

Prematurity and maternal education affect early academic achievement

27 March 2013



The aim of the study was to determine the association between late preterm births – birth between 36-37 weeks' gestation – and first grade standardized test scores.

In a study published in the April 2013 edition of *Pediatrics*, Emory researchers suggest that late preterm birth and maternal education have a relative impact on standardized test performance—the most common measure of academic performance and principal determinate of grade retention in public schools.

Led by Bryan Williams, PhD, lead researcher and associate professor at Emory's Nell Hodgson Woodruff School of Nursing, the team monitored [live births](#) to Georgia-resident mothers ages 11-53 and the test results for all three components of the Criterion-referenced Competency Test (CRCT) for first graders in Georgia public schools. The aim was to determine the association between late preterm births – birth between 36-37 weeks' gestation – and first grade [standardized test scores](#). The findings suggested that [preterm birth](#) and low maternal education increase a child's risk of failure of first grade standardized testing scores.

"While [socioeconomic conditions](#) are frequently blamed for the "[achievement gap](#)" in educational testing, the role of prematurity in educational achievement should also be explored," explains Williams. "Our findings demonstrate that a child's academic success is much more of a function of birth history than who educates them. It is difficult to argue that a child born at 28 weeks will perform well on a standardized test by simply having a better educator."

Williams and his team explored additional factors such as maternal age at birth, maternal education, maternal race/ethnicity, child race/ethnicity, sex of the child, and year of birth. Findings of the study suggested that, along with preterm birth, the strongest risk factor for failure of each of the three components (math, reading, and language arts) was low levels of [maternal education](#).

"Strategies should be implemented to promote maternal academic achievement and full-term gestation," says Carol Hogue, PhD, Terry Professor of [Maternal and Child Health](#) at Emory's Rollins School of Public Health. "This also includes proper education of the consequences of early elective inductions and the importance of addressing known risk factors for preterm birth."

"Given the fact that the fetal brain grows by nearly one third in the last five weeks of pregnancy, it is not surprising that any injury, such as prematurity, at this stage can lead to neurodevelopmental delays," explains co-author Lucky Jain, MD, Richard W. Blumberg Professor and executive vice chairman for the Department of Pediatrics at Emory University School of Medicine. "The surprising finding in this study is the extension of these delays into early school age."

The developmental risks associated with late preterm births were once thought to be minimal. However, studies have demonstrated that even infants who are at the margins of prematurity suffer

disproportionate rates of clinical neurocognitive problems. These late preterm infants may be susceptible to early and long term academic failure.

"Given our findings, it is reasonable to believe that prematurity could have an even longer and more substantial impact on school achievement as a child progresses through grade levels, says co-author Anne L. Dunlop, MD, MPH, associate professor at Emory's Nell Hodgson Woodruff School of Nursing. "This information supports recommendations for pregnant mothers to wait until 39 weeks or greater to deliver, when possible, and further underscores the importance of identifying and implementing interventions to address the problem of preterm birth in the United States."

Provided by Emory University

APA citation: Prematurity and maternal education affect early academic achievement (2013, March 27) retrieved 21 June 2021 from <https://medicalxpress.com/news/2013-03-prematurity-maternal-affect-early-academic.html>

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