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Links between prenatal stress and obstetrical complications and infant behavior: A twin design

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Twin studies are informative designs that estimate the relative influences of nature and nurture on behavioral outcomes. Applying this method to prenatal studies will further enhance our knowledge of how prenatal risks relate to later developmental outcomes, controlling for genetic predispositions. The main objective of this study was to use a genetically-informative design to examine the putative influences of maternal perceived prenatal stress, obstetrical complications and gestational age on infant dysregulation, competence and developmental maturity. Specific goals of the study included estimating heritability on infant outcomes and exploring whether or not prenatal perceived stress and obstetrical complications modified the heritability of infant behavior and developmental outcomes. A total of 291 mothers were interviewed when their twin infants were 12 months of age. Pregnancy and twin birth medical records were obtained to code obstetrical data. Utilizing behavioral genetic models, results indicated all infant outcomes were heritable with competence and developmental maturity also influenced by the shared environment. Importantly, maternal perceived prenatal stress moderated genetic and environmental influences on developmental maturity whereas obstetrical complications moderated shared environmental influences on infant competence and non-shared environmental influences on developmental maturity. Gestational age moderated the heritability and non-shared environment of infant dysregulation, shared and non-shared environmental influences on competence and non-shared environmental influences on developmental maturity. Taken together, prenatal and obstetric conditions were important non-linear influences on infant outcomes. An evolutionary perspective may provide a framework for these findings such that the prenatal environment programs the fetus to be adaptive to current environmental contexts. Specifically, prenatal stress governs gene expression through epigenetic processes. Findings highlight the utility of a genetically-informative design for elucidating the role of prenatal and obstetric conditions in the etiology of infant developmental outcomes.

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Assessment of executive function using the CEFI: From assessment to intervention

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In this presentation, Dr Otero will provide an overview of historical and current definitions of executive function (EF) and results from the largest study of EF behaviors in the general and special populations. The discussion will include a review of current measures and details about the Comprehensive Executive Function Inventory (CEFI). The CEFI's psychometric qualities and utility for evaluating EF will be described how the EF behaviors and cognitive abilities measured by the WISC-IV and CAS-2 relate. Case examples will be presented that emphasis will be placed on how the CEFI can be used to identify research based interventions to improve EF skills and the relevance of EF to behavior and academic performance. This workshop is designed to help you learn a practical and research based definition of executive function; learn about strengths and weaknesses of current measures of executive function; integrate information from the CEFI with measures of ability for assessment and treatment planning and learn strategies to improve executive function and improve academic performance.

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