

Supervisor & Project Information Form

Please complete and return via email ONLY to gdip.hres@utoronto.ca by **Monday September 30, 2019**

Supervisor Information

MUST have unrestricted SGS appointment (appointment to supervise graduate students)

Name: Nathan Kolla	Email: nathan.kolla@camh.ca
SGS Department: IMS	Field of Research: Forensic psychiatry; Neuroscience
Research Institution affiliation (if applicable): Centre for Addiction and Mental Health	Location of Work: 250 College Street
Student contact time (number of hours per week YOU are available to the student for any concerns or to review progress:	3 hours

Project Information (will be posted on GDipHR website for student access)

TITLE: Early Detection of Aggression in First Episode Psychosis: A Structural and Functional Magnetic Resonance Imaging Study

DESCRIPTION (MAX 500 WORDS): Schizophrenia (SCZ) is a serious psychiatric illness that typically onsets in adolescence or young adulthood when individuals experience their initial symptoms of first episode psychosis (FEP). While the majority of individuals with SCZ are non-violent, individuals with SCZ are still at increased risk for violence and aggression. Two distinct types of violence in FEP have been identified: 1) Individuals with prior conduct disorder (CD) who exhibit violence before and during FEP (SCZ+CD); and 2) Individuals with no history of CD or violence who then display aggression during FEP (SCZ-CD). CD refers to a persistent pattern of breaking rules and violating the rights of others. Cognitive or brain impairments in SCZ have been linked to violence, perhaps because they pose too great a challenge for some individuals to learn to inhibit aggressive behavior. Investigating the neural basis of cognitive processes in FEP could provide much needed information for enhanced treatment and/or earlier identification of individuals with SCZ at increased risk for violence. In this study, we will use structural and functional magnetic resonance imaging (sMRI; fMRI) to study brain structure and cognitive processes related to aggressive behavior when impairment is present. sMRI and fMRI are brain imaging techniques that delineate the structure and function of brain regions, respectively. We will recruit 20 SCZ+CD participants with a history of violence, 20 individuals with SCZ-CD who also have a history of violence, 20 SCZ individuals without a history of violence, and 20 healthy controls. All individuals with SCZ will be within one year of the onset of their FEP. Subjects will complete cognitive tasks/brain games while in the scanner (e.g., fMRI). They will also undergo magnetization transfer ratio scanning to measure myelin (white matter) level in the medial prefrontal cortex, a brain region implicated in decision making. This investigation of FEP participants will be the first multi-biomarker imaging study of cognitive processes associated with violence. Positive study results could provide an incentive to determine whether the anticipated findings are able to prospectively identify young individuals who are at ultra-high risk for SCZ and violence. Findings of key biomarkers would also help reduce the stigmatization of all patients with SCZ as habitually violent.

If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?

Yes No Application Submitted (Date: _____)

Do you expect this work will be published within the 20 months?

Yes No Uncertain / Other

Regardless of when it is published, the student will be a co-author on all papers originating from the study.

Student Roles & Responsibilities (please be as specific as possible)

Please indicate who will serve as the student's direct report for daily oversight (PI, PhD student, technician, etc...) PI