Assessment Of Hippocampal Subfields Across Development: Associations With Cognition And Psychopathology
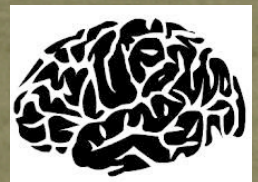
Honours/Masters Project in Psychiatry

SUMMARY

The aim of this study is to characterize hippocampal subfield development in the age range 8 to 22 years and to examine whether specific subfields are related to learning and memory and symptoms of psychopathology

PROJECT DESCRIPTION

The hippocampus is a key brain structure located deep within the brain that plays a critical role in cognitive functions such as memory and learning. Vulnerable to environmental factors including stress and early-life trauma, abnormal hippocampal volume or growth has been implicated in a number of psychiatric disorders or mental health conditions. The hippocampus undergoes considerable maturation during childhood and adolescence, converging with the substantial development of cognitive processes it supports. Although a number of studies have assessed hippocampal volume throughout development or in association with cognitive function, most have measured global hippocampal volume, rather than its component regions, or 'subfields'. To date, few studies have investigated the development of hippocampal subfields in childhood and adolescence and in association with specific cognitive functions or psychiatric symptoms.

The current study will use imaging and associated cognitive and clinical data from the Philadelphia Neurodevelopmental Cohort, a publically available dataset of children and adolescents from the community. The aim of this study is to characterize hippocampal subfield development in the age range 8 to 22 years. It also aims to examine the association between hippocampal subfields and tests of learning and memory, as well as symptoms of psychopathology. Differences between males and females will also be explored.

The student will be responsible for the development of the proposal and refinement of study hypotheses, conducting a literature review, processing of brain imaging scans and performing statistical analyses. Publication of results is expected at the end of the project.

For further information contact Dr Vanessa Cropley; vcropley@unimelb.edu.au