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COMMENTARY

# The Effects of Teenage Pregnancy on Maternal Mental Health

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## Introduction

Teen pregnancy can have long lasting effects on a person's mental health, even after the child is born.[1] Approximately 16 million teenage girls ages 15-19 years old, and 2 million girls younger than 15 years old get pregnant each year around the world.[2] Teenage mothers are at increased risk for adverse social outcomes and short-term health problems, but long-term impacts on mental health are poorly understood. It has been stated that psychological distress and suicidal behaviors affect 13.3% to 20% percent of adolescent pregnant females.[3] This goes to show that mental health can be very dangerous mentally, emotionally, and physically.[4] Whether these pregnancies are planned or unplanned, this age group of females have long-term implications. Adolescent mothers and their children are exposed to multiple psychosocial risk factors and represent a high-risk group for adverse developmental outcomes.[5]

## Background Information

Mental health is the state of being emotionally and mentally healthy, which is demonstrated by the lack of mental disease and by appropriate adjustment, particularly as shown by emotions of self-confidence, positive attitudes toward others, and the capacity to handle day-to-day tasks.[6]

From 2011 to 2021, female teens who experienced mental health challenges increased from 36 % to an astounding 57%.[7] Teenagers experience changes in the social, emotional, and cognitive aspect.[8] Female teens reported challenges that pertained to LGTBQ, suicidal attempts, and sexual violence.[7] Among these many mental health challenges, teen pregnancy can greatly affect those who do not have a reliable support system.

Mental disorders are common in adolescence with one in four teenagers suffering from a disorder, according to national comorbidity data.[9] Furthermore, low economic status can affect the development of any mental disorder leading them to be at a higher risk.[9] Moreover, those who live in a less ideal environment, could have negative outcomes on pregnant adolescent women throughout their pregnancy journey. They are most likely to gain stress and anxiety due to frequent crime and trauma occurrence.[9]

Teen pregnancy can be defined as anyone from 13 years of age to 20 years of age who becomes pregnant.[10] In addition, teenage pregnancy has declined in recent years due to encouragement of contraception use and less teenagers engaging in sexual intercourse.[10] Teen pregnancy greatly attributes to decline in mental health and can severely affect teenage pregnant girls.

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## Adaptations: Neurobiological and Cognitive

### *Neurobiological*

Two pivotal stages of a young woman's life are adolescence and pregnancy. While adolescent females are going through puberty and transitioning to adulthood, pregnant women are preparing for childbirth by supporting the development of the fetus. Despite limited research over the neurobiological changes during teenage pregnancy, some studies suggest that adolescence and pregnancy share a similarity in that an increase in sex steroid hormones can lead to structural and functional changes in the brain.[11] For instance, the age at which the volume and thickness of cortical gray matter is reduced closely relates to gonadarche, the pubertal onset of secondary sexual characteristics.[12]

Various studies have used structural magnetic resonance imaging (MRI) to view the gray and white matter components of the adolescent brain. As shown in Figure 1, gray matter volume growth peaks in adolescence and decreases in adulthood with the strengthening of neuronal communication beginning to form within the prefrontal cortex region.[13]

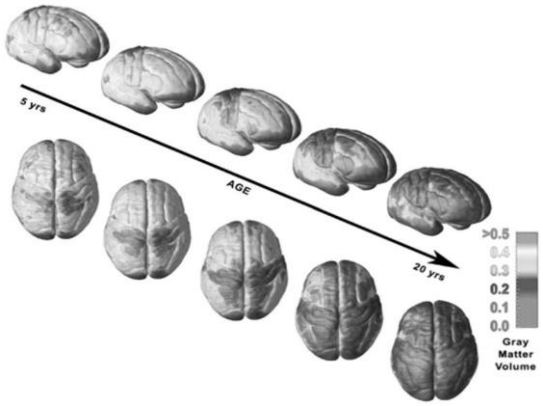


**Figure 1.** From 5 to 20 years: Gray matter volume development over the prefrontal cortex.[14]

The prefrontal cortex is essential for complex behavioral performance, as this region of the brain is logical and precise.[14] Working alongside the limbic system, which is responsible for emotion and impulse, these processes work together to allow for a greater cognition.[15] In Figure 2, the limbic system matures earlier than the prefrontal cortex, allowing it to form a steeper curve than the prefrontal cortex.[14] This graph demonstrates the gap between these two regions is greatest during adolescence as one system is fleshed out while the other is still developing. As a result, there is an imbalance of hormones as there is a bias towards emotional responses over rational decision making.[14] Hence, since the prefrontal cortex is the last to mature, the adolescent brain is in a vulnerable state to risky behaviors such as environmental stress, unprotected sex, and unplanned pregnancies.[16]

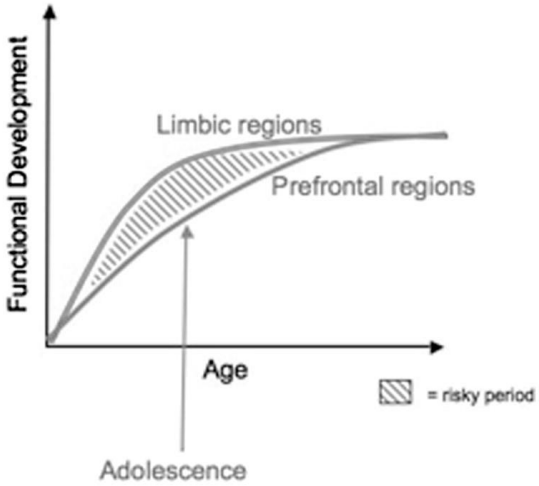


**Figure 2.** A Neurobiological Model of Adolescence: prefrontal cortex and subcortical limbic region development.[14]

In the postpartum phase of pregnancy, adolescent mothers experience significantly higher rates of depression than adult mothers and their nonpregnant peers.[17] Due to the dramatic rise and drop in progesterone and estrogen levels to support fetal development, these hormones have modulated areas of the brain, such as the amygdala, which are responsible for emotional regulation.[18] Therefore, behaviors that are exhibited during the pregnancy including mood swings and prolonged anger appear to have a longer duration, even when the hormones have leveled out in the body.[12] Thus, it is vital to consider the neurobiological adaptations adolescents experience prior and during pregnancy in order to understand the underlying mechanisms of depressive symptoms that may be disregarded.

### *Cognitive*

During pregnancy, some women may experience cognitive changes, usually referred to as "pregnancy brain".[19] Symptoms that are related to this include periods of forgetfulness as well as memory disturbances.[19]

According to studies, hormonal effects have a great impact on cognitive functions.[20] A teenager

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already experiences many cognitive changes, considering that their mind and body is still readily developing.[21] Therefore, impulsive and risky behaviors are common among this age group. During this time period, a transition from literal thinking to processing and operating occurs.[21] Due to this, pregnancy may affect the teen negatively, hindering the capability to meet physiological needs of pregnancy.[22]

When speaking of decreased cognitive ability, not only is the mother at risk, but the child as well. A study proved that children of teenage mothers (ages 18 and younger), had a significantly lower cognitive score than those whose mothers were aged 23-34 years. There was a clear and notable difference in scores for verbal, non-verbal, and spatial ability.[23]

## Changes in Mental Health Through The Pregnancy

### *Prenatal*

The term perinatal depression describes a type of disorder that occurs during pregnancy and after child birth perinatal depression is linked to changes in reproductive hormones, stress hormones, neurosteroid hormones (chemical compound).[24] During the perinatal stage", a mother prepares her body for the development of the fetus. Vitamin D and omega-3, and well as maintain a good diet that includes good fatty acids, iron, and probiotics.[25] Approximately 26% of mental disorders are fundamentally linked to a number of physical health conditions; these actions would also reduce inequalities. Furthermore, pregnant teens still attending school can experience school troubles, bullying from fellow classmates, and family issues "which "can also contribute to trauma which results in a decline of their results in a decline in their "mental health.". These issues cannot only affect the mother but the newborn as well 38% mothers experience stress during pregnancy, which later lead to infant infections and complications.[26]

### *Postnatal*

The postnatal period is a time of immense physical and emotional changes for teen mothers, influenced by hormonal fluctuations and the challenges of motherhood at such a young age. Understanding the various mental health conditions that can arise during this time, such as postpartum depression, postpartum anxiety, and PTSD is crucial for healthcare professionals and caregivers to provide appropriate support and interventions.[27] Most adolescent pregnancies live a complex life, having to be a student and being a mother which can deeply affect their mental health in education and their future. Changes in mental health symptoms throughout pregnancy and postnatal may have an impact on a teen woman's experience during a critical period. In spite of that, few studies have investigated these changes throughout the perinatal and postnatal period, notably changes in post-traumatic stress disorder (PTSD).[27] PTSD is known as a mental disorder that emerges in response to a traumatic event that happened in an individual's life. To better grasp an understanding of the role of PTSD in postnatal health, a study looked at the association between PTSD and associated postnatal behavioral risk factors to gain a better understanding of the impact of PTSD in postnatal health.[28] PTSD and subclinical PTSD during the postpartum period were linked to behavioral health concerns, with PTSD at the start of pregnancy becoming a three-fold predictor of postpartum PTSD. Women with PTSD and subclinical PTSD were more inclined to suffer stress (73%), anxiety (64%), and depression (73%), compared to those without PTSD, during the postpartum period.[28] Regardless of race or PTSD status, one out of every four women in the sample experienced a probable mental health issue or risk behavior during the postpartum period. Given the prevalence of mental health risk factors associated with PTSD, these results call for more investigation into the changes of PTSD symptomatology through each pregnancy trimester to assess its role as a potential mediator during the perinatal period.[28]

### *Abortion and PTSD*

The termination of a pregnancy, also known as an abortion, can contribute as a risk factor for mental illness in young mothers, with PTSD being one of the many. Furthermore, long term PTSD has shown to have more of a psychological effect on young mothers who go forward with abortions rather than women who do not, which justifies the psychological impact that abortions cause to maternally young women. [29] However, there is no evidence that abortion necessarily causes PTSD, there is evidence that it may be an influence, given the fact that going through with the procedure can mentally scar a young woman.[29] An abundance of guilt post-abortion can be a contributing factor to the PTSD that maternally young women experience, although this pertains to personal beliefs or values relating to abortion.[30] Studies have shown that abortions are higher in teen mothers, which relates to the fact that abortions are having a mental effect on young mothers. Abortions not always being a choice, can also be a contributing factor to PTSD, young

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mothers are often forced into abortion due to being shunned by society and/or family which can lead to guilt and trauma.[29]

## Available Resources and Support

Pregnancy is the number one reason for high school dropouts; only 50% of teen mothers receive a high school diploma before the age of 22.[31] The majority of these women leave school due to the lack of support that they had both inside and outside of school.[32] This section outlines preventative strategies, coping mechanisms, and post-natal education for teen mothers.

### *Preventative Methods*

"Fewer than half of American women have been taught about contraceptives".[33] That leaves a big gap of women who are uneducated or unaware of types of contraceptives. Abstinence is something to teach and encourage, for it is one hundred percent effective and can help slow down the start of teenagers being sexually active.[34] As for teens who are sexually active, contraceptives are an effective way to lower the risk of pregnancy such as: condoms, IUD, oral pills, and barrier methods. It is important to make an effort that involves the family, health providers, community, and school to prevent unintended pregnancies. As a parent or family member, it is beneficial to be active in a teen's social life and be aware that as they develop, they are likely to engage in sexual activities. They can use this as a time to educate and enforce the practice of contraceptives. Health care providers can inform the teen patients on reproductive health services that they offer.[35] Pamphlets, infographics, and services available to educate the community on preventing teen pregnancy are essential. A good source that provides people an array of preventative health services and family planning is a website called The Title X Family Planning Clinic Locator.[35] As a community, there should be programs with a wide range of teachings including contraceptive methods. Now, most schools provide teachings on an extensive sex education curriculum that has shown to reduce teenage pregnancy rates by 3 percent. However, teenagers can still be inconsistent or choose not to use contraceptives, which can lead to unintended pregnancies. This can lead to the question whether they are going to keep the baby, put it up for adoption, or have the fetus aborted.

### *Opportunities for Teenage Mothers*

Once a teenager has made the decision to take the baby to full term, there are many things the mother needs to consider. These can range from healthcare options during the pregnancy to educational options after.

There are many options to consider in terms of healthcare for teenage mothers. There are options for teenagers who need help to handle the psychological side of teenage pregnancy, programs for teenagers whose pregnancy was the result of being assaulted, and many more, but the most notable option is a Nurse-Family Partnership.[36] A Nurse-Family Partnership is a program where specially trained nurses regularly visit the future mothers from the beginning of the pregnancy through the baby's second birthday. In this program, the expectant teens get the support that they need alongside with the tests and assessments necessary to keep the baby healthy. Programs like this can help the expectant mothers to keep themselves and the baby healthy throughout the entirety of the undoubtedly stressful pregnancy.

Another important consideration is whether the teenager will return to school after the baby is born. For those who decide to return to school there are multitudes of opportunities for them. There are many alternative pathways that teenage mothers can take to further their education. The most common option would be the General Education Development Test, or GED. The GED exam allows people who did not earn a high school diploma to receive a diploma and recognition that they have a high school level of education.[37] Other alternative programs include alternative high schools that are specifically geared towards teenage mothers and their babies.

## Conclusion

Teen mothers must adjust to, not only the demands and responsibilities of parenting, but navigate the developmental process into adulthood. With dramatic hormonal changes leading to differing structures of the brain and certain stressors such as guilt and bullying, teenage pregnancy can contribute to a range of mental health problems such as PTSD and depression. By educating adolescents on preventative methods and postnatal opportunities, there is a possibility of decreasing the prevalence and mental toll on teenage mothers.

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