

The Impact of Maternal Depression on Children's Growth and Development

Nancy Godoy

University of California, Merced

### Abstract

There has been literature presented that demonstrates the impact of maternal depression on children's growth and development. We will see in this literature review some of the factors that hinder this development. For example, the lack of maternal sensitivity, which is lack of affection, responsiveness, and attention influences children's social engagement, fear regulation, and cortisol levels. Other aspects of development that are impacted are cognitive, motor, and language development. This is important because most of what the mother does and how she portrays herself reflects onto the child. Maternal depression begins to impact child growth and development from the time the fetus is developing in the womb. However, it is also important to see how the infant is affected after they are born and how maternal sensitivity and emotional availability play a role in their development. The majority of participants in the different studies were mother-child dyads. Mothers were between the ages of 20 and 40 years and children under the age of 12 years. Women between 10 to 20 weeks of gestation were also recruited to assess how prenatal depression affected the fetus. Most common measures in the different studies consisted of structured clinical interviews for DSM-IV Axis I Disorders (SCID-D) to diagnose mothers with Major Depressive Disorder. Center for Epidemiological Studies Depression Scale (CES-D) and Beck's Depression Inventory were also used to determine the severity, occurrences, and the extent of the depression. Demographics of participants varied in socio-economic status and education.

*Keywords:* maternal depression, sensitivity, children, growth, development.

### The Impact of Maternal Depression on Children's Growth and Development

Various research done on maternal depression has questioned the ways in which prenatal and postnatal depression affects children's growth and development. Immense evidence has demonstrated why and how maternal depression impacts child development, and what developmental aspects of the child are being hindered. These aspects include how the lack of maternal sensitivity and emotional availability negatively influences children's development. Other aspects also include how maternal depression first restricts fetal growth and causes preterm deliveries, how it is associated with children's social engagement, fear regulation, and stress reactivity, and how cognitive, motor, and language development are hindered.

This literature review will be structured in a way where we can first see how the fetus is impacted due to maternal depression, that is, controlling for any other confounds. We will then see how maternal depression negatively impacts infants and older children due to the lack of maternal sensitivity mothers possess. Maternal sensitivity will be defined as mothers who show signs of affection, positive emotion toward the child, maternal attentiveness and responsiveness (i.e., how often the mother helps, looks at, and how physically close she is with her child). Emotional availability will also be measured by looking at similar signs as the ones listed above, mother's attentiveness, responsiveness, and affection. We will use them interchangeably because they both determine how children's development is affected due to their mother's depression.

Research done on this topic has sampled women between the ages of 20 and 40 years. Using structured clinical interviews for DSM-IV Axis I Disorders (SCID-D), mothers have been diagnosed with Major Depressive Disorder, either before or after delivering their baby. The Center for Epidemiological Studies-Depression scale (CES-D) and Beck's Depression Inventory have also been used to determine the severity, occurrences, and extent of the depression, which is

essential because many individuals vary in the level of depression they are experiencing. Mother-child dyads were recruited for participation because they met certain criteria specifically for the study. All children who participated were under the age of 12 years. Even though the majority of women who participated in the research included their children, Diego et al.'s (2009) and Li et al.'s (2009) studies consisted of women between 10 to 20 weeks of gestation to assess how prenatal depression affected the fetus. It is also key to comprehend that women's educational and income background varied. There were women recruited who came from low educational and income backgrounds (Feldman et al., 2009; Li, Liu, & Odouli, 2009) and others who had high levels of education and income (Flykt, Kanninen, Sinkkonen & Punamaki, 2010; Cornish et al., 2005). Despite these educational and income variations, women still scored high on depression scales and assessments, which indicates that maternal depression may be present in women who are not ready to have a baby or are in difficult situations.

The fetus is impacted during pregnancy in various ways, whether it be doing drugs, drinking alcohol, or talking to the baby and loving him/her. Not many parents realize that prenatal depression may cause premature delivery due to the restriction in fetal growth. In the study, "Prenatal Depression Restricts Fetal Growth", Diego and colleagues (2009) demonstrated how fetal growth is restricted. This article demonstrates how maternal depression first starts off by affecting the unborn baby. In another prospective cohort study, "Presence of Depressive Symptoms during Early Pregnancy and the Risk of Preterm Delivery", Li and colleagues (2009) were also interested in examining whether depressive symptoms throughout early pregnancy affected the likelihood of having a preterm delivery. Both articles are significant because we can further comprehend the differences in prenatal and postnatal depression and its effects on the fetus. Researchers argued that maternal depression, more specifically, prenatal depression

restricts fetal growth, meaning there is slower fetal growth rate, premature delivery, low birth weight, and high prenatal cortisol levels in the mothers (Li et al., 2009). As we can see here, there are many factors which determine how the fetus is limited from growing strong and healthy. This is particularly important because giving birth before the due date can be detrimental to the newborn since they are not entirely developed. Their bodies are weak and cannot fully support themselves.

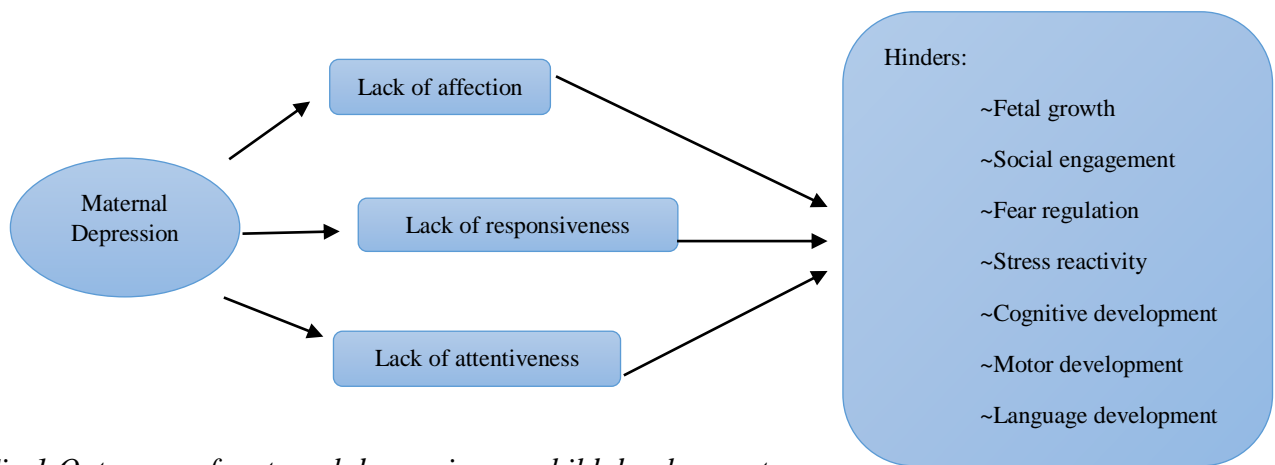
In order to determine whether prenatal depression influenced this restriction, women were first evaluated for major depressive disorder (MDD). They were then interviewed, asked to provide urine to evaluate cortisol levels, and took an ultrasound for fetal growth measurements. Researchers then observed levels of prenatal cortisol, fetal growth, and whether or not there was premature delivery (Diego et al., 2009). It was also shown that prenatal depression may influence the levels of placental hormones and function since there are biological foundations that play a role in preterm delivery (Diego et al., 2009; Li et al., 2009). With the combination of all these factors, researchers observed that depressed women displayed higher prenatal cortisol levels resulting in lower fetal weight, slower fetal growth rates, were 13% more likely to deliver premature infants, and lower birth weights (Diego et al., 2009). Similar results were found in Li et al.'s (2009) study; however, age, ethnicity, education, income, reproductive history and stressful life events played a significant role in preterm delivery. For example, women with high levels of prenatal depressive symptoms tended to be younger, unmarried, and of African American background with less education and income (Li et al., 2009). Both of these studies give us an introduction to how maternal depression begins to impact child growth and development, but it is also significant to see how the infant is affected after they are born and how maternal sensitivity and emotional availability play a role in this development.

In addition to how children's growth is hindered, we can see how parenting self-efficacy can be related to this delay (Surkan et al., 2008); this is important because if there is a negative association then self-efficacy may be reconstructed with maternal support systems which in turn may help children's growth. Surkan et al.'s (2008) article differs from the rest because sample size was larger and mothers were recruited from Teresina, Piauí, and Brazil. In the next section, we will see a trend of how low-income families are affected due to maternal depression (Li et al., 2009; Feldman et al., 2009). In this study, Brazilian women with depression and low-income were associated with higher risk factors in children's growth (Surkan et al., 2008). Researchers argued that there may have been a relationship between maternal depression and child underweight, but their low prevalence of underweight wasn't enough evidence to detect that association (Surkan et al., 2008). Though there wasn't a clear relationship, past research has shown that mothers with depressive symptoms are less likely to engage in healthy feeding or sleeping practices with their infants, which restricts child growth (Surkan et al., 2008). This study, like others will continue to explore the different aspects in which children's development is impacted. More specifically, we will see the importance sensitivity and emotional availability have on development.

There are many factors that hurt children as they are growing up, but the main cause is the lack of maternal sensitivity mothers possess. Without love, affection, responsiveness, and attentiveness, children grow up to be insecure about themselves and feel the inability to cope with difficult situations. We will see how the lack of maternal sensitivity and emotional availability unfolds in various studies and impacts children's growth and development. In the article, "Maternal Depression and Anxiety across the Postpartum Year and Infant Social Engagement, Fear Regulation, and Stress Reactivity", Feldman and colleagues (2009) help us

understand some of the ways children’s growth and development are impacted after birth. Cornish and colleagues (2005) will also help us understand how children’s cognitive and motor development are hindered. Additionally, Paulson, Keefe, & Leiferman (2009) examine how language development is affected due to both maternal and paternal depression, which is key because if both mother and father have depression, one would assume it is more detrimental to the child. This article however, will be slightly different since it includes paternal depression and how it affects children’s expressive language.

Maternal depression has been shown to impact children’s social engagement, fear regulation, and reactivity but this is not only due to maternal depression; it also has to do with the amount of maternal sensitivity and emotional availability mothers show their children. As we can see, *Figure 1* depicts the outcomes of maternal depression on different developmental aspects in children due to the lack of maternal sensitivity.



*Fig.1 Outcomes of maternal depression on child development*

In different studies, we have seen how maternal sensitivity was high among healthy women, followed by mothers who suffered from anxiety, and last were mothers who suffered from depression (Feldman et al., 2009). These results show that child social engagement and fear regulation were lowest among children whose mothers suffered from depression, which is why

they obtained higher cortisol levels at baseline and after. There have also been differences in mothers' attachment styles, which aligns with the amount of maternal sensitivity mothers demonstrate. The lack of maternal sensitivity between mothers who suffered from depression and anxiety cause children to have negative emotions and be socially withdrawn (Feldman et al., 2009). For example, in a study by Flykt et al., (2010) researchers videotaped the dyadic free play between mother and child at 14 months; interactive behavior was divided into facial expressions, position and body contact, affection, turn-taking possibilities, and control between activities, according to how sensitive, controlling, and unresponsive mothers were and how co-operative, compulsive, difficult and passive infants were.

Results in this study demonstrate and reflect the results in Feldman et al.'s (2009) study in which maternal sensitivity and child co-operation remained satisfactory for mothers classified as autonomous because despite there being an increase in depression, mothers conserved their sensitivity. Oddly, there was a positive correlation between maternal sensitivity and depressive symptoms among dismissing mothers; as depressive symptoms went up, so did their maternal sensitivity, which indicated an improvement in the dyadic interaction between mother and child (Flykt et al., 2010). This is different than what is presented in other studies because we have seen the negative impact maternal depression has on children's development. Nevertheless, constant evidence suggests that prenatal depression has more harmful effects on the mother-child interaction, and even more harmful effects for those with the combination of prenatal and postnatal depressive symptoms (Flykt et al., 2010). These studies are important for this literature review because they focus on the impact maternal depression has on child growth and development. More specifically, we see how children's behavior is a result of the type of

attachment style the mother has and the amount of affection, responsiveness, and attentiveness she portrays to her child.

As stated before, Cornish and colleagues (2005) demonstrate the impact postnatal depression has on cognitive and motor development; however, they also include how gender may modify the effects. This is significant because most research has not focused on the differences between genders; rather it has focused on the overall impact maternal depression has on development. To assess how cognitive and motor development were impacted, data were collected at children's various ages. At 12 months of age, mother's depression, occurrences/extent of the depressive symptoms, and "flow mood" were assessed, and at 15 months, infants' language, cognitive, and psychomotor (i.e., engagements, emotion regulation, and motor quality) development were evaluated (Cornish et al., 2005). Researchers also examined different dimensions of infant behavior. These procedures are similar to Flykt and colleagues' and other studies because we can see how children's behavior has been evaluated in order to determine how maternal depression has impacted their development. Flykt et al.'s (2010) study specifically looked at child's co-operative, compulsive, difficult or passive interactive behavior to indicate how he/she was affected. Cornish et al.'s (2005) study looked at whether or not children completed a task, whether there were signs of positive affect, interest in test materials, frustration at inability to complete the task, and motor movement. It was demonstrated that cognitive and motor development were impacted at 15 months if the mother had chronic depression in the first 12 months after delivery and beyond, with no evidence of gender difference. However, brief maternal depression (present in first 4 months postpartum and resolved by 12 months) did not affect infants' performance. Interestingly, whether or not mothers

had a history of postnatal depression, girls performed better on developmental measures than did boys (Cornish et al., 2005).

We will continue to see the relationship between maternal depression and children's growth and development. We will see a slight difference in who has depression because rather than focusing on maternal depression, we will see how paternal depression also impacts another aspect of development the same way maternal depression does. This is critical because if both mother and father have depression, one would assume it is more detrimental to the child. In this study, Paulson and colleagues (2009), hypothesized that depression in any parent would be related to the deficits in children's expressive language and that parent's reading behavior would mediate those effects. This is comparable to Feldman and colleagues' (2009), Flykt and colleagues' (2010), and Kluczniok and colleagues' (2015) studies where they discuss the impact lack of attentiveness has on children's development. In Paulson et al.'s (2009) study, along with Li et al.'s (2009) and Feldman et al.'s (2009), we can see that the majority of the children came from minority families, which may be the reason why there is a lack of attention, since mother's attention is on her depression and other stressors, such as income. Like Flykt et al., (2010) and Cornish et al., (2005) Paulson and colleagues (2009) evaluated children's behavior to determine how maternal depression has impacted their development. They specifically used inventories to measure depressive and somatic symptoms, child expressive behavior, total expressive vocabulary, and self-reports to see how often parents read to their children.

As hypothesized, depressive symptoms in both parents negatively impacted the dyadic reading frequency, which also reduced children's expressive vocabulary. Children whose father suffered from depression had continuous emotional, behavioral and conduct problems at age 3.5. Mothers read to their children more often than did the fathers; however, there were still low

levels of expressive behavior, especially for children whose fathers suffered from depression since it was a negative predictor for development (Paulson et al., 2009). This again is necessary to consider because children need support from both their parents. But if there is a lack of emotional availability caused by depression, then children's development is going to be damaged.

Considering other factors that play a role in children's development, as mentioned here with paternal depression, we can see how history of childhood abuse plays a significant role for mothers with depression in remission. This is specifically studied in Kluczniok et al.'s (2016) research where even though mothers are in remission, their lack of maternal sensitivity is existent and continues to impact child growth and development. Feldman et al.'s (2009) and Flykt et al.'s (2010) studies do a great job of explaining the impact maternal sensitivity has on children's behavior. Scholars have seen this trend in which mothers with depression show reduced amounts of emotional availability. This is true even for mothers who have depression but are in remission, and there is an even greater impact for mothers who have experienced childhood abuse (Kluczniok et al., 2016). This is important for this research because we can understand that although mothers with depression are in remission, their emotional availability is still impaired by the depression.

When mothers were asked to complete a task with their children, remitted mothers showed more hostility rather than supporting their child to complete the activity. Those who experienced childhood abuse were more inclined to showing little to no sensitivity (Kluczniok et al., 2016). As mentioned, researchers demonstrated the effects of remitted depression on maternal sensitivity and the impact childhood abuse has on the amount of emotional availability mothers possess. This is vital for this literature review because we can see how maternal

depression with an addition of external/internal factors continue to impact children's growth and development.

Overall, we have seen how maternal depression has negatively impacted children's growth and development even before they are born. Evidence has suggested that this may be due to the lack of maternal sensitivity and emotional availability mothers possess. For example, the lack of affection, responsiveness, and attentiveness has influenced children's social engagement, fear regulation, stress reactivity, cognitive, motor, and language development, and other aspects in children's growth. Maternal depression continues to hinder children's development and the mother-child interaction due to the lack of sensitivity.

Some limitations found in these studies were the lack of repeated measures, the absence in father data, and small sample size – which makes it more difficult to generalize to other populations –. This is noteworthy because comprehending paternal sensitivity and emotional availability can help, rather than hinder children's development, despite mother's lack of sensitivity and emotional stability. Future research should definitely perform longitudinal studies to see how maternal depression continues to impact children's growth and development across childhood and into adolescent years. Scholars should also focus on the different outcomes prenatal and postnatal depression have on development because there may be interventions that help moderate these depressive symptoms.

## References

- Cornish, A. M., McMahon, C. A., Ungerer, J. A., Barnett, B., Kowalenko, N., & Tennant, C. (2005). Postnatal depression and infant cognitive and motor development in the second postnatal year: The impact of depression chronicity and infant gender. *Infant Behavior and Development*, 28(4), 407-417. doi: 10.1016/j.infbeh.2005.03.004
- Diego, M. A., Field, T., Hernandez-Reif, M., Schanberg, S., Kuhn, C., & Gonzalez-Quintero, V. H. (2009). Prenatal depression restricts fetal growth. *Early Human Development*, 85(1), 65-70. doi: 10.1016/j.earlhumdev.2008.07.002
- Feldman, R., Granat, A., 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 and Adolescent Psychiatry*, 48(9), 919-927. doi: 10.1097/CHI.0b013e3181b21651
- Flykt, M., Kanninen, K., Sinkkonen, J., & Punamäki, R. L. (2010). Maternal depression and dyadic interaction: The role of maternal attachment style. *Infant and Child Development*, 19(5), 530-550. doi: 10.1002/icd.679
- Kluczniok, D., Boedeker, K., Fuchs, A., Hindi Attar, C., Fydrich, T., Fuehrer, D., ... & Herpertz, S. C. (2015). Emotional availability in mother-child interaction: The effects of maternal depression in remission and additional history of childhood abuse. *Depression and Anxiety*, 33, 648-657. doi: 10.1002/da.22462
- Li, D., Liu, L., & Odouli, R. (2009). Presence of depressive symptoms during early pregnancy and the risk of preterm delivery: A prospective cohort study. *Human Reproduction*, 24(1), 146-153. doi: 10.1093/humrep/den342

Paulson, J. F., Keefe, H. A., & Leiferman, J. A. (2009). Early parental depression and child language development. *Journal of Child Psychology and Psychiatry*, 50(3), 254-262.

doi:10.1111/j.1469-7610.2008.01973.x

Surkan, P. J., Kawachi, I., Ryan, L. M., Berkman, L. F., Carvalho Vieira, L. M., & Peterson, K.

E. (2008). Maternal depressive symptoms, parenting self-efficacy, and child

growth. *American Journal of Public Health*, 98(1), 125-132. doi:10.2105/AJPH.

2006.108332