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Pregnancy Anxiety and Stress

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Pregnancy is the period from conception to childbirth, normally spanning 40 weeks and divided into three trimesters of approximately three months each. Pregnant women with elevated levels of stress, anxiety, and depression have higher risk of adverse birth outcomes, especially preterm birth (PTB; defined as birth before 37 weeks' gestation) and low birth weight (LBW; birthweight less than 2,500 grams). These birth outcomes and maternal stress have short- and long-term effects on child development. This entry summarizes research on stress processes in pregnancy and the newer concept of pregnancy anxiety and effects on birth outcomes and development in infancy through early childhood. The entry also discusses primary pathways linking maternal stress to PTB, specifically, neuroendocrine, inflammatory, and behavioral mechanisms.

PTB

PTB is the leading cause of infant mortality; preterm infants who survive the perinatal period are susceptible to a range of longer term physical, behavioral, social–emotional, and cognitive difficulties that may persist into adulthood. A complex combination of psychosocial, sociocultural, and biomedical factors in mothers are involved in the etiology of PTB.

Among the different types of maternal stressors studied during pregnancy, the most consistent predictors of PTB are (a) severe major life events such as death of a relative prior to or during pregnancy, (b) community catastrophes such as a major earthquake and, (c) chronic forms of stress, such as interpersonal conflict in the form of interpersonal violence. When these events produce anxiety during and about a pregnancy, they may be the most potent.

LBW

LBW is also associated with infant mortality, and with adverse health conditions for newborns, including respiratory distress syndrome, bleeding in the brain, and heart and intestinal problems. Frequently, infants who are born preterm are also of LBW as a result of less time in the womb. However, full-term infants can also be LBW and are referred to as *small for gestational age*.

A wide range of chronic stressors in expecting mothers such as neighborhood-level stressors, unemployment, crowding, interpersonal violence, and job strain are all associated with LBW and reduced fetal growth. Perceived racism and discrimination, particularly among African American women, also predict lower birth weight. Lastly, communitywide tragedies, such as floods, fires, earthquakes, and even exposure to media coverage of terrorists' attacks occurring during pregnancy have been linked to LBW. Compared to these forms of stressors, other forms such as general perceived stress and daily hassles do not seem to predict birth outcomes.

Although there is a clear distinction between stress exposure and maternal depression, depressive symptoms and the diagnosis of maternal depressive disorders are clear risk factors for LBW. Infants of prenatally depressed women are up to 4 times more likely to be LBW as compared with infants born to nondepressed women.

Focus on Pregnancy Anxiety

In addition to physiological changes, pregnancy may carry a complex range of positive and negative emotions that change over the course of the 9 months, dependent on a woman's circumstances. Many women experience specific fears or worries related to pregnancy, which may include anxiety about being pregnant (as in unplanned pregnancies), anxiety about one's own health (as in when mothers have medical risk factors), anxiety about the developing child, fear about labor and childbirth, and worries about ability to parent, especially in first pregnancies. These maternal concerns are referred to collectively as *pregnancy-specific anxiety* or *pregnancy anxiety*. These concerns about pregnancy itself are powerfully and independently associated with adverse birth and developmental effects. Not all women who worry during pregnancy will experience adverse outcomes, but women with higher scores on established measures of pregnancy concerns are at increased risk. For example, elevated levels of these pregnancy-specific worries during pregnancy reliably predict PTB above and beyond well-known risk factors (having prior births; medical risks in the pregnancy; and a woman's ethnicity, income, education, and marital status). Pregnancy-specific anxiety is a more powerful predictor of going into labor and giving birth early than is general anxiety or various forms of stress. In fact, high levels of pregnancy anxiety in each trimester and increases in pregnancy anxiety between trimesters both predict whether a mother has a PTB.

Importantly, infants with mothers who experienced higher levels of pregnancy-specific anxiety have poorer cognitive and motor performance in the first year of life. These children have poorer attention regulation, more behavioral reactivity to novelty, and lower mental development. At 1 and 2 years, infants of mothers with higher levels of pregnancy anxiety also exhibit more negative temperament. At 4–7 years, children of mothers with high pregnancy anxiety have greater behavioral and emotional problems and higher risk of hyperactivity and inattention. Finally, neurodevelopmental consequences include effects on orbitofrontal cortex functioning and differences in gray matter density at 6–9 years. Thus, elevated levels of pregnancy anxiety have been associated with a wide range of adverse developmental effects that persist through infancy and into early development. This evidence is growing within a broader focus on fetal programming of developmental effects over the life span, which refers to the premise that the environment in utero has lifelong effects by influencing the development of the fetus and especially the fetal nervous system.

Pathways Linking Maternal Stress to Early Delivery

One likely pathway linking maternal stress to PTB involves increased and sustained activation of the maternal hypothalamic–pituitary–adrenal axis. In response to stress, the hypothalamus releases corticotropin-releasing hormone (CRH), which stimulates the pituitary gland to produce adrenocorticotropic hormone, and results in the release of cortisol from the adrenal cortex into circulation. Research on sheep provided initial evidence that during pregnancy, the placenta produces CRH in exponentially increasing amounts, which is released into maternal and fetal circulation. Progressively increasing levels of this peptide during pregnancy play an important role in initiating the onset of normal labor. Human pregnancy research reveals that among women who deliver early, the exponential increases of placenta CRH levels are accelerated or occur earlier in pregnancy. Higher levels in the maternal bloodstream at 18- to 20-week gestation reliably predict the timing of delivery. There is some evidence that pregnancy anxiety is associated with changes in maternal placenta CRH and that this mediates effects on PTB.

A second physiological mediating pathway between stress and PTB involves inflammatory and immune processes. Inflammation is the biological response of body tissues to harmful stimuli, including pathogens and damaged cells, through upregulation of chemokines,

cytokines, and other complex responses. Immune disorders increase risk for PTB, and an exaggerated inflammatory response is hypothesized to drive this effect. Moreover, infections, including bacterial vaginosis, urinary tract infections, systemic infections, and sexually transmitted diseases, all increase the risk of PTB. Elevated levels of chronic stress at both the individual and community level have been associated with vaginal bacterial infections, pointing to maternal stress as one pathway by which inflammation may influence risk of PTB. Research testing the pathways between stress, inflammation, and PTB is still in the early stages. However, researchers have found that associations between general stress, pregnancy-specific distress, and timing of delivery are mediated by a few specific inflammatory markers.

Health-related behaviors of pregnant women are also a proposed mechanism through which maternal stress may lead to greater risk of adverse birth outcomes. Smoking use and substance use, particularly cocaine use, are established risk factors for PTB. Additionally, low prepregnancy maternal weight and inadequate weight gain during pregnancy are also risk factors of PTB. In addition, fasting and poor nutrition, poor sleep, physical inactivity, and tobacco use have been linked to LBW.

Although maternal stress during pregnancy increases poorer health behaviors, research linking these factors to birth outcomes is lacking. Pregnant women experiencing high levels of pregnancy anxiety may be more likely to skip meals and smoke cigarettes. The effect of pregnancy-specific stress on birth weight can be explained partly by cigarette smoking. Lastly, the association between PTB and elevated pregnancy-related distress was explained in one study by prenatal alcohol and substance use.

In conclusion, some forms of stress are linked to adverse birth outcomes, and a new frontier in pregnancy research concerns pregnancy-specific anxiety, a potent predictor of early delivery. Engaging in healthy behaviors during pregnancy such as having a balanced diet, moderate exercise, abstaining from smoking and substance use, and monitoring and reducing stress or anxiety is recommended for all pregnant women to promote healthy outcomes for themselves and their infants. Treatments targeting women with pregnancy anxiety and who experience stress are under development and hold promise for future maternal and child health.

See also [Birth, Biological Perspective](#); [Global Child and Maternal Health](#); [Hypothalamic–Pituitary–Adrenal \(HPA\) Axis](#); [Infancy](#); [Pregnancy](#); [Prenatal Development](#); [Preterm Birth](#)

- pregnancy
- anxiety
- birth weight
- placenta
- infants
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Further Readings

Dunkel Schetter, C. (2011). Psychological science on pregnancy: Stress processes,

biopsychosocial models, and emerging research issues. *Annual Review of Psychology*, 62, 531–558.

Dunkel Schetter, C., Niles, A. N., Guardino, C. M., Khaled, M., & Kramer, M. S. (2016). Demographic, medical, and psychosocial predictors of pregnancy anxiety. *Paediatric and Perinatal Epidemiology*, 30(5), 421–429.

Dunkel Schetter, C., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: Implications for mothers, children, research, and practice. *Current Opinion in Psychiatry*, 25(2), 141–148.

Guardino, C. M., & Dunkel Schetter, C. (2014). Understanding pregnancy anxiety concepts, correlates and consequences. *Zero to Three*, 34, 12–21.

Lobel, M., & Dunkel Schetter, C. (2016). Pregnancy and prenatal stress. In H. S. Friedman (Ed. in Chief), *Encyclopedia of mental health*, second edition (Vol. 3, pp. 318–329). Waltham, MA: Academic Press.