

# Infant frontal EEG asymmetry and prenatal depression: Letter

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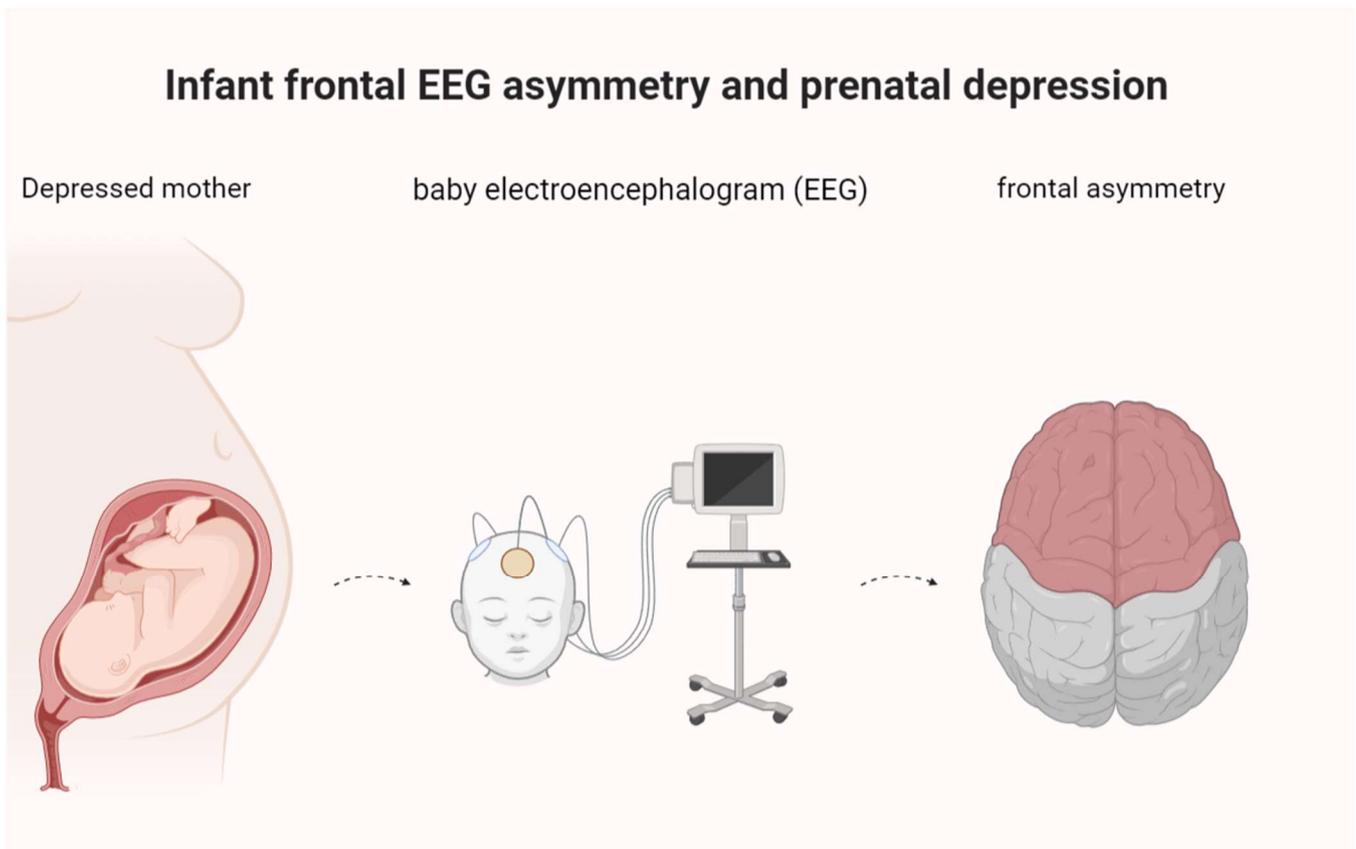
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Dear Editor,

Depression is common in pregnancies. Previous studies indicated that maternal depression can cause a long-term adverse effect on neuro-development in offspring (1). It has been suggested that there is a higher risk for cognitive,

behavioral, and emotional problems in children with a family history of prenatal and postnatal maternal depression (2). Although most of the studies investigated prenatal or postnatal maternal depression reached a consensus that the neural basis of maternal depression in offspring might be the right frontal electroencephalogram (EEG) asymmetry (3, 4).



**Figure1.** Infant frontal EEG asymmetry and prenatal depression: Letter

Here several studies investigated the association between infant frontal EEG asymmetry and prenatal maternal depression reviewed.

A study by Field et al. recruited 92 mothers who were given CES-D to assess depression and then the frontal EEG asymmetry was measured during the neonatal period in the mothers and neonates (5). They found that the frontal asymmetry of newborns was correlated with the mother's prenatal depression and frontal asymmetry. Moreover, the frontal EEG asymmetry of the newborns was correlated with prenatal maternal norepinephrine and serotonin.

Another study by Jones et al. assessed the EEG activity in 10-months infants of depressed and non-depressed mothers during stimulation to produce happy and sad responses (6). According to this study, infants of depressed mothers showed higher relative right frontal EEG asymmetry compared to infants of non-depressed mothers during the happy facial expression.

Soe et al. study assessed the association of post- and prenatal depression and frontal EEG activity in 6- and 18-months infants (3). They reported that post- and prenatal maternal

depression was not a predictor of an infant's frontal EEG activity.

However, it was found that the increasing maternal depressive symptoms from the prenatal to postnatal period is a predictor of right frontal activity and relative right frontal asymmetry in 6-month infants.

An investigation by Goodman et al. evaluated the frontal EEG asymmetry among 12-months infants with mothers at a higher risk of depression based on their history (7). The study revealed that right frontal EEG asymmetry was correlated with the level of mothers' prenatal (not postnatal) depression.

Based on these studies we can conclude that the prenatal and even postnatal depressive symptoms in mothers might predict the long-term effect on offspring brain development, especially in the frontal region. This suggested that infants with depressed mothers are at higher risk for psychopathology and need further support.

**Keywords:** Depression, frontal, prenatal, EEG asymmetry, infants, mothers

## Declaration

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### Conflict of interest

The authors declare no conflict of interest regarding the publication of this paper.

### Ethical approval

No need

### Consent for publication

This manuscript has been approved for publication by all authors.

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