mathisen et al. (2013) found that having more than one childleads to higher psychological burden and promotes PPD. Risky pregnancy (Gaillard et al., 2014), complications during labor and obstetric hemorrhages (Mathisen et al., 2013), C-section delivery (Houston et al., 2015) are likely to increase the risk of PPD. However, insomnia among pregnant women results in reappearance of PPD in women who had a previous history of the same (Dørheim et al., 2014.

Biological Factors:Young mothers aged from 13-19 years of age have higher risk of PPD in comparison to mothers of age 31 to 35 years (Silvaet al., 2012). Nutritional deficiencies lead to brain tryptophan up to 15 per cent and it further increases the risk of having PPD (Sanjuan et al., 2008). High oxytocin levelduring mid-pregnancy can lead to PPD within first

2 weeks after delivery (Neumann & Landgraf, 2012). Estrogen also plays an important part in the occurrence of PPD (Shapiro et al., 2012). Studies found the relationship among Corticotrophin-releasing hormone (Kammerer et al., 2006) and overall thyroxinserum concentrations(Pedersen et al., 2007) in the regulation of PPD.

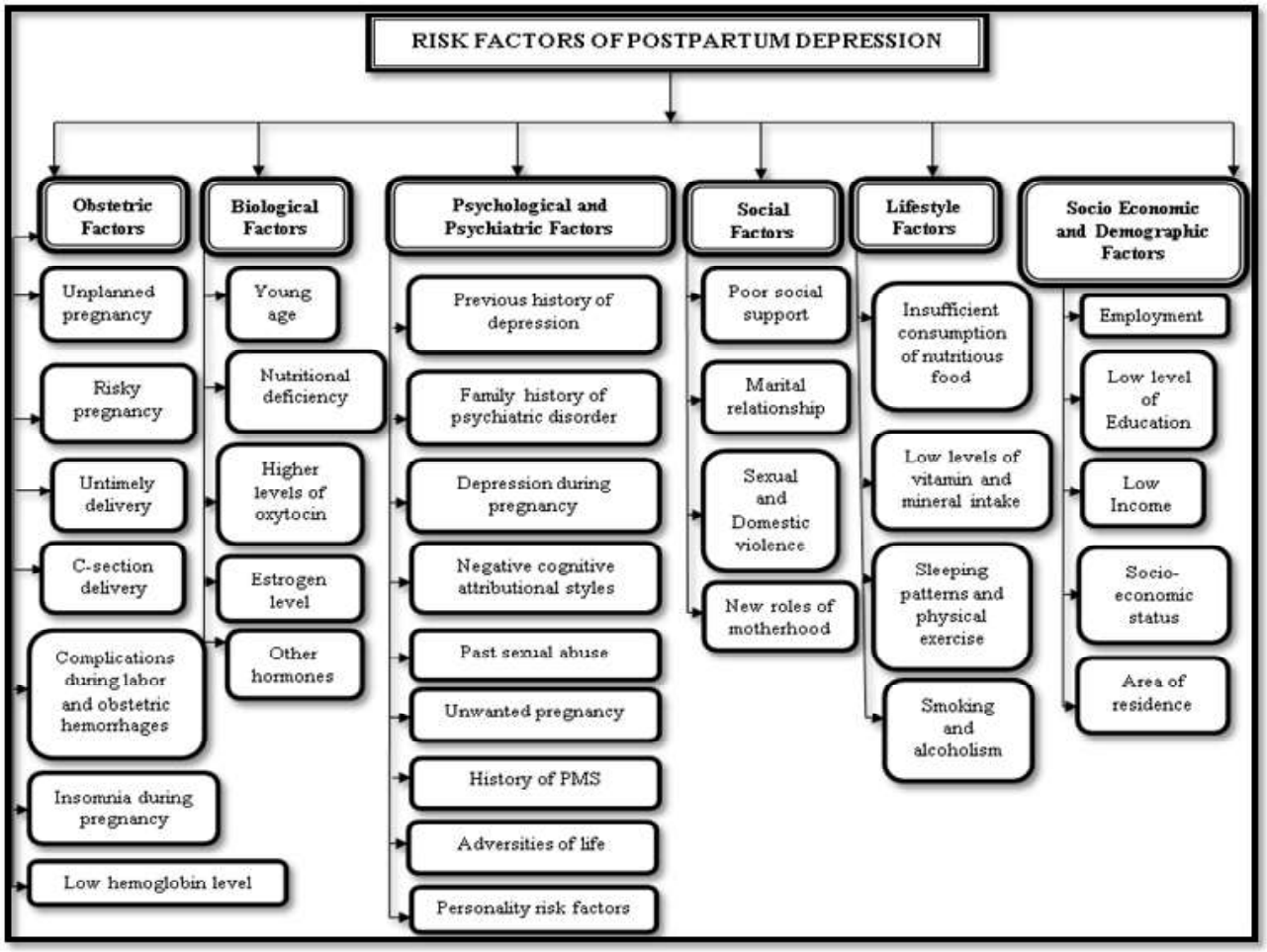

Figure 6: Showing the Risk Factors of PPD

Psychological and Psychiatric Risk Factors: Clinical factorsof PPD include previous history of depression and anxiety, family history of mental disease,history of premenstrual syndrome, prenatal depression,unwanted pregnancy, adversities of lifeand sexual abuse in the past (Leigh & Milgrom, 2008; Buttner et al., 2013).Personality risk factors of PPD comprises of negative cognitive styles, pessimistic view towards everything, anger issues and ruminating thoughts, excessive nervousness, low self-esteem, low self-efficacy, and higher neuroticism or psychoticism among the women (Lee et al., 2000). The role of negative cognitive attributional styles on PPD has also been supported by many previous other studies (Johnstone et al., 2001).

Social Factors: A study found that lack of support and poor relation with family is associated with PPD (Jansen et al., 2010). Robinson and Stewart (2001) found the new roles of motherhood and its associated burden can lead to less time for socializing and enhances the risk of PPD. It may also contribute poor marital relationship during pregnancy.Various forms of domestic violence, sexual violence inflicted by the partner during pregnancy are found to be responsible for PPD(Ludermir et al., 2010).

Lifestyle Factors: The association between lifestyle activities and depression has been properly established for decades now. It was observed that sufficient consumption of nutritious food may reduce PPD by 50 per cent (Chatzi et al., 2011). The low levels of B6 vitamin (Hvas et al., 2004), vitamin B2 (Aishwarya et al., 2013), zinc and selenium intake have also been associated with PPD (Ellsworth-Bowers & Corwin, 2012). Additional to nutritional status, food intake timings, sleeping patterns, proper exercise and physical

activities are significant factors in determining PPD (Daley et al., 2007). Women who had indulged in smoking and alcoholism in the past have higher risk of having PPD after childbirth (Gurber et al., 2017).

Socio-Economic and Demographic Factors: Socioeconomic deprivation like unemployment, low income and low level of education of women were found to be hazardous after deliveries (Beck, 2001; WHO, 2001).O'Hara and Swain (1996) concluded that low income and lower socioeconomic status of the familyare the important predictive factors of PPD. Vigod et al. (2013) found that there is a difference in levels of PPD among mothers based on their geographic location. Women living in urban areas reported higher risk of PPD than women of rural and semi-rural areas (Azad et al., 2019).

Impact of PPD on Health

Unalike baby blues, PPD is not curative single-handedly. And most importantly, if left untreated, it can last for months or years. PPD can make a new mom's ability to spend the day more painstaking, and it can seriously affect not only her, but her ability to take care of herself and her baby (figure. 7)

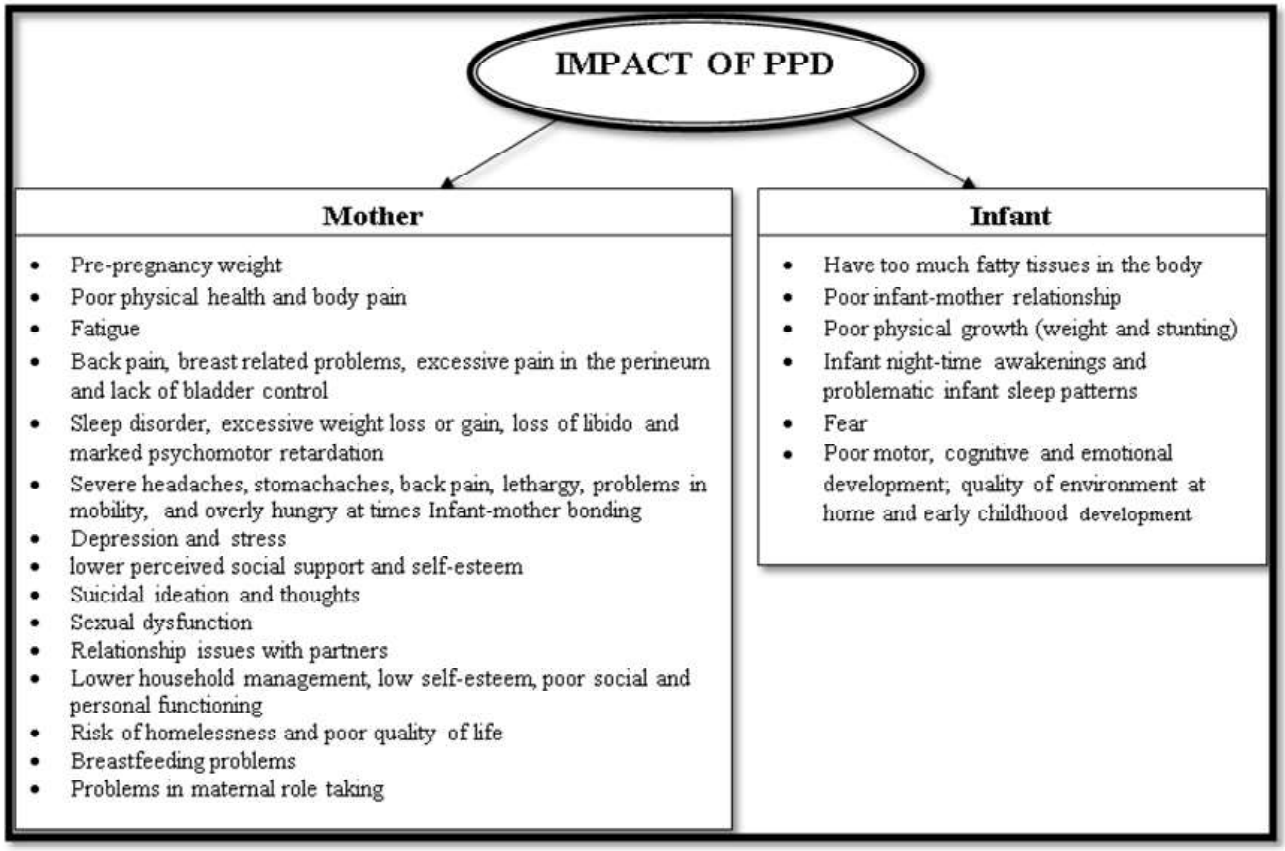

Figure 7: Flowchart Showing the Impact of PPD on Health

Maternal Health

Maternal Physical Health: Some studies found that the 52 percentof mothers with PPD does not reach their pre-pregnancy weight even after a year of childbirth (Biesmans et al., 2013).On the contrary, some women having PPD seems to gain at least 5 kgs more (Herring et al., 2008). The mothers with PPD often suffer from poor physical health. PPD is found to depreciate the physical health of the new mothers by causing fatigue, followed by back pain, breast related problems, excessive pain in the perineum and lack of bladder control (Dennis &Vigod, 2019; Slomian et al. 2019; Woolhouse et al., 2014). PPD also leads to sleep disorder, excessive weight loss or gain, loss of libido and marked psychomotor retardation among the mothers (Edipoglu & Aslan, 2021).Apart from these, women with PPD also reported to suffer from severe headaches, stomachaches, back pain, lethargy,

problems in mobility, diabetes and overly hungry at times (Azami et al., 2019).

Maternal Mental Health: Some studies have found that women even after 1 year of childbirth suffer from mild depression, and stress. They also report lower perceived social support and self-esteem (Vliegen et al., 2013).They also find their relationship to be more problematic, aloof and cold with their partner during the first year (Lilja et al., 2012). Lower household management, low self-esteem, poor social and personal functioning has been found among mothers with PPD (Vliegen et al., 2013). They are also at risk of homelessness and poor quality of life (Curtis et al., 2014).

Mothers with PPD also seem to suffer from breastfeeding problems (Stuebe et al., 2013). Moreover, they have low confidence in breastfeeding the babies (Flores-Quijano et al., 2008), and tend to bottle feed more than breastfeeding (Arteche et al., 2011; Balbierz et al., 2015).Some studies found the relationship between PPD with the maternal role (Balbierz et al., 2015), maternal competence Kohlhoffet & Barnett, 2013), maternal infant care (Balbierz et al., 2015), and risk of maltreatment to the child(Zajicek-Farber et al., 2008).

Infant's Health

Infant's Physical Health: Studies showed thatmaternal PPD has a significant effect on child weightand predicts impaired motor development in infants of 6–8 months (Nasreen, et al., 2013). PPD of mothers' led to a condition where the infants have too many fatty tissues in their body (Ertelet al., 2010). Maternal depressive symptoms negatively affect the overall physical health of the infants and can lead to illnesses during childhood (Darcy et al., 2016). Some studies also showed a significant effect of maternal PPD on stunting (Bakare et al., 2016). There is an association between PPD and increased death rates among infants from 6 to 12 months of age (Weobong, et al., 2015). Higher depressive symptoms of mothers are associated with an increased incidence of infant night-time awakenings and predicted more problematic infant sleep patterns (Gress-Smith, et al.).

Infant's Mental Health: Studiesshowed that maternal PPD leads toweakened motor development and delayed cognitive development of the infants (Nasreen et al., 2013).A study also found the effects of maternal depression on the quality of environment at home which further affects the early childhood development (Chen et al., 2013). PPD leads to maternal insensitivity which in turn delays the child's cognitive development (Kaplan, et al., 2014). Infants of depressed mothers are more fearsome (Feldman, et al., 2009) and suffer from emotional problems such as anxiety more often (Walker et al., 2013) than infants of nondepressed mothers. Studies found that PPD can be detrimental to the mother-child bonding as well (Dubber et al 2015).

Conclusion and Implication

Postpartum depression (PPD) is one of the most common psychological problems in a woman's life. In Asia itself, prevalence of PPD ranges from 3.5% to 63.3% and in India it is found to be 23% among new mothers.The current paper highlights the problem with remarkable insight. It explored various biological, psychosocial, psychodynamic, cognitive, social and behavioral perspectives of PPD. The study found a spectrum of risk factors leading to PPD ranging from obstetric, biological, psychological factors to social, lifestyle and demographic factors. The major risk factors for PPD laid down by theorists and researchers include abnormal hormone secretion, pregnancy issues, unresolved conflicts, lack of family support, personality, thinking process, nutritional deficiency, marital discord, poor socio-economic status, etc. All these factors make a woman at a higher risk of having PPD after childbirth and that can be detrimental to the physical and mental health of both the mother and child. The mother may suffer from weight issues, excessive body aches, poor self-esteem, breastfeeding problems, suicidal thoughts and so on. Whereas, the infant may have several motor and cognitive developmental issues, problematic sleeping pattern, and may exhibit emotional and behavioral problems. Unfortunately, the mental health of the new mothers is given least or no importance at all in India and not many studies have been done in this area.

Hence, the current paper recommends the instantaneous attention of the medical professionals and the policy makers on the mental health of the new mothers. As it has been found that there are some predisposing risk factors of PPD, mental health screening should be done with valid tools and instruments during the antenatal period and immediate care and treatment should be provided. However, periodic mental health screening is highly recommended during the postpartum period as well. It can be incorporated with the immunization schedule of their child to ensure proper screening at regular

intervalsand treatment if needed. Similarly, the health care providers and the care givers at both institutional and family level should be sensitized about the physical as well as mental health condition of the new mothers. Care givers and the new mothers should be given psycho-education regarding maternal mental health, risk factors and its impacts on them and their child's health and development. The awareness regarding maternal mental health would also help eradicating the stigma attached to it and they would seek for help if needed. Therefore, appropriate postpartum screening and referral services should be integrated with routine obstetrics/gynecology services as a mandate protocol to curb PPD and ensure the overall health and wellbeing of mother and child.

References

Abela, J. R., & D'Alessandro, D. U. (2002). Beck's cognitive theory of depression: A test of the diathesis stress and causal mediation components. *British Journal of Clinical Psychology*, *41*(2), 111-128.

Aishwarya, S., Rajendiren, S., Kattimani, S., Dhiman, P., Haritha, S., &Ananthanarayanan, P. H. (2013). Homocysteine and serotonin: Association with postpartum depression. *Asian Journal of psychiatry*, *6*(6), 473-477.

American Psychiatric Association (APA, 2020). What Is Postpartum Depression? American Psychiatric Association. Accessed from https://www.psychiatry.org/patients-families/postpartum-depression/what-is-postpartum-depression [23/12/2021]

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th Ed.). https://doi.org/10.1176/appi.books.9780890425596

Arteche, A., Joormann, J., Harvey, A., Craske, M., Gotlib, I. H., Lehtonen, A., & Stein, A. (2011). The effects of postnatal maternal depression and anxiety on the processing of infant faces. *Journal of affective disorders*, *133*(1-2), 197-203.

Ayers, S., Wright, D. B., & Thornton, A. (2018). Development of a measure of postpartum PTSD: the city birth trauma scale. *Frontiers in psychiatry*, 409.

Azad, R., Fahmi, R., Shrestha, S., Joshi, H., Hasan, M., Khan, A. N. S., &Billah, S. M. (2019). Prevalence and risk factors of postpartum depression within one year after birth in urban slums of Dhaka, Bangladesh. *PloS one*, *14*(5), e0215735.

Azami, M., Badfar, G., Soleymani, A., & Rahmati, S. (2019). The association between gestational diabetes and postpartum depression: A systematic review and meta-analysis. *Diabetes research and clinical practice*, *149*, 147-155.

Bakare, M. O., Okoye, J. O., & Obindo, J. T. (2014). Introducing depression and developmental screenings into the National Programme on Immunization (NPI) in southeast Nigeria: an experimental cross-sectional assessment. *General hospital psychiatry*, *36*(1), 105-112.

Balbierz, A., Bodnar-Deren, S., Wang, J. J., & Howell, E. A. (2015). Maternal depressive symptoms and parenting practices 3-months postpartum. *Maternal and child health journal*, *19*(6), 1212-1219.

Beck, C. T. (1996). A meta-analysis of predictors of postpartum depression. *Nursing research*, *45*(5), 297-303.

Beck, C. T. (2002). Theoretical perspectives of postpartum depression and their treatment implications. *MCN: The American Journal of Maternal/Child Nursing*, *27*(5), 282-287.

Beck, C. T., Records, K., & Rice, M. (2006). Further development of the postpartum depression predictors inventory revised. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *35*(6), 735-745.

Biesmans, K., Franck, E., Ceulemans, C., Jacquemyn, Y., & Van Bogaert, P. (2013). Weight during the postpartum period: what can health care workers do?. *Maternal and child health journal*, *17*(6), 996-1004.

Brockington, I. (2004). Postpartum psychiatric disorders. *The Lancet*, *363*(9405), 303-310.

Brockington, I. F., Cernik, K. F., Schofield, E. M., Downing, A. R., Francis, A. F., & Keelan, C. (1981). Puerperal psychosis: phenomena and diagnosis. *Archives of General Psychiatry*, *38*(7), 829-833.

Buttner, M. M., Mott, S. L., Pearlstein, T., Stuart, S., Zlotnick, C., & O'Hara, M. W. (2013). Examination of premenstrual symptoms as a risk factor for depression in postpartum women. *Archives of women's mental health*, *16*(3), 219-225.

Chatzi, L., Melaki, V., Sarri, K., Apostolaki, I., Roumeliotaki, T., Georgiou, V., Vassilaki, M., Koutis, A., Bitsios, P., &Kogevinas, M. (2011). Dietary patterns during pregnancy and the risk of postpartum depression: the mother-child 'Rhea' cohort in Crete, Greece. *Public health nutrition*, *14*(9), 1663–1670.

Chen, H. H., Hwang, F. M., Wang, K. L., Chen, C. J., Lai, J. C. Y., &Chien, L. Y. (2013). A structural model of the influence of immigrant mothers' depressive symptoms and home environment on their children's early developmental outcomes in Taiwan. *Research in nursing & health*, *36*(6), 603-611.

Corwin, E. J., Murray-Kolb, L. E., & Beard, J. L. (2003). Low hemoglobin level is a risk factor for postpartum depression. *The Journal of nutrition*, *133*(12), 4139-4142.

Curtis, M. A., Corman, H., Noonan, K., & Reichman, N. E. (2014). Maternal depression as a risk factor for family

homelessness. *American Journal of Public Health*, *104*(9), 1664-1670.

Daley, A. J., MacArthur, C., & Winter, H. (2007). The role of exercise in treating postpartum depression: a review of the literature. *Journal of midwifery & women's health*, *52*(1), 56-62.

Darcy, J. M., Grzywacz, J. G., Stephens, R. L., Leng, I., Clinch, C.R.,&Arcury, T. A. (2011). Maternal depressive symptomatology: 16-month follow-up of infant and maternal health-related quality of life. *The Journal of the American Board of Family Medicine*, *24*(3), 249-257.

Davidson, K. W., Rieckmann, N., &Lespérance, F. (2004). Psychological theories of depression: potential application for the prevention of acute coronary syndrome recurrence. *Psychosomatic medicine*, *66*(2), 165-173.

Dekel, S., Stuebe, C., &Dishy, G. (2017). Childbirth induced posttraumatic stress syndrome: a systematic review of prevalence and risk factors. *Frontiers in psychology*, *8*, 560.

Dennis, C. L., &Vigod, S. (2020). Preventing postpartum depression: fatigue management is a place to start. *Evidence-Based Nursing*, *23*(1), 25-25.

Dørheim, S. K., Bjorvatn, B., & Eberhard-Gran, M. (2014). Can insomnia in pregnancy predict postpartum depression? A longitudinal, population-based study. *PloS one*, *9*(4), e94674.

Dubber, S., Reck, C., Müller, M., &Gawlik, S. (2015). Postpartum bonding: the role of perinatal depression, anxiety and maternal–fetal bonding during pregnancy. *Archives of women's mental health*, *18*(2), 187-195.

Edipoglu, I. S., & Aslan, D. D. (2021). Association of postpartum depression and epidural analgesia in women during labor: an observational study. *Brazilian Journal of Anesthesiology*, *71*, 208-213.

Egeline, R. M. (2007). *Identifying risk factors for postpartum depression*. ProQuest.

Ellsworth-Bowers, E. R., & Corwin, E. J. (2012). Nutrition and the Psychoneuroimmunology of postpartum depression. *Nutrition research reviews*, *25*(1), 180-192.

Ertel, K. A., Koenen, K. C., Rich-Edwards, J. W., & Gillman, M. W. (2010). Maternal depressive symptoms not associated with reduced height in young children in a US prospective cohort study. *PLoS One*, *5*(10), e13656.

Fawcett, E. J., Fairbrother, N., Cox, M. L., White, I. R., & Fawcett, J. M. (2019). The prevalence of anxiety disorders during pregnancy and the postpartum period: a multivariate Bayesian meta-analysis. *The Journal of clinical psychiatry*, *80*(4), 1181.

Feldman, R., Granat, A. D. I., Pariente, C., Kanety, H., Kuint, J., & Gilboa-Schechtman, E. (2009). Maternal depression and anxiety across the postpartum year and infant social engagement, fear regulation, and stress reactivity. *Journal of the American Academy of Child & Adolescent Psychiatry*, *48*(9), 919-927.

Flores-Quijano, M. E., Córdova, A., Contreras-Ramírez, V., Farias-Hernández, L., Cruz Tolentino, M., &Casanueva, E. (2008). Risk for postpartum depression, breastfeeding practices, and mammary gland permeability. *Journal of Human Lactation*, *24*(1), 50-57.

Gaillard, A., Le Strat, Y., Mandelbrot, L., Keïta, H., &Dubertret, C. (2014). Predictors of postpartum depression: Prospective study of 264 women followed during pregnancy and postpartum. *Psychiatry research*, *215*(2), 341-346.

Gavin Norma, I., Gaynes Bradley, N., Lohr Kathleen, N., & Meltzer-Brody Samantha, G. G. (2005). SwinsonTammeka. Perinatal depression: a systematic review of prevalence and incidence. *Obstetrics & Gynecology*, *106*(5), 1071-1083.

Goyal, M.K., Yadav, K.S., Solanki, R.K., & Mathur, S. (2020). Association of postpartum depression with early breast feeding and other factors. *DELHI PSYCHIATRIC SOCIETY*, 23*(1),* 89-94.

Gress-Smith, J. L., Luecken, L. J., Lemery-Chalfant, K., & Howe, R. (2012). Postpartum depression prevalence and impact on infant health, weight, and sleep in low-income and ethnic minority women and infants. *Maternal and child health journal*, *16*(4), 887-893.

Grupe, D. W., &Nitschke, J. B. (2013). Uncertainty and anticipation in anxiety: an integrated neurobiological and psychological perspective. *Nature Reviews Neuroscience*, *14*(7), 488-501.

Guardino, C. M., & Dunkel Schetter, C. (2014). Coping during pregnancy: a systematic review and recommendations. *Health psychology review*, *8*(1), 70-94.

Gürber, S., Baumeler, L., Grob, A., Surbek, D., &Stadlmayr, W. (2017). Antenatal depressive symptoms and subjective birth experience in association with postpartum depressive symptoms and acute stress reaction in mothers and fathers: A longitudinal path analysis. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *215*, 68-74.

Hagen, E. H. (1999). The functions of postpartum depression. *Evolution and Human Behavior*, *20*(5), 325-359.

Halbreich, U. (2005). Postpartum diSorders: multiple interacting underlying mechanisms and risk factors. *Journal of Affective Disorders*;*88*(1), 1-7.

Hatters Friedman, S. (2009). Postpartum mood disorders: genetic progress and treatment paradigms. *American Journal of Psychiatry*, *166*(11), 1201-1204.

Herring, S. J., Rich Edwards, J. W., Oken, E., Rifas Shiman, S. L., Kleinman, K. P., & Gillman, M. W. (2008). Association of postpartum depression with weight retention 1 year after childbirth. *Obesity*, *16*(6), 1296-1301.

Hoefliger, C. M. (2003). *Postpartum Depression: The need for prevention, early diagnosis and treatment*. Massachusetts School of Professional Psychology.

Houston, K. A., Kaimal, A. J., Nakagawa, S., Gregorich, S. E., Yee, L. M., &rKuppermann, M. (2015). Mode of

delivery and postpartum depression: the role of patient preferences. *American journal of obstetrics and gynecology*, *212*(2), 229-e1.

Hvas, A. M., Juul, S., Bech, P., &Nexø, E. (2004). Vitamin B6 level is associated with symptoms of depression. *Psychotherapy and psychosomatics*, *73*(6), 340-343.

Jansen, K., Curra, A. R., Souza, L. D. D. M., Pinheiro, R. T., Moraes, I. G. D. S., Cunha, M. S. D., & Silva, R. A. D. (2010). Tobacco smoking and depression during pregnancy. *Revista de psiquiatria do Rio Grande do Sul*, *32*(2), 44-47.

Johnstone, S. J., Boyce, P. M., Hickey, A. R., Morris-Yates, A. D., & Harris, M. G. (2001). Obstetric risk factors for postnatal depression in urban and rural community samples. *Australian & New Zealand Journal of Psychiatry*, *35*(1), 69-74.

Josefsson, A. (2003). *Postpartum depression: epidemiological and biological aspects* (Doctoral dissertation, Linköping University Electronic Press).

Kammerer, M., Taylor, A., & Glover, V. (2006). The HPA axis and perinatal depression: a hypothesis. *Archives of women's mental health*, *9*(4), 187-196.

Kaplan, B., Sadock, A., (2010). Philadelphia: Lippincott Williams and Wilkins. Synopsis of Psychiatry, Behavioral Sciences/Clinical Psychiatry. 10th Ed.

Kaplan, P. S., Danko, C. M., Everhart, K. D., Diaz, A., Asherin, R. M., Vogeli, J. M., &Fekri, S. M. (2014). Maternal depression and expressive communication in one-year-old infants. *Infant Behavior and Development*, *37*(3), 398-405.

Kohlhoff, J., & Barnett, B. (2013). Parenting self-efficacy: Links with maternal depression, infant behaviour and adult attachment. *Early human development*,*89*(4), 249-256.

Lee, D. T., Yip, A. S., Leung, T. Y., & Chung, T. K. (2000). Identifying women at risk of postnatal depression: prospective longitudinal study. *Hong Kong Med J*, *6*(4), 349-54.

Leigh, B., & Milgrom, J. (2008). Risk factors for antenatal depression, postnatal depression and parenting stress. *BMC psychiatry*, *8*(1), 1-11.

Lilja, G., Edhborg, M., & Nissen, E. (2012). Depressive mood in women at childbirth predicts their mood and relationship with infant and partner during the first year postpartum. *Scandinavian Journal of Caring Sciences*, *26*(2), 245-253.

Ludermir, A. B., Lewis, G., Valongueiro, S. A., de Araújo, T. V. B., & Araya, R. (2010). Violence against women by their intimate partner during pregnancy and postnatal depression: a prospective cohort study. *The Lancet*, *376*(9744), 903-910.

Martínez-Vazquez, S., Rodríguez-Almagro, J., Hernández-Martínez, A., Delgado-Rodríguez, M., & Martínez-Galiano, J. M. (2021). Long-term high risk of postpartum post-traumatic stress disorder (PTSD) and associated factors. *Journal of clinical medicine*, *10*(3), 488.

Mathisen, S. E., Glavin, K., Lien, L., &Lagerløv, P. (2013). Prevalence and risk factors for postpartum depressive symptoms in Argentina: a cross-sectional study. *International journal of women's health*, *5*, 787.

McKelvey, M. M., &Espelin, J. (2018). Postpartum depression: Beyond the "baby blues". *Nursing Made Incredibly Easy*, *16*(3), 28-35.

Menage, J. (1993). Post-traumatic stress disorder in women who have undergone obstetric and/or gynaecological procedures: a consecutive series of 30 cases of PTSD. *Journal of Reproductive and Infant psychology*, *11*(4), 221-228.

Nasreen, H. E., Kabir, Z. N., Forsell, Y., &Edhborg, M. (2013). Impact of maternal depressive symptoms and infant temperament on early infant growth and motor development: results from a population based study in Bangladesh. *Journal of affective disorders*, *146*(2), 254-261.

Nemade, R., Reiss Staats, N., &Dombeck, M. (2011). Psychology of Depression-Psychodynamic Theories. Available Online via: http://www.mentalhelp

Neumann, I. D., & Landgraf, R. (2012). Balance of brain oxytocin and vasopressin: implications for anxiety, depression, and social behaviors. *Trends in neurosciences*, *35*(11), 649-659.

Nonacs, R. & Cohen, L. S. (1998). Postpartum mood disorders: diagnosis and treatment guidelines. *Journal of Clinical Psychiatry*, 59(2), 34-40

O'hara, M. W., & Swain, A. M. (1996). Rates and risk of postpartum depression—a meta-analysis. *International review of psychiatry*, *8*(1), 37-54.

O'Hara, M. W., Rehm, L. P., & Campbell, S. B. (1982). Predicting depressive symptomatology: cognitive-behavioral models and postpartum depression. *Journal of abnormal psychology*, *91*(6), 457.

O'Hara, M. W., Schlechte, J. A., Lewis, D. A., & Varner, M. W. (1991). Controlled prospective study of postpartum mood disorders: psychological, environmental, and hormonal variables. *Journal of abnormal psychology*, *100*(1), 63.

Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social behavior*, 337-356.

Pedersen, C. A., Johnson, J. L., Silva, S., Bunevicius, R., Meltzer-Brody, S., Hamer, R. M., &Leserman, J. (2007). Antenatal thyroid correlates of postpartum depression. *Psychoneuroendocrinology*, *32*(3), 235-245.

Robinson, G. E., & Stewart, D. E. (2001). Postpartum disorders. *Psychological aspects of women's health care*, 117-139.

Sanjuan, J., Martin-Santos, R., Garcia-Esteve, L., Carot, J. M., Guillamat, R., Gutierrez-Zotes, A., Gornemann, I.,…..Frutos, R. (2008). Mood changes after delivery: role of the serotonin transporter gene. *The British journal of psychiatry: the journal of mental science*, *193*(5), 383–388. https://doi.org/10.1192/bjp.bp.107.045427

Shapiro, G. D., Fraser, W. D., &Séguin, J. R. (2012). Emerging risk factors for postpartum depression: serotonin transporter genotype and omega-3 fatty acid status. *The Canadian Journal of Psychiatry*, *57*(11), 704-712.

Sharma, V., &Sommerdyk, C. (2015). Obsessive–compulsive disorder in the postpartum period: diagnosis, differential diagnosis and management. *Women's Health*, *11*(4), 543-552.

Silva, R., Jansen, K., Souza, L., Quevedo, L., Barbosa, L., Moraes, I., Horta, B., & Pinheiro, R. (2012). Sociodemographic risk factors of perinatal depression: a cohort study in the public health care system. *RevistaBrasileira de Psiquiatria*, *34*(2), 143-148.

Slomian, J., Honvo, G., Emonts, P., Reginster, J. Y., &Bruyère, O. (2019). Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. *Women's Health*, *15*, 1745506519844044.

Soares, C. N., &Zitek, B. (2008). Reproductive hormone sensitivity and risk for depression across the female life cycle: a continuum of vulnerability?. *Journal of Psychiatry and Neuroscience*, *33*(4), 331-343.

Stuebe, A. M., Grewen, K., & Meltzer-Brody, S. (2013). Association between maternal mood and oxytocin response to breastfeeding. *Journal of women's health*, *22*(4), 352-361.

Upadhyay, R. P., Chowdhury, R., Aslyeh Salehi, Sarkar, K., Singh, S. K., Sinha, B., Pawar, A., Rajalakshmi, A. K., & Kumar, A. (2017). Postpartum depression in India: a systematic review and meta-analysis. *Bulletin of the World Health Organization*, *95*(10), 706–717C. https://doi.org/10.2471/BLT.17.192237

Vigod, S. N., Tarasoff, L. A., Bryja, B., Dennis, C. L., Yudin, M. H., & Ross, L. E. (2013). Relation between place of residence and postpartum depression. *Cmaj*, *185*(13), 1129-1135.

Vliegen, N., Casalin, S., Luyten, P., Docx, R., Lenaerts, M., Tang, E., &Kempke, S. (2013). Hospitalization-based treatment for postpartum depressed mothers and their babies: rationale, principles, and preliminary follow-up data. *Psychiatry: Interpersonal & Biological Processes*, *76*(2), 150-168.

Walker, M. J., Davis, C., Al-Sahab, B., & Tamim, H. (2013). Reported maternal postpartum depression and risk of childhood psychopathology. *Maternal and Child Health Journal*, *17*(5), 907-917.

Weightman, H., Dalal, B. M., & Brockington, I. F. (1998). Pathological fear of cot death. *Psychopathology*, *31*(5), 246-249.

Weobong, B., Ten Asbroek, A. H., Soremekun, S., Gram, L., Amenga-Etego, S., Danso, S., Seth Owusu-Agyei, S., Prince. M., & Kirkwood, B. R. (2015). Association between probable postnatal depression and increased infant mortality and morbidity: findings from the DON population-based cohort study in rural Ghana. *BMJ open*, *5*(8), e006509.

Woolhouse, H., Gartland, D., Perlen, S., Donath, S., & Brown, S. J. (2014). Physical health after childbirth and maternal depression in the first 12 months postpartum: results of an Australian nulliparous pregnancy cohort study. *Midwifery*, *30*(3), 378-384.

World Health Organization (2001). The World Health Report 2001: Determinants of mental and behavioral disorders. [Accessed on 12/01/2022: www.who.int]

Zajicek-Farber, M. L. (2009). Postnatal depression and infant health practices among high-risk women. *Journal of Child and Family Studies*, *18*(2), 236-245.

Received: 20 November 2022
Revision Received: 27 December 2022
Accepted : 29 December 2022

✦