A pregnant person’s brain experiences incredible changes during and after pregnancy. Although there are numerous physical changes to the body during pregnancy, the intellectual changes impact brain structure and are not visibly noticeable. These structural changes related to the domain of intellectual health. Intellectual health includes a pregnant person’s processing and memory abilities and the capacity to engage in creative, independent, and critical thoughts. Further, these adjustments – often referred to as “pregnancy brain” – could include impacts to memory, concentration, and executive functioning. Studies suggest that “pregnancy brain” is the brain’s way of shutting off unnecessary functions, and instead prioritize functions necessary for the pregnant person to transition into parenthood, such as the ability to anticipate the offspring’s needs. This phenomenon, referred to as pruning, may even account for more efficient brain circuits.

In this commentary, we will outline the current research on the effects of pregnancy on pregnant people’s intellectual health and brain functioning, while noting the limited literature available on this topic. We then propose potential next steps, which include expanding resources to support expecting parents and calling for additional research on the topic of supporting intellectual health during and after pregnancy.

Status of the Literature

While limited, the available literature that focuses on intellectual health during and after pregnancy further explores the negative and positive effects that take place associated with changes in brain structure and function. One study determined that “test results demonstrate deficits in learning and memory tasks, as well as in attention and language abilities during pregnancy”. These deficits occurred most often during the second and third trimesters by the effects of “hydrocortisone on acquisition and consolidation of information” and an increase in sex hormones. Another study indicated that during pregnancy, it was common for the hypothalamus to shrink, a key indicator of overall brain health and short- and long-term memory capabilities.

On the other hand, a decrease in brain matter also resulted in benefits for the pregnant person. Even though the brain of a pregnant person did shrink and some areas had a decrease in grey matter during the end of pregnancy, the brain refocused on others areas as it began to infer and predict what the infant’s needs would be. The common misconception is that the loss of grey matter during pregnancy has only negative affects, when in reality the brain is adjusting for more concise circuits and connections.

It is also important to note that while there is limited literature on the changes to intellectual health during and after pregnancy, interventions specific to this population are lacking. Therefore, we propose several solutions in our call to action.

Call to Action

Intellectual health changes due to pregnancy are frequently understudied. Therefore, we recommend an increase in basic research about intellectual changes due to pregnancy. This research should address...
physiologic and cognitive changes, their short- and long-term risks and benefits, and subsequent impacts on quality of life.

Another important step in creating positive change is an increased emphasis on development of high-quality, evidence-based health education materials about cognitive changes due to pregnancy. This material should consider health literacy challenges of target populations, emphasizing communication quality and addressing access barriers through involvement of trusted community partners. Thus, implementation research is needed to identify best practices and assess population-level impact, especially as studies suggest these changes may be lifelong. Since existing research is limited, an emphasis should be placed on further exploring ways to support intellectual health as pregnancy-related changes occur. We have briefly outlined changes occurring within the brain due to pregnancy and their potential impact immediately and into the future. As a result, we advocate for additional basic and applied research regarding intellectual health within the context of pregnancy.

References


