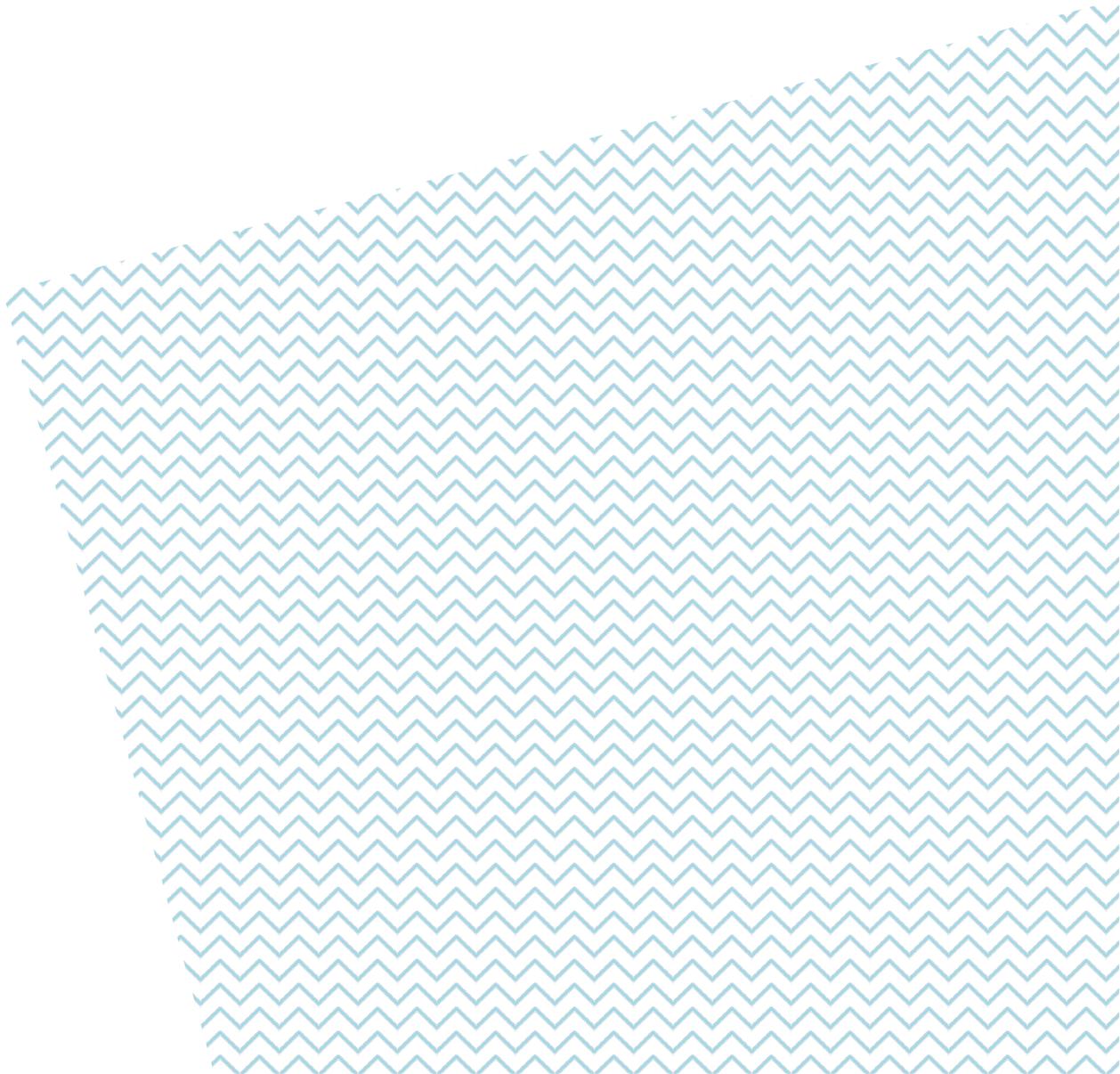THE UNIVERSITY OF
MELBOURNE

POSTERA CRESCAM LAUDE

Melbourne School of Psychological Sciences

Master Projects for 2019

Breath hold duration in PTSD

Details

Primary Supervisor: Associate Professor Amy Jordan
Contact Email: ajordan@unimelb.edu.au
Maximum Number of Student Places: 1

Patients with Post-Traumatic Stress disorder have higher rates of the sleep condition obstructive sleep apnea than the general population. The reason for this is unknown, but may be related to how their brain controls breathing. This study will assess the brains control of breathing in a very simple manner – how long a participant can hold their breath for in individuals with a range of PTSD symptomatology.

Health resilience and well-being in midlife women: the HER-WAY study

Details

Primary Supervisor: Associate Professor Christina Bryant
Contact Email: cbryant@unimelb.edu.au
Maximum Number of Student Places: 1

Between the ages of 40 and 60, women experience a range of biopsychosocial changes (such as menopause) that can elevate the risk of depression and anxiety. Not all women experience poor mental health at midlife, however, and the purpose of this project is to investigate resilience factors that promote mental and physical well-being, and healthy behaviours at midlife. This project is part of an ongoing longitudinal study. Health and well-being data were collected from over 500 Australian women in 2013. That study identified modifiable psychological factors that support resilience (such as attitudes to ageing and self-compassion). In 2018 we collected follow-up data on this sample. The new data set enables us to examine the roles of protective psychological factors in predicting change in women's well-being over a 5-year time-frame. We also can investigate the role of positive health behaviours in shaping well-being at midlife. As a Masters student, you would be responsible for investigating a subset of variables, in order to better understand resilience factors that promote either well-being and health behaviours (e.g. sleep, alcohol use or exercise) at midlife. The precise research question to be answered can be shaped by your interests.

Patient stories

Details

Primary Supervisor: Associate Professor Christina Bryant
Contact Email: cbryant@unimelb.edu.au
Maximum Number of Student Places: 1

This is a unique opportunity to work on a novel cross-disciplinary project led by A/Prof Luke Burchill, with internal supervision in MSPS provided by A/Prof Christina Bryant. Luke is a cardiologist who works with younger adults with heart disease. Recognising that younger patients frequently use video-based (rather than text based) health information, Luke is interested in creating a catalogue of video health stories that is ethical, engaging, credible, accurate, balanced and of value to patients, clinicians and researchers. An interdisciplinary team comprising psychologists, doctors, computer scientists, health informaticians and patients is guiding development of the videos as an innovative and scalable method for patient-reported health outcomes research. The current project is supported by the Australia New Zealand Fontan Advisory Committee, an advocacy and support group for young adults with complex congenital heart disease now living with a "Fontan" circulation. The student joining this project would collaborate with the study team and explore patients' perspectives. We are interested in understanding the patients' experience of making the videos, the challenges for them and whether they benefit from sharing their stories. This project is likely to involve literature review, in-depth interviews and qualitative data analysis.

User Preferences for a Positive Psychology/Motivational E-Intervention to Promote Physical Activity following a Cardiac Event: Qualitative Research Phase

Details

Primary Supervisor: Associate Professor Christina Bryant
Contact Email: cbryant@unimelb.edu.au
Maximum Number of Student Places: 1

Physical activity is a strong predictor of good outcomes following a cardiac event, and yet a large proportion of heart patients fail to achieve or maintain physical activity following a cardiac event. Building on prior research of a telephone delivered positive psychology-motivational (PP-MI) intervention, the purpose of this study is to investigate cardiac patient preferences for a PP-MI smart phone application designed to increase physical activity. The clinical masters student will conduct semi-structured interviews with a small sample (N = 10 - 15) of patients in cardiac rehabilitation to identify end user preferences for an app and its design, and will analyze results using mixed (qualitative and quantitative) research methods. Results from this study will help inform the development of PP-MI smartphone application.

The role of dissociative symptoms in the distress of people with epilepsy

Details

Primary Supervisor: Dr Genevieve Rayner
Contact Email: raynerg@unimelb.edu.au
Maximum Number of Student Places: 1

People with epilepsy suffer from unpredictable seizures, with symptoms that can take the form of feelings of déjà vu, memory blanks, odd tastes and smells, and a sense of detachment or unreality from what is happening around them. In between the seizures people with epilepsy also experience high rates of depression and an impoverished sense of self (Rayner et al., Epilepsy & Behavior, 2016; Allebone et al., Epilepsia, 2015).

Such symptoms are not unlike what psychiatry terms as 'dissociative' symptoms; that is, when there is a disconnection between a person's thoughts, memories, feelings, actions, or sense of who he/she is. Examples of dissociative symptoms include the experience of detachment or feeling as if one is outside one's body, and loss of memory or amnesia. In psychiatry, dissociative symptoms often stem from trauma, are very often linked to comorbid depression, and are debilitating.

Although there are marked differences in the cause of dissociative-like symptoms in psychiatry versus neurology, our clinical impression suggests that some seizure-related symptoms of epilepsy are phenomenologically similar to dissociation symptoms. This project examines existing clinical data collected from the Comprehensive Epilepsy Program at Austin Health to determine whether the experience of unsettling dissociation-like symptoms in people with epilepsy might account for their high rates of depression and identity issues. This project would suit students with an interest in neuropsychology, clinical psychology, and/or statistical modelling of clinical data.

A repetitive transcranial magnetic stimulation (rTMS) study for treatment resistant anorexia nervosa patients: Efficacy and moderators of treatment success

Details

Primary Supervisor: Dr Isabel Krug
Contact Email: isabel.krug@unimelb.edu.au
Maximum Number of Student Places: 2

The current study will investigate the efficacy, moderators of efficacy, and cost-effectiveness of 20 sessions of low-frequency repetitive transcranial magnetic stimulation (rTMS) to the dorsolateral prefrontal cortex (DPLCF) in patients with treatment resistant Anorexia Nervosa (AN). AN patients recruited from the Melbourne Clinic will be randomly allocated to either receive a low-frequency rTMS to the DPLFC. Participants will complete a range of psychological measures and neurocognitive tasks at three time points (baseline, post-intervention, and at 3-month follow-up). Micro-longitudinal data on ED symptom change will also be collected through Ecological Momentary Assessment(EMA) immediately after each rTMS session, as well as 3 times a day (in random intervals) for one week at the beginning and the end of the intervention. At the end of the intervention, the AN patients undertaking the rTMS condition will be invited to take part in a focus group, which will ask about their lived experiences of the treatment. The current study will provide valuable information of the psychological and neurocognitive predictors for rTMS response.

This study will require data collection at the Melbourne Clinic for approximately one day a week. The data collection will be shared with another PhD student, working on another project.

This study is preferably suited for a PhD student, but can also accompany a Master scope.

Please note that I'm also free to supervise students on other eating disorder related projects at a PhD level. Feel free to e-mail me to discuss your study ideas.

Measuring change in clinical management and client outcomes following clinical neuropsychological assessment in headspace Youth Early Psychosis Programs

Details

Primary Supervisor: Dr Jacqueline Anderson
Contact Email: jfande@unimelb.edu.au
Maximum Number of Student Places: 1

External Supervisors; Dr Kelly Allott and Dr Chris O'Halloran

Clinical neuropsychological assessment (CNA) is the gold-standard method for comprehensive evaluation of presenting cognitive, emotional and behavioural concerns. Previous research based on file audits and referrer surveys in youth mental health settings shows that CNA improves diagnostic precision and that it leads to changes in treatment and service use that is more appropriate and more personally targeted to the individual. However, from the perspective of funding (e.g., Medicare) and service provision, it is critical to demonstrate that results and recommendations of CNA actually lead to objective changes in clinical management. To date, there are no studies that have objectively examined changes in clinical management following CNA. Part of the difficulty in conducting this research is ensuring the measures used to capture clinical management changes are appropriate. The aim of this project is to explore measurement of clinical management changes and associated outcomes following CNA in early psychosis. This would be a naturalistic follow-up study which may involve quantitative surveys and/or qualitative interviews with young people with psychosis (and or their clinicians) who had received a CNA through the Alfred headspace Youth Early Psychosis Program (hYEPP) (current pool of N=170 assessed).

*This project has the scope to be broadened into a PhD thesis.

The links between children's attention and numeracy and literacy skills, anxiety, and sleep

Details

Primary Supervisor: Associate Professor Katherine Johnson
Contact Email: kajo@unimelb.edu.au
Maximum Number of Student Places: 2

This project is part of a larger ARC-funded research program investigating the relations between cognitive attention control and the development of literacy and numeracy in children starting school. We are interested in the effects of anxiety and levels of sleep on these mechanisms. To be involved in this research, you must be eligible for a Working with Children Check.

Lewis, F.C., Reeve, R., Johnson, K.A. A Longitudinal Analysis of the Attention Networks in 6- to 11-year-old Children. Child Neuropsychology, 2018, 24(2), 145-165. DOI; 10.1080/09297049.2016.1235145.

Lewis, F.C., Reeve, R., Kelly, S.P., Johnson, K.A. Sustained attention to a predictable, unengaging Go/No-Go task shows ongoing development between 6 and 11 years. Attention, Perception, & Psychophysics, 2017, 79(6), 1726-1741. DOI; 10.3758/s13414-017-1351-4.

Structural Neuroimaging Correlates with Fear Learning in Adolescents

Details

Primary Supervisor: Professor Kim Felmingham
Contact Email: k.felmingham@unimelb.edu.au
Maximum Number of Student Places: 1

Co-supervisor: Associate Professor Sarah Whittle – Melbourne Neuropsychiatry

Adolescence is a key risk period for the development of anxiety disorders, but there is relatively little literature examining mechanisms underlying anxiety disorders in this age group. A key mechanism underlying the development of anxiety disorders is a dysregulation of fear conditioning and extinction. Recent compelling evidence in rodents (and in some human behavioural studies) reveals that fear extinction is impaired markedly in adolescents compared to adults. A pilot fMRI dataset on 20 participants was collected, with structural MRI and functional MRI data (in relation to a fear conditioning and extinction task).

This project involves a secondary data analysis of the structural MRI data in adolescents and adults in relation to their behavioural performance on the fear conditioning and extinction task. This project will enable a student to develop skills in structural MRI data analysis under the supervision of researchers at the MNC.

The Impact of Acute Exercise on Fear Extinction

Details

Primary Supervisor: Professor Kim Felmingham
Contact Email: k.felmingham@unimelb.edu.au
Maximum Number of Student Places: 1

Fear extinction learning is a key mechanism underlying exposure therapy, which is our first-line treatment for PTSD. Unfortunately, approximately 30-40% of patients display a partial or non-response to exposure therapy, and it is imperative that we find ways to enhance treatment response. To do so, we need to identify ways to facilitate fear extinction learning that are readily translatable to community psychology clinics. Rodent and human research reveal that levels of Brain Derived Neurotrophic Factor (BDNF) moderate fear extinction learning, with increased BDNF levels associated with improved fear extinction. One of the most robust ways to increase BDNF levels is via acute intensive exercise, which offers a potential way to facilitate fear extinction (and thus exposure therapy). This project is an

experimental study where healthy control participants will complete an acute intensive exercise protocol (or control condition) prior to completing a fear conditioning and extinction task. We will recruit approximately 20-25 participants for this study, which will be completed in the Trauma, Anxiety and Stress Lab.

The Impact of Sleep Quality on Psychological Functioning in the Antenatal and Perinatal Period

Details

Primary Supervisor: Professor Kim Felmingham
Contact Email: k.felmingham@unimelb.edu.au
Maximum Number of Student Places: 1

Co-Supervisor: Professor Jeanette Milgrom

Psychological functioning in the antenatal and perinatal periods is critical for mothers and babies, and is a key predictor for the development of post-natal depression with important consequences of child development. Sleep quality is increasingly recognized as an important etiological factor in psychological functioning, and it is notoriously disrupted during pregnancy, and particularly in the initial weeks to months following birth. This project will involve tracking sleep quality and psychological functioning in women during the antenatal and postnatal periods. This project will be conducted at PIRI (Parent-Infant Research Institute, located at the Austin Hospital).

Sexuality among women living with a diagnosis of ovarian cancer

Details

Primary Supervisor: Associate Professor Lesley Stafford
Contact Email: lesley.Stafford@thewomens.org.au
Maximum Number of Student Places: 2

A recent national needs analysis of women living with ovarian cancer found that challenges associated with sexuality were a key concern for these women. Little research has been conducted on the sexual and body image outcomes of women with ovarian cancer. Consequently, Ovarian Cancer Australia (OCA) is interested to learn more the nature and scope of these issues in Australian women diagnosed with ovarian cancer survivors with a view to designing the most appropriate clinical interventions. This study will investigate psychological morbidity, sexuality and body image in a large group of ovarian cancer survivors recruited via the OCA membership network. Participants will complete validated psychometric measures of outcomes of interest, likely via web-based survey. There may also be capacity to investigate these outcomes in the partners of women participating in the study.

This project is well-suited for two students working together on different aspects of the same participant data.

A longitudinal examination of cognitive factors related to psychological adjustment in those with multiple sclerosis

Details

Primary Supervisor: Dr Litza Kiropoulos
Contact Email: litzak@unimelb.edu.au
Maximum Number of Student Places: 1

Cognitive appraisal, emotion regulation and attitudes toward disability may play a key role in the psychological adjustment of individuals with Multiple Sclerosis (MS).

This study aims to determine whether cognitive appraisals (tolerance, interference and controllability), emotion regulation strategies (cognitive reappraisal and expressive suppression) and attitudes toward disability predict

psychological adjustment (depression, anxiety, life satisfaction, acceptance of MS and mental health quality of life) in individuals with MS above and beyond measures of MS severity. The study also examined whether the cognitive variables would remain significant predictors of psychological adjustment six months following initial assessment.

Individuals with MS will complete two online questionnaires, six months apart, assessing depressive and anxiety symptoms, life satisfaction, acceptance, quality of life, cognitive appraisals, emotion regulation and attitudes toward disabled persons.

Ethical approval has been granted for this research project.

It is expected that the student taking on this project will contribute to the writing up of the research results obtained in the form of a peer-reviewed manuscript.

Examination of the relationships between mindfulness, stress, and psychological adjustment in individuals diagnosed with multiple sclerosis and cancer and a healthy control group

Details

Primary Supervisor: Dr Litza Kiropoulos
Contact Email: litzak@unimelb.edu.au
Maximum Number of Student Places: 2

Mindfulness-related cognitive abilities could provide additional means for individuals with Multiple Sclerosis (MS) and cancer to cope with the considerable stress and psychological adjustment challenges related to these diseases. Whether self-reported use of such abilities was predictive of better psychological adjustment (i.e., lower depression and anxiety, higher satisfaction with life) will be examined among those with MS and cancer via an online questionnaire.

These relationships will also be explored in a sample of adults from a general, healthy population sample. In addition, whether the use of these abilities moderate the relationship between perceived stress and these psychological adjustment measures will also be explored.

It is expected that the student who will take on this project will contribute to the write up of results obtained from this research in the form of a peer-reviewed manuscript.

Ethical approval has been granted for this project.

Investigation of transdiagnostic factors underlying depression, anxiety, and eating disorders: a focus on community, medically ill and clinical populations

Details

Primary Supervisor: Dr Litza Kiropoulos
Contact Email: litzak@unimelb.edu.au
Maximum Number of Student Places: 2

Mood and anxiety disorders, are prevalent conditions in people diagnosed with, cancer, MS, and eating disorders (Keski-Rahkonen & Mustelin, 2016; Stark, Kiely, Smith, Velikova, House, Selby, 2002; Thomas et al., 2006). The diagnosis, management and treatment of these conditions exposes individuals to significant life stressors, which increase their vulnerability to mood-related psychological disorders (e.g. Nagaraja, Armaiz-Pena, Lutgendorf & Sood, 2013; Hammen, 2005). Additionally, depressive disorders and anxiety disorders are frequently comorbid with each other in clinical populations, and this comorbidity is associated with greater distress, (Andrews et al., 2002), increased service utilisation (Burgess et al., 2009), and risk of suicide (Norton et al., 2008). Such findings demonstrate the

complex comorbidity evident within medically unwell, and clinical populations, and highlight the importance studying comorbidity.

Despite this, current treatment approaches for the treatment of anxiety, depression, and eating disorders are characterised by disorder specific treatments, many of which are forms of cognitive-behavioural therapy (CBT) (Rohde, 2012). While there is a strong evidence-base for disorder specific treatments, increasing empirical and clinical attention has focussed on the potential utility of transdiagnostic approaches, which focus on the identification and treatment of common cognitive and behavioural mechanisms underlying the maintenance of multiple disorders (Mansell, Harvey, Watkins, & Shafran, 2009). For example, research suggests that difficulties regulating emotions, confer risk for the development of anxiety, depressive, and eating disorders; while targeting this process in treatment is associated with simultaneous improvements in anxiety, depressive and eating disorder symptoms (Sloan, Hall, Moulding, Bryce, Mildred, & Staiger, 2017).

Transdiagnostic factors implicated in anxiety, depression and eating disorders are varied but include; cognitive factors (Mathews & MacLeod, 2005), emotion regulation (Norton & Paulus, 2016), personality style (Rodriguez-Seijas, Eaton, & Krueger, 2015), attachment style (Ein-Dor, Viglin, & Doron, 2016), parenting styles (Yap, Pilkington, Ryan, & Jorm, 2014), maladaptive schemas (Martin, Blair, Clark, Rock, & Hunter, 2018), and interpersonal functioning (ref). Transdiagnostic strategies, therefore, could potentially target specific mechanisms that may contribute to poorer adaptation following the diagnosis or treatment for a medical condition, as well as help target the complex clinical presentations characterised by substantial comorbidity commonly evident in treatment settings.

Further understandings of the transdiagnostic factors associated with anxiety, depression, and eating disorders, for individuals with cancer, MS, clinical populations, and the general community, may help to improve mental health outcomes of a broad array of individuals. The appeal of transdiagnostic approaches are particularly evident in medically unwell populations and individuals with eating disorders due to the high rates of comorbidity, complex presentations, and systemic factors associated with treatment, all of which are likely to influence the efficacy of traditional treatment approaches (Ehrenreich-May & Chu, 2013).

Furthermore, the provision of disorder-specific treatments in a sequential manner may not be feasible due to the observed high attrition rates of treatments offered sequentially (Rohde, 2012). In combination these factors support the potential utility of a transdiagnostic approaches. However, considerable research remains to be done in terms of fully specifying process-orientated transdiagnostic treatments (Harvey, 2004). Therefore, further investigation of the transdiagnostic processes which may underlie the development of anxiety, depression, and eating disorders, in medically unwell, clinical populations, and the general community is required.

Participants will complete an online questionnaire which will assess: demographic information; previous or current history of any diagnosis and/or treatment for a mental disorder (anxiety disorders, depressive disorders, eating disorders, or post-traumatic stress disorder); previous or current history and/or treatment for MS or cancer; and measures which assess transdiagnostic factors, defined as processes which may contribute to the development or maintenance of several mental disorders, relevant to anxiety disorders, depression, and eating disorders.

The transdiagnostic factors we are interested in assessing include; cognitive inflexibility; cognitive appraisals; rumination; mindfulness based cognitive abilities (non-judging, centring); emotion regulation; distress tolerance; information processing (negative biases in attention and memory); intolerance of uncertainty; anxiety sensitivity; five personality factors (neuroticism, openness, agreeableness, conscientiousness, extraversion); attachment styles; parenting styles; schemas (maladaptive and adaptive); autonomous motivation; and interpersonal functioning. It is anticipated that participant involvement will take up to 50 minutes to complete the online questionnaires.

By undertaking this research, it is anticipated that we will contribute to the current understanding of the role of numerous transdiagnostic factors implicated in anxiety, depressive disorders, and eating disorders, within a diverse group of populations.

It is expected that the student who will take on this project will contribute to the write up of results obtained from this research in the form of a peer-reviewed manuscript.

Ethical approval for this research program is currently being sought.

There is scope for projects within this research program to be undertaken at PhD level.

Dyslexia in Temporal Lobe Epilepsy

Details

Primary Supervisor: Professor Michael Saling
Contact Email: mmsaling@unimelb.edu.au
Maximum Number of Student Places: 1

In an ongoing collaborative project, between the Department of Clinical Neuropsychology and the Comprehensive Epilepsy Program at the Austin Hospital, it has been shown that patients with temporal lobe epilepsy are at increased risk of a co-morbid developmental dyslexia. This effect appears to be caused by interference with structures in the occipito-temporal pathway. This project will continue to explore the mechanisms involved in this puzzling association.

Case Studies in Amnesia: Rare Causes

Details

Primary Supervisor: Professor Michael Saling
Contact Email: mmsaling@unimelb.edu.au
Maximum Number of Student Places: 2

Focal seizures can arise as a result of very rare brain conditions. A recent case presented with normal recall of events in the short term (24 hours), followed by a profound and permanent amnesia for the same events. The underlying cause of the seizures is an auto-immune disease selectively interfering with post-synaptic receptor sites without causing an observable brain lesion. In strong contrast to this, a case suffered from seizures caused by an extremely rare and severe developmental anomaly of the hippocampi and fornix, but with normal memory function. A comparative study and further neurocognitive characterization of these cases is likely to disclose new insights into the neuronal basis of personal memory function.

Does a teacher-led mindfulness intervention improve student outcomes?

Details

Primary Supervisor: Dr Nicholas Van Dam
Contact Email: nicholas.vandam@unimelb.edu.au
Maximum Number of Student Places: 1

Mindfulness is an approach which, in some instantiations, aims to improve attention, self-regulation, mental health, and cognitive functioning. Children require these key attributes for successful transition and adjustment to school, which can also place children on positive academic and well-being pathways that have benefits that track into adulthood. Despite wide uptake of mindfulness practices in primary schools, these outcomes remain untested in this setting.

This project aims to determine if improving teacher knowledge and practice of mindfulness in the classroom, can lead to better child behaviour and school functioning outcomes during the early primary school years. Drawing on interdisciplinary expertise, this project will generate new knowledge as to whether mindfulness can be integrated into classroom practice, how to best implement it, student benefits and cost-effectiveness. This study will determine whether improving teacher knowledge and practice to promote student mindfulness in the classroom, can improve student attention, self-regulation, social-emotional well-being and executive functioning. Findings will inform schools as to whether this approach can support students to make a successful school transition.

A masters-level research project will form an embedded component of this larger study which is being funded by an ARC Discovery Project grant. The exact nature of the project can be negotiated with supervisors, Dr. Nicholas Van Dam, Dr Ben Deery, and Dr Jon Quach.

Bidirectional exploration of symptom clusters and brain networks in high-prevalence psychiatric presentations

Details

Primary Supervisor: Dr Nicholas Van Dam
Contact Email: nicholas.vandam@unimelb.edu.au
Maximum Number of Student Places: 1

While neuroimaging (esp. functional magnetic resonance imaging has provided many new insights into the aetiological basis of psychiatric disorders, many findings have been limited by inherent shortcomings in the primary diagnostic system in Psychiatry (DSM). Alternative approaches to matching symptom clusters and neural networks has largely been unidirectional (I.e. symptoms -> brain or brain -> symptoms). Advances in statistical analysis mean we can now identify symptoms that simultaneously have relevance to the brain and symptom clusters (using techniques such as canonical correlation or bi-clustering). This project will make us of a large (n > 1000) pre-existing dataset (Nathan Kline Institute Rockland Sample) to bidirectional identify symptom clusters and neural networks of relevance to anxiety, depression, and related disorders.

Exact details can be negotiated with supervisors, which will include Dr. Nicholas Van Dam (MSPS) and A/Prof Ben Harrison (Melbourne Neuropsychiatry Centre). Interest in neuroimaging is a must, as is aptitude in programming and statistical analysis.

Exploring antidepressant medication use in general practice

Details

Primary Supervisor: Dr Nicholas Van Dam
Contact Email: nicholas.vandam@unimelb.edu.au
Maximum Number of Student Places: 1

Up to 80% of all Psychiatric medications are prescribed by General Practitioners in primary care settings. Such settings often lack interaction with mental health providers more broadly and, as a result, there are few guidelines around starting, stopping, or resuming use of antidepressant medications. This project proposes to use pre-existing data gathered via completed and ongoing projects in General Practice (such as from the TARGET-D study) and the Australian Pharmaceutical Benefit Scheme (PBS) and Medicare data to ascertain current practices/patterns in antidepressant use and illness course/progression among those seeking help for mental health via primary care. Exploration of use of web-based and mobile apps to monitor/manage symptoms, medications may also be possible. Targets of exploration may include patterns of use over time (including continued use despite evidence of recovery), abrupt cessation of use (and potential consequences), as well as incidence of safe cessation and/or continuation of antidepressants.

Exact nature of the project can be negotiated with supervisors, which will include Dr. Nicholas Van Dam (MSPS) and Dr. Susie Fletcher (General Practice in Medicine).

Altered perception and cognitive function in schizophrenia

Details

Primary Supervisor: Dr Patrick Goodbourn
Contact Email: p.goodbourn@unimelb.edu.au
Maximum Number of Student Places: 2

Supervisors; A/Prof. Olivia Carter, Dr Patrick Goodbourn, Prof. Suresh Sundram

Many people with schizophrenia experience hallucinations or unusual sensory experiences. These perceptual changes may cause distress, confusion or anxiety. Various sophisticated assessments of visual and cognitive functioning in schizophrenia, using a range of both behavioural and neuroimaging measures, have clearly demonstrated that a wide range of deficits exist within this patient population. Indeed, the systematic nature of these deficits has led many to suggest that they may elucidate the underlying pathophysiology of schizophrenia and provide a cheap, non-invasive biomarker for the disorder. The selectivity of such deficits and their relationship to symptomatology, however, remain unclear—preliminary evidence suggests a more complex picture. This project will use a range of visual tasks in an inpatient psychiatric sample. The aim will be to determine the relationship between sensory and cognitive deficits and specific diagnoses or symptom profiles. Testing will involve medicated and unmedicated patients with schizophrenia, and other patient populations exhibiting non-schizophrenic forms of psychosis. Students completing this project will be trained extensively on the PANSS structured interview to assess patient symptoms, as well as administration of the specific sensory and cognitive tasks.

All patient testing will be conducted at the Monash Medical Centre in Clayton, so students will be required to coordinate their own transport to this location on a regular basis.

Using smartphone assessment of cognitive function to track recovery in mild traumatic brain injury

Details

Primary Supervisor: Professor Rob Hester
Contact Email: hesterr@unimelb.edu.au
Maximum Number of Student Places: 1

Participating Organisations; Melbourne School of Psychological Sciences, Alfred Hospital

Supervisors; Professor Rob Hester, Dr J Anderson and Ms Evelyn Chen, MSPS

Brief Description of the Project; This project aims to examine the use of smartphone technology for collecting information about cognition in the acute period (1 week to 3 months) post-mTBI. Further, by conducting brief and repeated assessment of cognitive function, the project will assess if real-time feedback to individuals about cognitive function influences individual recovery trajectory.

Mild traumatic brain injury (mTBI) accounts for 70% to 90% of all treated traumatic brain injury. The resulting sequelae often compromise performance of work for periods of weeks to months. Given its frequency and the significant financial implications, information regarding the course of cognitive recovery is critical. To date, understanding of the trajectory of recovery in mTBI is poor. It has been postulated that a number of methodological issues have contributed to the lack of clarity regarding the course of cognitive recovery in mTBI in the general population. These include not adopting an appropriate mTBI classification system, the lack of inclusion of appropriate controls, and the use of measures that do not provide sufficient sensitivity to detect subtle cognitive changes in mTBI recovery. Ambulatory cognitive assessments (e.g., computerized tasks delivered via computers and smartphones) are being increasingly used to track cognitive changes over time, and has potential in overcoming challenges of conducting regular assessments that are required in tracking cognitive recovery. The aim of the proposed research is to address the stated methodological issues, investigate the validity and reliability of two cognitive tasks (the n-back and stop signal tasks) as delivered by smartphone, and track cognitive recovery in patients with mTBI using these

smartphone-delivered cognitive tasks. The results will potentially provide further insight into the utility of the ambulatory cognitive assessment in mapping cognitive recovery in patients with mTBI.

Personality change after 'frontal' injury or disease: How good is the evidence?

Details

Primary Supervisor: Professor Stephen Bowden
Contact Email: sbowden@unimelb.edu.au
Maximum Number of Student Places: 1

Much clinical lore holds that localized frontal injury leads to dramatic personality change. The famous case of Phineus Gage is often cited as the prototype of this so-called frontal syndrome. However, the nature and duration of personality change suffered by Phineus Gage is not as clear as is often assumed (MacMillan, 2000). As well, anecdotal evidence in modern case examples suggest that the post-injury personality may sometime reflect pre-morbid personality. Although there are recent reviews of personality change associated with frontal disease (e.g., Zaman & Faruqui, 2016 conference abstract; Zwinkels et al., 2016), there appears to be limited study of change pre- versus post-injury. Nevertheless, there are some strong clinical assertions made about change after frontal disease, for example the so-called dissociation between 'knowing and doing,' assertions that may not rest on strong evidence. This project will focus on systematically reviewing evidence of change after frontal injury or disease with a particular focus on the quality of evidence.

The results of this study should be readily publishable in an international journal and the thesis can be submitted as a journal article ready for publication. The student undertaking this project is welcome to take the role of first author.

This project will be undertaken in conjunction with colleagues in the Neuropsychology Unit, Department of Clinical Neurosciences, St. Vincent's Hospital, Melbourne.

Relationship between SVT scores and PVT scores in neuropsychological assessment.

Details

Primary Supervisor: Professor Stephen Bowden
Contact Email: sbowden@unimelb.edu.au
Maximum Number of Student Places: 1

There has been a huge increase in interest in the assessment of cognitive test validity in neuropsychological assessment, using techniques commonly described as performance validity tests (PVT's). International professional society recommendations state that a neuropsychological assessment may be incomplete without administration of PVT's (e.g., Bush et al., 2005). The emergence of interest in PVTs is against the background of long-established practice for neuropsychologists and clinical psychologists to evaluate self-report symptom validity in psychopathology screening. This aspect of assessment is important for neuropsychologists because psychopathology is a common, or very common, comorbidity associated with most neuropsychological disorders. Most good quality psychopathology measures contain so-called symptom validity tests (SVT's). A lively hypothesis in neuropsychological assessment discussions is the question of whether PVTs and SVTs really measure different constructs (see Larrabee, 2012; 2014). This project will used archival data to evaluate the hypothesis that SVT's and PVT's measure different constructs. The project will suit a student with willingness to learn advanced construct validation techniques including confirmatory factor analysis.

The results of this study should be readily publishable in an international journal and the thesis can be submitted as a journal article ready for publication. The student undertaking this project is welcome to take the role of first author.

This project will be undertaken in conjunction with colleagues in the Neuropsychology Unit, Department of Clinical Neurosciences, St. Vincent's Hospital, Melbourne.

Replicability of factor analytic models of the Beck Depression Inventory-II.

Details

Primary Supervisor: Professor Stephen Bowden
Contact Email: sbowden@unimelb.edu.au
Maximum Number of Student Places: 1

Factor analytic methods are one of the most important techniques for construct validation in clinical neuropsychology (Bowden, 2017; Strauss & Smith, 2009). However, because they are readily accessible and easy to apply, many published factor analyses are misapplied or misreported. As a consequence, much research effort is wasted. One reason that the techniques are not well used is that many clinical researchers, including senior researchers, have never been taught nor have learnt how to use the techniques carefully. This study is intended as a test-case of these concerns by undertaking a systematic review of factor-analytic studies of a common test, such as the Beck Depression Inventory-II, one of the most widely used tests in clinical neuropsychology and clinical psychology. This project will review the approach to factor analysis in studies retrieved as part of the literature search and provide a brief critique of the quality of methods. The results of this study should be readily publishable in an international journal and the thesis can be submitted as a journal article ready for publication. The student undertaking this project is welcome to take the role of first author.

Clinical interview derived psychopathology diagnosis predicted from objective measures of psychopathology and response sets.

Details

Primary Supervisor: Professor Stephen Bowden
Contact Email: sbowden@unimelb.edu.au
Maximum Number of Student Places: 1

Previous unpublished data from our clinical research group has revealed evidence that DSM-type semi-structured interview diagnosis may be most strongly predicted from objective measures of response sets (symptom exaggeration or symptom minimization) rather than primary measures of the respective psychopathology traits. The project will involve a replication study of this hypothesis in a clinical cohort of patients who have received both psychiatric interview and diagnosis and objective assessment of psychopathology and response sets.

At the time of writing this project is a work in progress so any interested student should talk to me (SB) about the status of the project.

This project will be undertaken in conjunction with Dr Nicholas Van Dam, and colleagues in the Neuropsychology Unit, Department of Clinical Neurosciences, St. Vincent's Hospital, Melbourne.

Pathways to autism in children with diagnosed genetic syndromes, such as neurofibromatosis type 1

Details

Primary Supervisor: Professor Vicki Anderson
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Maximum Number of Student Places: 2

After decades of research, very little progress has been made into understanding the causes of symptoms seen in children with autism and social impairment. This is partially due to researchers studying the broad population of children diagnosed with autism, which lumps together the many different pathological mechanisms that potentially lead to autism. However, recent progress in identifying some genes that cause autism is helping researchers start to

separate out some of the neurobiological mechanisms underlying autism and social impairment. Our group is offering opportunities for students to be involved in an exciting program of research aiming to better understand the pathways to autism in children with diagnosed genetic syndromes, such as neurofibromatosis type 1 (NF1). For each child, we collect neuropsychological information about intelligence, social cognition, executive functioning, psychopathology (e.g., autism and ADHD ratings), and functioning. Older children also undergo state-of-the-art structural and functional neuroimaging enabling us to better understand the psychological and neurobiological factors that contribute to social impairment and autism in children with these genetic syndromes. The scope of the student project will be discussed with supervisors and will fit under the broader umbrella of the research program. Students would need a strong academic track record and an interest in neuropsychology and/or developmental neuroscience. Our team collaborates with other groups within the Murdoch Children's Research Institute as well as other research institutes, both nationally and internationally.

Autism phenotypes of transgender children and adolescents

Details

Primary Supervisor: Professor Vicki Anderson
Contact Email: vaa@unimelb.edu.au
Maximum Number of Student Places: 1

Referrals of transgender children and adolescents for medical care have been increasing exponentially across the Western world. For reasons that remain unclear, there appears to be a much higher prevalence of autism in transgender children compared to the general population. For example, a recent audit of 400 patients at the Royal Children's Hospital Gender Service in Melbourne indicated that 15.5% have a parent-reported diagnosis of autism, while a further 8.3% are suspected of having autism by their clinicians. In contrast, recent prevalence estimates of autism within the general community are only 1.4%.

Anecdotally, it appears that the vast majority of transgender young people with autism do not have a recognized intellectual disability or language impairment, both of which are usually common in those with autism. This suggests that the nature of autism is intrinsically different in those who are transgender compared to those who are not, but the nature of such differences has not yet been explored.

To address this gap in knowledge, we are undertaking a study of transgender children and adolescents with autism, and are profiling their cognition, communication and social skills using a variety of standardised tools. By comparing these data to that of existing cohorts of young people with autism from the general community, we will be able to better understand the specific strengths and weaknesses of these transgender children. This information should directly inform clinical practice and enable more tailored assessment and treatment of young transgender individuals with autism, whose clinical management is typically more complex.

The opportunity exists for a motivated and passionate student to join this project. The successful candidate will be involved in primary data collection and related statistical analyses not only to fulfil their thesis requirements but also to publish their findings in a relevant scholarly journal.

Social competence in dementia

Details

Primary Supervisor: Professor Vicki Anderson
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Maximum Number of Student Places: 1

Social competence in dementia: Feasibility of a novel digital tool of social cognition
Difficulties in social and emotional functioning are common in many patients with dementia, which can lead to early loss of livelihood, marital breakdown and societal burden. While diagnosis of social impairment has become an area of significant importance in the early identification and treatment for dementia, progress is hindered by a lack of comprehensive, standardised, theoretically driven, ecologically valid assessment tools. The Paediatric Evaluation of

Emotions, Relationships and Socialisation (PEERS™) is an innovative digital, comprehensive assessment of social cognitive skills underpinned by a social neuroscience theoretical framework1 developed to fill this breach in paediatric social assessment2, but with applications across the lifespan. This project aims to pilot PEERS with a dementia population to evaluate the clinical efficacy of the tool as a diagnostic aide for various forms of dementia.

1. Beauchamp, M. H., & Anderson, V. (2010). SOCIAL: an integrative framework for the development of social skills. Psychological bulletin, 136(1), 39.

2. Thompson, E. J., Beauchamp, M. H., Darling, S. J., Hearps, S. J., Brown, A., Charalambous, G., ... & Anderson, V. (2018). Protocol for a prospective, school-based standardisation study of a digital social skills assessment tool for children: The Paediatric Evaluation of Emotions, Relationships, and Socialisation (PEERS) study. BMJ open, 8(2), e016633.

Social competence in neurodevelopmental disorders: Evaluation of social cognition using a novel digital assessment tool

Details

Primary Supervisor: Professor Vicki Anderson
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Maximum Number of Student Places: 2

Poor social and emotional skills are a primary characteristic of several neurodevelopmental disorder such as autism spectrum disorders (ASD), ADHD and conduct disorder. Despite the well-known importance of social skills to quality of life, there is a lack of theoretically driven, developmentally appropriate tools to evaluate social and emotional skills in children, limiting our ability to identify those at-risk for poor social outcomes and direct them towards evidence-based early intervention.

The Paediatric Evaluation of Emotions, Relationships and Socialisation (PEERS™) is an innovative digital, comprehensive assessment of social cognitive skills underpinned by a social neuroscience theoretical framework1 developed to fill this breach in paediatric social assessment2.

The current study aims to evaluate social competence in children with neurodevelopmental disorders using a novel, i-Pad based assessment of social competence (PEERS).

1. Beauchamp, M. H., & Anderson, V. (2010). SOCIAL: an integrative framework for the development of social skills. Psychological bulletin, 136(1), 39.

2. Thompson, E. J., Beauchamp, M. H., Darling, S. J., Hearps, S. J., Brown, A., Charalambous, G., ... & Anderson, V. (2018). Protocol for a prospective, school-based standardisation study of a digital social skills assessment tool for children: The Paediatric Evaluation of Emotions, Relationships, and Socialisation (PEERS) study. BMJ open, 8(2), e016633.