

Review Article

# Impact of Prenatal Stress on the Foetus

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## I N F O

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## A B S T R A C T

Pregnancy is a period of many changes; it's typical to feel stressed during it. Your family, your body, and your emotions are all undergoing changes. These changes are exciting, but they can also be stressful. High levels of stress that persists for an extended period of time can cause high blood pressure or heart disease. Morning sickness, constipation, exhaustion, and backaches are just some of the aches and pains that come with pregnancy. Hormones are fluctuating, which might affect your mood. Mood fluctuations can make stress more difficult to manage. There is constant worry what to expect during labour and delivery, or how to care for your newborn. If you work, you may be responsible for managing job tasks and preparing your work for your maternity leave.

**Keywords:** Prenatal Stress, Foetus, Pregnancy Issues, Psychosocial Stressor

## Introduction

It is generally established that any sort of stress, including psychosocial, cultural, and environmental stress, has a negative influence on maternal and foetal health throughout pregnancy, and recent evidence reveals that prenatal stress has long-term consequences. Prenatal stress can have a range of effects, from severe (e.g., trauma) to moderate (e.g., life event changes) to mild (e.g., daily difficulties), and it can affect both the mother and the baby.

The term "psychosocial stressor" refers to a wide range of changes in a person's profession, residence, or personal life, as well as domestic abuse or family structure, that necessitate adaptive coping behaviour from the stressed person. Psychosocial stress can be defined as events that can cause stress regardless of whether or not a person is pregnant (financial or marital problems, daily life challenges, social anxiety); pregnancy-specific distress and anxiety can be defined as concerns about the foetal health, screening results, and all the unplanned changes that come with pregnancy. According to studies, either the psychosocial stress or pregnancy specific stress both have negative impact on pregnancy and foetal development.

Prenatal stress can cause an indirect effect on an foetal health and development as it may increase the likelihood of unfavourable birth outcomes, which are linked to significant developmental and health effects.<sup>4</sup> Furthermore, stress may have an indirect impact on baby development by predisposing women to prenatal depression, which can have a deleterious impact on the child's development and may have an adverse impact on the quality of postnatal care. Various studies have found that, while maternal stress and inflammatory responses are suppressed during pregnancy, they do not go away; stress and infection can cause a rise in Corticotropin-Releasing Hormone (CRH) levels and activate the production of inflammatory cytokines during pregnancy, in addition to triggering the HPA stress response.<sup>5,6</sup>

Antenatal mood problems are common and are linked to poor pregnancy outcomes, while the link between stress and prenatal maternal mood is still being studied. Pregnant women with anxiety or depressive disorders account for 8% to 13% of all cases.<sup>7</sup> Antenatal stress has been demonstrated in studies to increase the likelihood of neurodevelopmental abnormalities in children and to predict the risk of future mental illness. Increased levels of prenatal depression and

anxiety have been linked to poor emotional adjustment in young children, according to several research.<sup>8</sup>

### Effect on Foetal Heart Rate

In their investigation of foetal factors, Di Pietro et al. discovered considerably lower FHR variability in foetuses of women experiencing increased stress compared to the low stress group. Their findings suggested that prenatal anxiety and stress could be a component in the foetal heart's decreased parasympathetic regulation of foetal heart.<sup>9</sup>

### Effect on Foetal Activity

Several studies have found that, in addition to FHR, maternal distress can impact foetal sleep, movement, and other activities. This shows that prenatal stress may affect the development of the central nervous system as well. In a study, it was discovered that stressed moms' foetuses spent more time remaining active than nondepressed mothers' foetuses.<sup>10</sup> In a study, DiPietro et al discovered that maternal stress was linked to increased foetal motor activity at 24, 30, and 36 weeks of pregnancy.<sup>11</sup>

### Effect on Baby's Weight at the Time of Birth

An increased risk of Low Birth Weight (LBW) infant as well as preterm birth (PTB) might be associated with psychological stress; nevertheless, a growing number of studies are indicating that stressors relevant to maternal experience, such as pregnancy-specific distress and anxiety, have a strong influence on pregnancy outcome such as PTB risk and premature birth.<sup>3,14</sup> Lobel et al. and Glynn et al, they discovered a link between overall stress and maternal distress and increased PTB, LBW, and unscheduled caesarean sections in their research.<sup>3,15</sup>

Prenatal stress, according to several studies, increases the likelihood of negative pregnancy outcomes because it disrupts the adaptation in mother immune, endocrine, and neurological systems' required adjustments for a successful pregnancy. Due to stimulation of the maternal endocrine, and immune system by the prenatal stress, there is a higher risk of PTB, LBW, and shorter gestational age at birth (birth between 37 and 40 weeks).<sup>16,17</sup>

### Maternal Stress Anxiety and Depression

It has been observed through numerous researchers that there may be an stronger risk of numerous psychological issues inclusive of low emotional quotient, ADHD, conduct sickness and impaired cognitive development inside the toddler if a woman has stressed, anxiety or depression during pregnancy. Prenatal pressure may be connected to altered structure and activities of the mind.<sup>18,19,20</sup> Prenatal distress of the mom has been greater strongly related to foetal sickness than paternal.<sup>21</sup>

These findings spotlight the need of contemplating the

impact of mental health of the mother on development of child before and after delivery. Despite the fact that gestational diabetes is considerably less frequent than temper issues at some point of being pregnant, there is a routine check for it, but not for depression, mental ailment, or simply stress. That is a extreme flaw in public health policy, and it is the call for of the time that mental health screenings must be executed at some stage during ANC checkups and but they are overlooked.

**Conflict of Interest:** None

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