

Postpartum Depression: A Sociocultural Review

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ABSTRACT

Postnatal Depression or “baby blues” is a serious medical condition that causes intense feelings of anxiety, sadness, and tiredness in mothers following childbirth. The condition affects 1 in 7 women in the US, up to 15% of all mothers. The condition is caused by many overlapping factors, including chemical imbalances in the brain and hormonal changes in the body which have been studied extensively in women who experience postpartum depression. Less research exists on the sociocultural factors of new mothers' living conditions and how they affect the development and severity of postpartum depression. In this article, we will study the socio-cultural factors that trigger postpartum depression, such as maternal mental health and fatigue. The effects of postpartum depression endanger both the mother and the child; its causes must be studied extensively to provide proper effective maternal support and care to ensure healthy parents and children.

Introduction

Postpartum depression (PPD) is a serious disorder that commonly affects new mothers in the time just following childbirth and results in depression, severe mood swings, and anxiety (*Postpartum Depression - Symptoms and Causes*, 2022). This disorder causes symptoms that lead to dangerous lifelong depression, as well as physical and mental health problems for the mother (Patel et al., 2012). The symptoms of postpartum depression severely undermine the health of both the parent and child, causing significant harm to both parties. Studies have shown that the peak onset of depression for women occurs during childbearing years (O'Hara, 2009). Around 1 in 7 new mothers experience these symptoms (Mughal et al., 2023).

This article will focus on the sociocultural factors of postpartum depression. It is common for new mothers to experience some form of postpartum “baby blues,” caused by the hormonal changes and powerful emotions surrounding childbirth. However, for a smaller number of women, PPD may develop, and in rare cases, postpartum psychosis, an extreme mood disorder, may develop as well (*Postpartum Depression - Symptoms and Causes*, 2022). While this paper focuses on the sociocultural effects surrounding postpartum depression and does not examine postpartum psychosis or baby blues, this research may be connected and applied to those disorders. This article examines how environment and culture can affect the development and severity of PPD in new mothers.

Pathophysiology

PPD is a form of depression in mothers following childbirth. Symptoms include the inability to sleep, severe mood swings, thoughts of death and suicide, and fear of incompetence and worthlessness (*Postpartum Depression - Symptoms and Causes*, 2022). These symptoms can be related back to the pathophysiology of the hormonal changes inside the brain following childbirth. Hormones like cortisol, progesterone, and estrogen, which all have a strong impact on women's ovulation cycle and pregnancy, experience a severe drop following childbirth (Patel et al., 2012). These hormones play a significant role in emotion and motivation, regulating thyroids, immune responses, and gene expression, all systems heavily implicated in regulating depression (Stewart & Vigod, 2019).

Researchers have shown that there is a genetic component to the development of PPD, as the disorder tends to cluster in families (Stewart & Vigod, 2019). Genome linkage studies found genetic variation in certain chromosomes, which contain estrogen binding sites that are susceptible to estrogen induced epigenetic DNA methylation changes. The women who have these genetic variations could be more at risk to experiencing stronger symptoms of depression due to environmental/hormone induced genetic changes via childbirth (Stewart & Vigod, 2019).

While the pathophysiology and genetic underlying causes of PPD is an area of great interest, the sociocultural and environmental factors of PPD are also potential important factors in the development of the disorder. While many new mothers experience baby blues caused by hormones, the variation in incidence of PPD and postpartum psychosis demonstrates potential environmental susceptibility beyond hormonal imbalances. The difference in severity of symptoms may lie in differences in cultural and social factors.

Maternal Mental Health

Previous History of Depression

A well-studied trigger of PPD in women is a history of depression and anxiety. Research has shown that women who have previous experiences with these mental illnesses are around 20 times more likely to experience PPD after giving birth (Silverman et al., 2017). A previous history is one of the most accurate predictors of PPD; there is a 1:3 probability that the disorder will develop in women with a past history of depression or psychiatric disorders (Agrawal et al., 2022). The connection between a history of psychiatric illness and the development of PPD is still being further examined; however, some experts suggest that it is due to a “natural reoccurrence of depression episodes” (Silverman et al., 2017). The authors describe that for women with a previous history, depressive behavior and harmful self-thought are already established patterns of behavior. This behavior is then exacerbated by the extreme emotions of bearing a child and imbalances in hormones like cortisol, progesterone, and estrogen, which play a key role in regulating systems that impact depression.

Low Resilience

Maternal resilience is defined as “a women's ability to maintain life satisfaction, self-esteem and purpose in the face of emotional, physical and financial hardships related to their mothering and caregiving role” (Seely & Mickelson, 2019). A mother's resiliency plays a key role in the development of PPD and is often determined by factors outside of the mother's control like mental health and environment. Low mental resilience tends to lead to poor maternal mental health and bad self-esteem (Baattaiah et al., 2023). This low self-esteem and maternal confidence leads to feelings of failure, and when combined with prenatal depression, can plunge the mother further into postnatal depression (Arante et al., 2020). Mothers with higher self-esteem are more likely to be able to handle situations that could potentially contribute to PPD (Agrawal et al., 2022). In a study, researchers found that 36% of participants with low levels of resilience had their coping skills negatively impacted, contributing to the development of PPD (Baattaiah et al., 2023).

Stressful Life Events

Research has shown that the occurrence of stressful life events during pregnancy and childbirth is a potential pathway towards developing PPD (Silverman et al., 2017). Experts have found that there is a dose-response relationship (increasing levels of exposure increases the response) between stressful life events and PPD (Arante et al., 2020). Stressful life experiences, such as the death of a loved one or divorce, tend to lower coping mechanisms and resiliency in

mothers. This is due to the nature of how traumatic experiences tend to trigger episodes of depression in humans. Trouble coping with these painful life experiences can lead to the onset of depression.

In addition, women who experienced difficult childbirths, such as emergency cesarean sections, preterm births, or great blood loss, were more likely to develop PPD due to the exacerbation of patient stress (Agrawal et al., 2022). Posttraumatic stress disorder following childbirth from these experiences, especially in patients who have their own significant childhood trauma histories or fear of childbirth, have been strongly correlated with PPD (Waller et al., 2022). Studies show that women who deliver preterm infants are at a higher risk of developing PPD due to increased stress over infant health (Agrawal et al., 2022). Stressful life events tend to trigger negative feelings and heighten pressure and stress for new mothers, in turn. The occurrence of stressful life events has been linked to the emergence of depressive episodes, leading to PPD in new mothers.

Support Systems

Financial Support

Low socioeconomic standing (SES) and low financial support increases the risk of PPD (Goyal et al., 2010). The struggle for new mothers to meet the economic needs of themselves, or their newborn leads to copious amounts of stress, high pressure, negative emotions, and fatigue (Kebede et al., 2022). Low SES also results in difficulty accessing certain resources such as medicine, doctor appointments, and proper nutrition for the child (Kebede et al., 2022). Traditionally, we assume low financial support is most prevalent in women who do not have a partner, are unemployed, or have a low degree of education. These are risk factors of PPD because they contribute to lower financial support (Goyal et al., 2010). However, women who do have partners can also have a low SES. For example, mothers who are unemployed and rely on a single income from their partner have a lower degree of financial autonomy, correlating to low SES (Kebede et al., 2022). Low financial support causes high amounts of pressure and stress in the mother, raising negative emotions and making it difficult to find access to resources such as transportation, insurance, and secondary care. This increased pressure and stress presents a pathway towards PPD (Goyal et al., 2010).

Other researchers find no correlation between levels of education and PPD, even stating that higher levels of education are likely to lead to higher rates of PPD (Grussu & Quatraro, 2009). The authors posit that women with higher levels of education are more likely to feel pressure to return to their jobs and feel greater responsibility to balance both a career and a work. Mothers who work may experience effort-reward imbalance, and this is especially true of those of higher levels of education, perhaps due to a different perspective on their work such as higher levels of personal commitment (Karl et al., 2020). High levels of effort-reward imbalance can lead to a host of negative emotions such as burnout, stress, and depression (Karl et al., 2020). Working mothers may also experience work-privacy conflict, which encompasses experiences from work that impact experiences in the private/family domain. These negative emotions can also be linked to depression, anxiety, and burnout (Karl et al., 2020). Still, the economic standing and level of financial support received by mothers have a direct impact on the development of postpartum depression. Trouble accessing certain resources causes copious amounts of pressure and stress for the mother, increasing the risk of developing PPD (Goyal et al., 2010).

Familial Support

A social network is a network and community of individuals tied together by intrapersonal relationships. This social network is filled by family and friends—individuals personally close to the new mother. Mothers who lack a strong social network or support from friends and family have a higher risk of developing PPD (Yamada et al., 2020). On the other hand, a strong social network has been shown to have “buffering effects” (Saligheh et al., 2014) and acts as

a protective factor against PPD (Yamada et al., 2020). Stress the mother experiences during pregnancy and in the weeks following childbirth can be mitigated by support from a family member or member of the social network.

Cultural rituals such as increased support from the pregnant patient's mother-in-law have a positive impact on the mother as she perceives and feels more support from the family (Bina, 2008). Cultural norms such as these alleviate the impact of PPD, and if mothers do not feel this care and support from the family, it can negatively affect postpartum mood (Bina, 2008). An underdeveloped network and community can result in high levels of emotional turmoil and depression, leading to PPD (Kebede et al., 2022). The reassurance of family members in the face of perceived pressures and challenges acts as a protective factor against the development of PPD and is crucial to postpartum health (Yamada et al., 2020).

Partner Support

A lack of a partner/second parent is identified as a leading cause of poor maternal health, as mothers often need extra support from another partner (Kebede et al., 2022), and a lack of a partner's support severely increases the risk of PPD (Baattaiah et al., 2023). Factors such as poor marital relationships and lack of support lead to increased stress and a higher rate of depression in new mothers (O'Hara, 2009). Studies show that the level of partner involvement is strongly correlated with PPD, as women with partners who were not actively involved were 2.34 times more likely to develop PPD (Kebede et al., 2022). This can be explained by the fact that women with active partners will feel a greater level of support, as well as assisting in important decisions such as healthcare (Kebede et al., 2022). Mothers benefit greatly from the extra support, but research has shown even familial support is often not enough to protect against PPD without additional partner support (Yamada et al., 2020). The support from the partner is crucial to the health of the mother.

The Effect of Domestic Violence

Partner violence towards the mother has also been shown to have a direct effect on the development of PPD. One study found that women who have been subjected to sexual or physical violence, most commonly before or during pregnancy, were far more at risk of PPD symptoms and development (Mousavi & Shojaei, 2021). Other studies showed that violence against women in forms such as sexual or physical violence and stalking (as well as childhood violence) are associated with a higher rate of self-reported PPD (Garabedian et al., 2011). Domestic violence is a major risk factor of PPD following childbirth (Adamu & Adinew, 2018). Domestic violence, or aggressive violence in the home, encompasses both physical and sexual abuse, as well as verbal. Outcomes of domestic violence may include major physical damage to the mother, as well as emotional and psychological abuse (Beydoun et al., 2010). Physical and mental torment subjected upon the mother harms overall well-being as well as lowers overall resilience and maternal confidence (Kebede et al., 2022). Specifically, these factors play a significant role in the development of PPD as they impair a mother's ability to adapt to the new challenges of motherhood, directly affecting her mental health and increasing the development of prenatal depression and anxiety.

Physical Conditions

Fatigue

Fatigue and quality of rest are one of the best predictors of PPD for new mothers; a lack of sleep and low levels of recovery lead to physical and psychological damage (Baattaiah et al., 2023). For many new mothers, fatigue is relatively common. However, what tends to trigger PPD is unrelenting levels of fatigue, caused by consistent lack of rest (Corwin et al., 2005). For most women, fatigue begins to decline around 14 days postpartum, and studies show that women who feel extreme fatigue after two weeks are at high risk of developing PPD (Corwin et al., 2005).

This fatigue can be caused by several factors, such as caring for a baby throughout the day, managing a newborn's inconsistent sleep schedule, and balancing managing a child with other duties (Baattaiah et al., 2023). These factors are often compounded in women who do not have a partner to share these duties, meaning they are responsible for a greater share on their own. While fatigue is an unavoidable part of new motherhood, chronic fatigue compounded by little support raises the risk of PPD development.

Nutrition

Deficiencies of certain nutrients in the diet can compound certain symptoms of PPD due to psychoneuroimmune connections within the body. For example, a lack of vitamin D in the diet has been consistently linked to higher levels of depression. This deficiency can lead to prenatal depression, a significant risk factor for the development of PPD (Ellsworth-Bowers & Corwin, 2012). Similarly, levels of zinc vary inversely with the severity of PPD symptoms; as zinc lowers, the severity of PPD symptoms rise (Ellsworth-Bowers & Corwin, 2012). Additionally, women who took selenium supplements experienced lower or reduced symptoms of PPD following childbirth. There is little correlation between vitamin B9 and PPD and the effect of n-3 polyunsaturated fatty acids on PPD symptoms. Diet clearly impacts maternal health; a correlation between poor dietary quality and PPD was found in a recent study conducted on Chinese mothers. Researchers specifically found that PPD patients tended to have insufficient intake of vegetables, fish, and fruits as well as inadequate food variety (Yang et al., 2021). Mothers of lower SES may struggle even more due to challenges affording nutrient rich foods or receive natal supplements, compounding their already high risk.

Age

The age of the mother at the birth of the child is a considerable factor in maternal health. Experts generally agree that the younger the mother, the more likely they are to develop PPD, as becoming a mother at a younger age generally means the mother is less prepared for the maternal role and will experience a greater amount of distress for the first time (Kebede et al., 2022). The prevalence of PPD in teen mothers is almost double the rate of adult mothers, reporting around 14-53%. Most data concludes that maternal age from 15-24 is considered a risk factor of PPD, as mothers in this age range encounter more psychological challenges, social isolation, single parenthood, and the experience of birth of a first child (Putri et al., 2023). Research also concludes that younger relationships are more likely to be unstable and the mother receives less support from their partner (Saligheh et al., 2014).

Conversely, other studies find no correlation between adolescence and PPD. Some research finds that women of advanced maternal age, defined commonly as women who are above the age of 35 years, are actually more likely to develop PPD because of a higher chance of having a history of depression before birth and more responsibilities and duties after birth to look after (Muraca & Joseph, 2014). Another study showed that women's risk for depression increases with age, with age 30 as the critical point of increased risk (Yang et al., 2021). In fact, independent of depression history, women older than 35 years are at a higher risk of PPD development than women aged 25-29 (Silverman et al., 2017). Overall, age plays a considerable role in the development of PPD in new mothers, likely due to the life experiences of the mother at the time.

Living Conditions

The conditions which the mother and child live in play a significant role in maternal health and the development of PPD. Living arrangements often play both an indirect and direct role in the symptoms of PPD (Mousavi & Shojaei, 2021). Living arrangements is a generalized term for the physical conditions under which the mother lives, as well as who mothers share the living space with. A better living arrangement, meaning higher quality of shelter, better family support, and better quality of life, significantly reduces stress and anxiety for the mother (Mousavi & Shojaei, 2021).

Specifically, a better living arrangement lessens the risk of developing PPD in new mothers (Mousavi & Shojaei, 2021). In line with this, poor living conditions, such as living alone or in an unsafe region, is considered a risk factor of PPD due to higher rates of maternal stress (Ogbo et al., 2018).

Conclusion and Recommendations

Postpartum depression is a disorder that has the potential to cause negative effects on the health of the mother. It is of the utmost importance to understand its causes and risk factors and take preventative measures against PPD. The sociocultural causes of PPD are wide and vary, but they fall into three major categories—support, physical factors, and mental health. These causes have varying effects on PPD in new mothers, but many lend themselves to an overarching theme: PPD is most prevalent in mothers with low support and care from their family members.

Preventative measures need to be able to identify mothers who are at high risk for PPD and provide extra support for these patients. A detailed patient history taken before childbirth is recommended to identify patients who are at high risk. Health practitioners should recognize women who live with low financial support, are single parents, have little to no social network, or have a previous history of mood disorders. Following pregnancy, follow-up appointments specifically targeting the mother's health should be routine. Health practitioners should check the mother's fatigue level during these follow-up appointments, as fatigue is one of the best predictors of developing PPD (Corwin et al., 2005). Aid from different forms of therapy, such as cognitive behavioral therapy, have shown improvement in conditions and should be utilized (Fitelson et al., 2010). Also, community-based sexual and reproductive education would aid in reducing risk factors of PPD (Kebede et al., 2022). Many of PPD's factors are related to low levels of support, financially, emotionally, and physically. Educating women on how to lower the odds of an unplanned pregnancy as well as what resources a child needs to thrive may help reduce the prevalence of PPD, better ensuring that mothers who have children are prepared for the relative challenges and stressors—although this would need to be explored further to determine the impact of such strategies.

While these recommendations would benefit mothers, high costs of medical care cause major limitations. Therapy and additional follow-up appointments are often not covered by insurance, and pregnant patients of low SES are at a disadvantage to accessing medical care (Goyal et al., 2010). Moreover, it is increasingly difficult for mothers of low SES to access healthcare and appointments due to barriers of transportation and insurance issues (Goyal et al., 2010). However, scientists and public health officials should recognize that PPD is a dangerous public health risk to millions of parents and children. Research should target examining and identifying the causes of the disorder, with more resources being available for mothers who are at risk of developing PPD.

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References

- Adamu, A. F., & Adinew, Y. M. (2018). Domestic Violence as a Risk Factor for Postpartum Depression Among Ethiopian Women: Facility Based Study. *Clinical Practice and Epidemiology in Mental Health: CP & EMH*, *14*, 109–119. <https://doi.org/10.2174/1745017901814010109>
- Agrawal, I., Mehendale, A. M., & Malhotra, R. (2022). Risk Factors of Postpartum Depression. *Cureus*, *14*(10), e30898. <https://doi.org/10.7759/cureus.30898>

- Arante, F. O., Tabb, K. M., Wang, Y., & Faisal-Cury, A. (2020). The relationship between postpartum depression and lower maternal confidence in mothers with a history of depression during pregnancy. *The Psychiatric Quarterly*, *91*(1), 21–30. <https://doi.org/10.1007/s11126-019-09673-w>
- Baattaiah, B. A., Alharbi, M. D., Babteen, N. M., Al-Maqbool, H. M., Babgi, F. A., & Albatati, A. A. (2023). The relationship between fatigue, sleep quality, resilience, and the risk of postpartum depression: An emphasis on maternal mental health. *BMC Psychology*, *11*(1), 10. <https://doi.org/10.1186/s40359-023-01043-3>
- Beydoun, H. A., Al-Sahab, B., Beydoun, M. A., & Tamim, H. (2010). Intimate partner violence as a risk factor for postpartum depression among Canadian women in the Maternity Experience Survey. *Annals of Epidemiology*, *20*(8), 575–583. <https://doi.org/10.1016/j.annepidem.2010.05.011>
- Bina, R. (2008). The impact of cultural factors upon postpartum depression: A literature review. *Health Care for Women International*, *29*(6), 568–592. <https://doi.org/10.1080/07399330802089149>
- Corwin, E. J., Brownstead, J., Barton, N., Heckard, S., & Morin, K. (2005). The Impact of Fatigue on the Development of Postpartum Depression. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *34*(5), 577–586. <https://doi.org/10.1177/0884217505279997>
- Ellsworth-Bowers, E. R., & Corwin, E. J. (2012). Nutrition and the psychoneuroimmunology of postpartum depression. *Nutrition Research Reviews*, *25*(1), 180–192. <https://doi.org/10.1017/S0954422412000091>
- Fitelson, E., Kim, S., Baker, A. S., & Leight, K. (2010). Treatment of postpartum depression: Clinical, psychological and pharmacological options. *International Journal of Women's Health*, *3*, 1–14. <https://doi.org/10.2147/IJWH.S6938>
- Garabedian, M. J., Lain, K. Y., Hansen, W. F., Garcia, L. S., Williams, C. M., & Crofford, L. J. (2011). Violence Against Women and Postpartum Depression. *Journal of Women's Health*, *20*(3), 447–453. <https://doi.org/10.1089/jwh.2010.1960>
- Goyal, D., Gay, C., & Lee, K. A. (2010). How much does Low Socioeconomic Status Increase the Risk of Prenatal and Postpartum Depressive Symptoms in First Time Mothers? *Women's Health Issues : Official Publication of the Jacobs Institute of Women's Health*, *20*(2), 96–104. <https://doi.org/10.1016/j.whi.2009.11.003>
- Karl, M., Schaber, R., Kress, V., Kopp, M., Martini, J., Weidner, K., & Garthus-Niegel, S. (2020). Precarious working conditions and psychosocial work stress act as a risk factor for symptoms of postpartum depression during maternity leave: Results from a longitudinal cohort study. *BMC Public Health*, *20*, 1505. <https://doi.org/10.1186/s12889-020-09573-w>
- Kebede, A. A., Gessesse, D. N., Aklil, M. B., Temesgan, W. Z., Abegaz, M. Y., Anteneh, T. A., Tibebe, N. S., Alemu, H. N., Haile, T. T., Seyoum, A. T., Tiguh, A. E., Yismaw, A. E., Mihret, M. S., Nenko, G., Wondie, K. Y., Taye, B. T., & Tsega, N. T. (2022). Low husband involvement in maternal and child health services and intimate partner violence increases the odds of postpartum depression in northwest Ethiopia: A community-based study. *PLOS ONE*, *17*(10), e0276809. <https://doi.org/10.1371/journal.pone.0276809>
- Mousavi, F., & Shojaei, P. (2021). Postpartum Depression and Quality of Life: A Path Analysis. *The Yale Journal of Biology and Medicine*, *94*(1), 85–94.
- Mughal, S., Azhar, Y., & Siddiqui, W. (2023). Postpartum Depression. In *StatPearls*. StatPearls Publishing. <http://www.ncbi.nlm.nih.gov/books/NBK519070/>
- Muraca, G. M., & Joseph, K. S. (2014). The Association Between Maternal Age and Depression. *Journal of Obstetrics and Gynaecology Canada*, *36*(9), 803–810. [https://doi.org/10.1016/S1701-2163\(15\)30482-5](https://doi.org/10.1016/S1701-2163(15)30482-5)
- O'Hara, M. (2009). Postpartum depression: What we know. *Journal of Clinical Psychology*, *65*, 1258–1269. <https://doi.org/10.1002/jclp.20644>
- Ogbo, F. A., Eastwood, J., Hendry, A., Jalaludin, B., Agho, K. E., Barnett, B., & Page, A. (2018). Determinants of antenatal depression and postnatal depression in Australia. *BMC Psychiatry*, *18*(1), 49. <https://doi.org/10.1186/s12888-018-1598-x>

- Patel, M., Bailey, R. K., Jabeen, S., Ali, S., Barker, N. C., & Osiezagha, K. (2012). Postpartum depression: A review. *Journal of Health Care for the Poor and Underserved, 23*(2), 534–542. <https://doi.org/10.1353/hpu.2012.0037>
- Postpartum depression—Symptoms and causes.* (2022). Mayo Clinic. <https://www.mayoclinic.org/diseases-conditions/postpartum-depression/symptoms-causes/syc-20376617>
- Putri, A. S., Wurisastuti, T., Suryaputri, I. Y., & Mubasyiroh, R. (2023). Postpartum Depression in Young Mothers in Urban and Rural Indonesia. *Journal of Preventive Medicine and Public Health, 56*(3), 272–281. <https://doi.org/10.3961/jpmph.22.534>
- Saligheh, M., Rooney, R. M., McNamara, B., & Kane, R. T. (2014). The relationship between postnatal depression, sociodemographic factors, levels of partner support, and levels of physical activity. *Frontiers in Psychology, 5*. <https://www.frontiersin.org/articles/10.3389/fpsyg.2014.00597>
- Seely, H., & Mickelson, K. (2019). Maternal Resilience as a Protective Factor Between Financial Stress and Child Outcomes. *Journal of Family Issues, 40*, 0192513X1984260. <https://doi.org/10.1177/0192513X19842609>
- Silverman, M. E., Reichenberg, A., Savitz, D. A., Cnattingius, S., Lichtenstein, P., Hultman, C. M., Larsson, H., & Sandin, S. (2017). The risk factors for postpartum depression: A population-based study. *Depression and Anxiety, 34*(2), 178–187. <https://doi.org/10.1002/da.22597>
- Stewart, D. E., & Vigod, S. N. (2019). Postpartum Depression: Pathophysiology, Treatment, and Emerging Therapeutics. *Annual Review of Medicine, 70*(1), 183–196. <https://doi.org/10.1146/annurev-med-041217-011106>
- Waller, R., Kornfield, S. L., White, L. K., Chaiyachati, B. H., Barzilay, R., Njoroge, W., Parish-Morris, J., Duncan, A., Himes, M. M., Rodriguez, Y., Seidlitz, J., Riis, V., Burris, H. H., Gur, R. E., & Elovitz, M. A. (2022). Clinician-reported childbirth outcomes, patient-reported childbirth trauma, and risk for postpartum depression. *Archives of Women's Mental Health, 25*(5), 985–993. <https://doi.org/10.1007/s00737-022-01263-3>
- Yamada, A., Isumi, A., & Fujiwara, T. (2020). Association between Lack of Social Support from Partner or Others and Postpartum Depression among Japanese Mothers: A Population-Based Cross-Sectional Study. *International Journal of Environmental Research and Public Health, 17*(12), 4270. <https://doi.org/10.3390/ijerph17124270>
- Yang, C., Zhao, A., Lan, H., Ren, Z., Zhang, J., Szeto, I. M.-Y., Wang, P., & Zhang, Y. (2021). Association Between Dietary Quality and Postpartum Depression in Lactating Women: A Cross-Sectional Survey in Urban China. *Frontiers in Nutrition, 8*, 705353. <https://doi.org/10.3389/fnut.2021.705353>