

The contributions of data banks to the study of childhood development

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Over past decades, extensive data banks have been established to study childhood development. One of the best known is the NIH funded study on infant brain development using Magnetic Resonance imaging (MRI). Templates of normal brain structures have been defined and have allowed comparisons with children suffering from various neurological or psycho-social anomalies. Our group has access to population-based data banks that allow us to study human development. Thus, the Québec Longitudinal Study of Child Development (QLSCD) has informed us about the prospective association between early childhood television exposure and academic, psychosocial, and physical well-being by middle childhood. The data mining of childhood behavioural phenotypes allowed us to implement fMRI fear conditioning and extinction tasks in order to understand fear circuitry related to child anxiety and harsh parenting. Anxious youths, whether harshly-reared or not, distinguish themselves from harshly-reared ones without anxiety with respect to fear circuitry function during extinction. Similarly, data mining of the Montreal Longitudinal Preschool Study (MLPS), originally meant to examine school readiness, have elucidated the role of early impulsivity in the developmental course of gambling behaviour in later childhood. Also, a population-based longitudinal study on twins derived from the Quebec Newborn Twin Study (QNTS) has permitted prospective investigations of depression, its relation to cortical activations and its genetic underpinning. The existence of such data banks, despite their demonstrated efficacy, does pose important challenges. Hence, when initially started, ethics approval was obtained, but as new approaches are developed, these require new ones. Genetic studies involve blood samples, not always agreed to by subjects. Original imaging was gathered with lower resolution scanners, so imaged brain structural changes might simply reflect this fact. Funding to maintain the cohort is not easy to obtain. Attrition also represents a major challenge in secondary analysis. These points will be discussed during the presentation.