



Stress and Pregnancy

A growing body of research demonstrates that stress before and during pregnancy is associated with poor birth outcomes and subsequent poor health outcomes for children.

In 2009-2010, nearly three-quarters of women reported they had experienced at least one stressful event in the 12 months prior to the delivery of their child. Common stressful events include moving, serious illness, financial stress, death of a loved one, among others. (see chart on next page)

Maternal stress has been associated with increased rates of infant mortality, low birthweight and preterm birth, all of which may have long term consequences for health and development throughout childhood to adulthood.¹ **The March of Dimes supports research, programs and policies which address risk factors to prevent stress-related pregnancy complications.**

Stress and Birth Outcomes

Women who experience high levels of stress during pregnancy have 25-60% higher risk for preterm delivery, even after accounting for the effects of other established risk factors, compared to women with low levels of stress.² Stress before and during pregnancy has been linked to low birthweight babies independent of preterm delivery.^{3,4}

Increased maternal psychosocial stress is associated with vascular disorders, such as hypertension and preeclampsia, which are major medical reasons for preterm delivery.² These conditions are most common for women who are African American, older, or in first-time pregnancies.³

Increased maternal psychosocial stress is associated with a variety of unhealthy behaviors such as poor diet/nutrition and smoking, which are also risk factors for preterm birth.²

Both acute and chronic stress can impact birth outcomes:

- Acute stressors early in pregnancy have been associated with increased risk for preterm birth. For example, one study found women in their first trimester who lived near the World Trade Center on 9/11 had shorter pregnancies on average.¹
- Chronic stress can cause complications such as preterm birth, low birthweight, hypertension and developmental delays in babies.^{1,5}
- Post-traumatic stress disorder coupled with a major depressive disorder has been associated with four times the risk for preterm birth, independent of the effect of prescription drugs.⁶

Key Points

Maternal stress has been associated with poor birth outcomes including preterm birth, infant mortality and low birthweight.

Stress results in increases in cortisol, norepinephrine and inflammation which affect the fetal environment and have implications for maternal and infant health.

High levels of maternal stress may help explain some of the socioeconomic and racial/ethnic disparities seen in rates of preterm birth because the experience of social disadvantage and minority status is characterized by higher levels of stress.²

Further research on the short-term and long-term consequences of stress is warranted to improve health outcomes for women and children throughout their lifetimes.



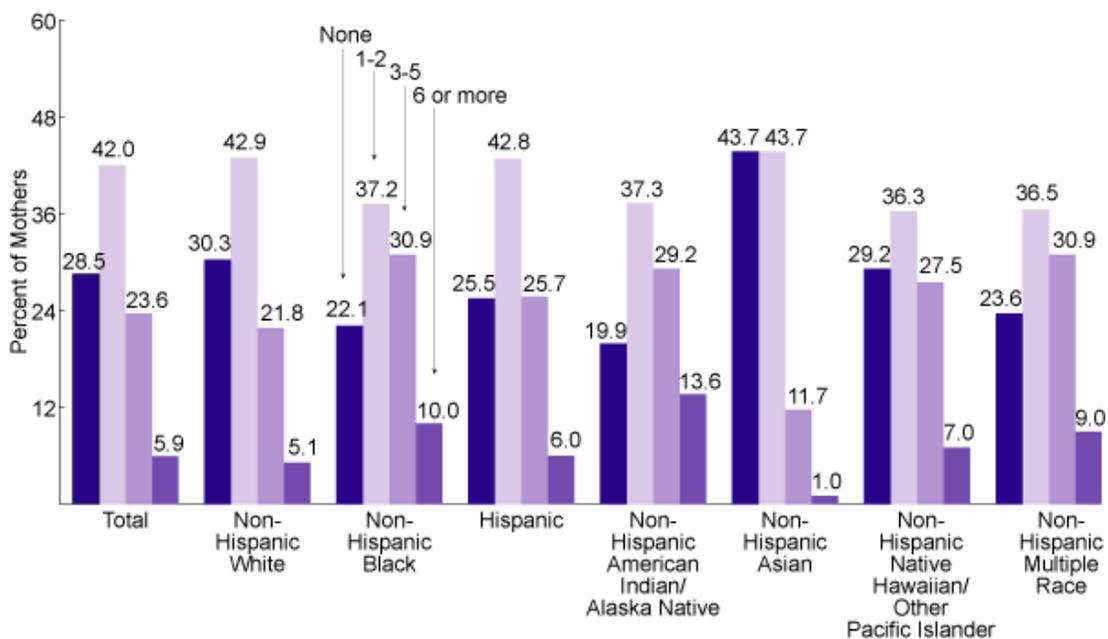
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Stress and Long-term Health and Developmental Outcomes

Maternal stress can also negatively impact the health and development of infants and children:

- Stress may increase the risk for developmental delay among low birthweight babies even if they did not experience initial neonatal complications.³
- Several studies show an association between maternal stress in pregnancy and congenital heart defects.⁷
- Maternal bereavement during the prenatal period and 6 months preconception was associated with increased risk of overweight or obesity in their children which may be due to severe stress exposure early in life.⁸
- Women with high levels of stress in pregnancy had an increased likelihood of having children with autism-like characteristics; this association was most pronounced in children of women with high stress levels during the first trimester.⁹
- One study found that increased fetal cortisol levels may affect the function of a certain part of the brain, which leads to impaired cognitive reaction time in adolescence.²

Mothers Experiencing Stressful Events* During the 12 Months Prior to Delivery, by Number of Events and Race/Ethnicity, 2009-2010**



*Total number of stressful events experienced by the mother from the following: moved to a new address, argued more than usual with husband/partner, serious illness and hospitalization of a family member, unable to pay lots of bills, death of someone close to her, husband/partner lost job, drug use by someone close to her, lost job, was divorced or separated, husband/partner did not want job, experience homeless, husband/partner went to jail, was in a fight. **Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

Source: Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System, 2009-2010. Analysis conducted by the Centers for Disease Control and Prevention, Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion.

References

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