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# Open science at Swinburne

When reading an article in a scientific journal, one generally wants to assume that the findings presented are actually true. Unfortunately, in recent years it has become clear that a 'replication crisis' exists in scientific publications. The published literature in many fields contains an overwhelming number of false positive findings; that is, findings that cannot be replicated or reproduced and are, thus, unlikely to be true effects. This replication crisis includes, but is not limited to, research in social and behavioural psychology, clinical psychology, medical sciences, ecology, and epidemiology.

Although this is a troubling state to be in, there is good news. Now that we understand how traditional research practices and incentive structures produced the replication crisis, we can begin to improve how we conduct research. Indeed, rather than see this as a crisis, some see this as a renaissance — that we will be better researchers who conduct more reproducible, replicable, and transparent (and, thus, more valid) research moving forward. To that end, researchers are devising innovative solutions to improve how we design our studies, collect and analyse our data, share our methods and data, and transparently and openly report our findings. These positive developments will shape the future of research in the disciplines that adopt them. In order to ensure that current and future researchers (i.e., undergraduate, Honours, and postgraduate students) are conducting and publishing valid research, everyone should adopt appropriate Open Science practices rather than continue to rely on the traditional methods of the past.

Swinburne's Department of Psychological Sciences has embraced Open Science as their departmental research vision. Together, we will raise awareness, educate and upskill staff and students in Open Science practices. Members of the department will also engage with local, national and international Open Science communities, which drive many of the initiatives to improve scientific practices. These efforts demonstrate our departmental commitment to produce rigorous research that is transparent, open, and reproducible at all stages of the research cycle. To follow the Open Science developments in our department, our university, or in the field more broadly, you can follow Dr Jennifer L Beaudry on Twitter (#opensciencefridays; @drjbeaudry). Jennifer regularly posts about available resources, important interdisciplinary journal articles, developments in the field, relevant podcasts, blog posts, and information about local and international Open Science initiatives.

Dr Jennifer L Beaudry is the Academic Director for Research Training in the School of Health Sciences, which includes the Department of Psychological Sciences. Jennifer is also a member of the founding executive committee for the Association for Interdisciplinary Metaresearch and Open Science (AIMOS), which held its inaugural—and wildly successful—conference in November. A/Prof Jordy Kaufman is the Departmental Research Director for the Department of Psychological Sciences. Jennifer and Jordy are committed to engaging researchers, including students, with Open Science practices to improve how they evaluate, conduct and disseminate research. Along with other open science advocates, Jordy and Jennifer launched the Swinburne Open Science Taskforce and conducted an institution-wide survey about researchers' research practices, attitudes toward Open Science, and barriers to adopting these practices. The survey results will help to inform our next steps toward future-proofing our research.

### **Vocational Education and Training for the Future**

#### ■ Dr Jason Skues & Dr Lisa Wise

The Australian Government has identified current skills shortages among various professional and trade workers that are expected to reduce labour market participation and constrain economic growth. At the same time, digital technologies such as artificial intelligence, robots and automation are changing the world of work such that new skills and capabilities will be required for jobs in the future. To address this skills gap, the Vocational Education and Training (VET) system in Australia will play a critical role in providing pathways for school leavers and adult learners to obtain the necessary skills for current and future work. However, whilst much has been written on the education and training required for work in the future, limited empirical research has been

conducted to date, especially from a psychology perspective. Dr Jason Skues and Dr Lisa Wise are leading a team of PhD and Honours students (from their Digital Technologies and Training (DTT) Lab Group) who are working on various psychology-related research projects associated with VET. These projects include, but are not limited to, the impact of virtual and augmented reality technologies on knowledge construction and skill acquisition among workers in different industries including rail, oil and gas, and health care. Other projects include extending on their previous work examining the impact of achievement emotions on engagement and learning among tertiary students to include explicit goals and implicit motives, as well as a new project to identify predictors of self-conscious emotions such

as pride and shame among VET students. Dr Skues and Dr Wise are also overseeing a project examining the effects of a psychology-informed mental health intervention for apprentices in the building and construction industry. Lastly, other projects currently being undertaken under their supervision are focusing on career development and adaptability where the aim is to integrate existing career and psychology theories to better understand the decision making processes of individuals who choose to change career, who anticipate the loss of a job in the near future, and who have been displaced from work as a result of new technology. The DTT team will continue their work toward establishing a critical mass of researchers who are conducting rigorous, innovative and applied research in the VET context.

### Digital Technologies & Training Lab

The Digital Technologies and Training lab (DT&T) is a collaboration between Dr Lisa Wise and Dr Jason Skues. We work within a number of interdisciplinary research teams, we lead specific research projects in training and skilled performance, and we mentor a strong team of Higher Degree Research students on their pathway to becoming independent researchers in academia and industry.

The research group brings together expertise from a range of disciplines unified by an interest in understanding the underlying cognitive and psychological processes involved when humans interact with current and future technologies. Our research is currently focused on understanding how interpersonal relationships are mediated through social media, the process of remembering, forgetting or updating information, and the notion of trust and allocation of responsibilities in humanmachine environments in the increasingly automated world. Our strong interdisciplinary ties give us the opportunity to work on some fascinating projects, including with Dr Chris McCarthy (Computer Science and Software Engineering) on the use of robots in healthcare settings and on augmented reality training for bionic vision, with Dr Matt Ebbatson (Aviation) on the nature of stress and mental workload for pilots in specific aviation contexts, and with Professor Kim Vincs (Film and Animation) on enterprise adoption of augmented reality. Understanding skilled performance in the context of digital technologies and automation is a necessary precursor for developing appropriate training and performance requirements for future workplaces, such as in transportation systems using autonomous vehicles, in the oil and gas industry, and building and construction industry settings. Our new team of PhD students will be undertaking work in these domains.

For further information about the DT&T lab, contact **Lisa Wise** (lwise@swin.edu.au) or Jason Skues (jskues@swin.edu.au)



#### Social Psychology of Innovation Research Group

The Social Psychology of Innovation (SPI) research group is made up of specialists in the fields of social psychology, most of whom are located within the Department of Psychological Sciences. We are specialists in the social psychology of perception, justice, work, leadership, and the social psychological implications of contemporary social change. In the midst of unprecedented social change and the growing power of technologies such as robotics, AI, and biotechnology, our notions of work, justice, and society are poised to change. Our research explores the nature and implications of these changes for relationships, work, justice, and trust alongside the new risks and opportunities they present. Together we are dedicated to advancing the ability of people, organisations, and social institutions to adapt to change.



https://www.swinburne.edu.au/ health-arts-design/research/socialpsychology-of-innovation-research/



## **Swinburne Babylab**

The Swinburne Babylab, led by Associate Professor Jordy Kaufman, was created to explore cognitive, social and brain development in infants and young children. The lab investigates how babies see and think about faces and objects; the effects of touchscreen applications on preschool children's learning, thinking and emotion; and the extent to which video chat (such as "FaceTime") can be used to maintain family relationships.

To answer these questions, Associate Professor Kaufman uses advanced research techniques such as infrared eye-tracking and high-density electroencephalography (EEG), which provide sensitive measures of children's learning and thought processes. One of the most important aspects of the Babylab is the Volunteer Research Program, which trains undergraduate volunteers to assist with the operations of the lab. Their work is critical in allowing for the testing of up to 20 children per week. Many of these volunteers have gone on to complete honours, master and PhD programs. The Babylab's research benefits from Australian and international funding such as grants from the Department of Education and Training, ARC and Google, and has received extensive media coverage.

To find out more about our recent studies conducted at the Swinburne Babylab visit the following link **babylab.org** 

### Swinburne's neuroimaging (SNI) facility

Swinburne researchers, research partners, commercial organisations and external researchers use Swinburne's state-of-the-art neuroimaging facility to research neurocognitive function and development, pharmaceutical efficacy, and the mechanisms involved in various mental health disorders and neurological conditions.

The SNI facility offers a range of neuroimaging techniques, including:

- i) magnetic resonance imaging (MRI) (Siemens Tim Trio 3T magnet, with both 12 channel and 32 channel head coils, a neck coil, and a range of body coils for brain and spinal imaging);
- ii) magnetoencephalography (MEG) (Neuromag TRIUX, with 306 sensors);
- iii) electroencephalography (EEG) (nine
- laboratories, with systems that facilitate adult and infant EEG [babylab]);
- iv) transcranial magnetic stimulation (TMS) (two setups including the Magstim 200 with BiStim Controller, and the Magstim single pulse);
- v) transcranial direct current stimulation (tDCS); and
- vi) eye tracking (three setups, including the Eyelink II, and two Eyelink 1000 series).

Two facility fellows, supported by the National Imaging Facility (NIF), provide support for users of the SNI facility, ensure quality protocol design, and apply sophisticated analysis techniques to enable research excellence.

For further information, or to book the SNI facility equipment contact: neuroimaging@swin.edu.au

## Helping People Overcome Social Anxiety Disorder



■ Professor Glen Bates

Social Anxiety Disorder (SAD) is the most prevalent anxiety disorder and the fourth most common disorder diagnosed in the community. While everyone can experience high levels of social anxiety when under scrutiny by others (e.g., in job interviews, public speaking) the fear of negative evaluation is crippling for people diagnosed with SAD. These people have great difficulty forming relationships and struggle in the work environment. SAD is also a chronic condition with only about one third of people with SAD improving without treatment.

In 2005 Professor Bates developed a social anxiety group treatment program which continues to be offered at low cost to people diagnosed with SAD. The program is delivered by graduate clinical psychology students under his supervision. A review of treatment outcomes for participants showed positive gains for the majority of people entering the treatment program although not all people who enter therapy improve.

Professor Bates' recent research has looked at the nature of positive change after treatment. Interviews with a sample of people who improved in therapy identified the capacity to be more compassionate and less critical of oneself and to tolerate and regulate anxious emotion were crucial to successful treatment. In 2020 Professor Bates will extend his research on self-compassion and emotional regulation in recovery from social anxiety with a view to modify the group programme to enhance effectiveness.

# **Understanding Boredom- Proneness in Young Adults**

■ Dr Tristan Berrell



Whilst a great deal is known about serious mental health concerns, such as depression and anxiety, amongst young adults, very little research has considered those who experience little differentiation between their positive and negative emotions. Where those who enjoy a high sense of well-being typically experience a high degree of positive emotions and relatively few negative emotions, Tristan Berrell recently identified a group of young adults that seem to experience negative emotions as frequently as positive, leaving them feeling ambiguous about their place in the world and unable to find any interest in the opportunities available to them. Given the importance of the young adult period in establishing one's life trajectory and undertaking pursuits to better prepare themselves for adult life, those who remain in this bored state will likely find themselves unable to commit to any particular goal and drift aimlessly through their lives with no real sense of

When studied more closely, these individuals were found to lack a sense that they were effective agents in their lives, whereby they felt that they had little control over their own lives and were incapable of achieving that which is important to them. Despite this, many reported that they would be capable of achieving success should they find a meaningful goal to pursue. However, these goals were typically

discarded when faced with setbacks that led them to lose interest and anticipate failure in whatever direction they chose, leaving them feeling relatively powerless to control their future and apathetic about their lives.

Although these individuals reported more positive experiences than those suffering severe distress, bored young adults typically felt more alienated from and less trusting of their parents and friends than those experiencing high well-being. More specifically, despite relatively warm and supportive relationships with their mothers, bored young adults seemed to lack close relationships with their friends and fathers, suggesting that young adults utilise these relationships to push themselves outside of their comfort zone and continue striving for success even in the face of failure. Although it is yet unclear whether these relationships contribute to the experience of boredom or are a result of such experiences, it is clear that these individuals feel that their lives are beyond their control and struggle to maintain their interest in living a fulfilling life.

# Digital stories for aged care

Sunil Bhar, Rebecca Collins, Jennifer Stargatt and Mark Silver Department of Psychological Sciences

Currently there are more than 250,000 older adults living in residential aged care facilities in Australia. These adults are one of the most vulnerable groups in our society, with over 50% experiencing mental health issues.

Over the last six years, Swinburne University has run a digital story program to improve quality of life and psychological health of aged care residents through ongoing companionship, helping them to feel valued and validated. The program has aimed to support elderly residents facing mental health challenges such as depression, anxiety, grief, social isolation and end of life issues.

The Digital Story Program is a volunteer-based program organised by the Wellbeing Clinic for Older Adults at Swinburne University of Technology. The Wellbeing Clinic offers free confidential counselling and support services for older adults living in residential and community settings run by Swinburne psychology, counselling and social work students. As part of the Digital Story Program, undergraduate students travel weekly to selected residential aged care facilities. They meet one on one with a resident to produce a three-minute digital story. These stories capture their values, significant life events central to the person's sense of self and more.

Over the course of 6 - 12 months, the resident is encouraged to reminisce and talk about life events or experiences that may be life affirming and important to them. Together, the student and resident produce a short digital story that portrays the residents' identity and tells a story about them. Additionally, the project advances the education of the student volunteers by providing firsthand experience working in an aged care facility. It also provides a valuable service for facility staff that enhances their knowledge of residents.

We have found that residents significantly enjoy the process of creating these stories as well as the companionship provided by the weekly visits. Residents feel valued and validated by having the opportunity to reminisce and reflect on important and formative life experiences. In addition, facility staff who view these stories develop a greater appreciation of the resident's identity. Such appreciation can lead to more personalised support and care by staff that is consistent with the resident's individuality, their values and their preferences. These simple stories can improve mental health among residents and care practices of a facility.

The idea for this project came from our experience with an aged care resident "Ruth" living with dementia. Ruth was highly agitated and often violent when being dressed and her language skills had diminished. Facility staff believed her demanding manner was symptomatic of dementia and could not find a way of understanding Ruth, and therefore prescribed medication to reduce her agitation. Staff were very surprised to learn from photos displayed at Ruth's funeral that she worked as a top fashion model for David Jones in the 1930s. Had staff known this, they may have provided support validating her identity and involving her love of fashion.

Literature suggests that 'person centred care' in residential aged care facilities, which recognises a resident's values, preferences and dignity, can significantly improve emotional wellbeing. However, such care is difficult to implement when carers (nurses, personal care attendants and allied health staff) do not have a deep knowledge of the resident. This program seeks to close the gaps of communication and foster stronger relationships between aged care residents and staff.

For an example of a digital story and for more information about the Digital Story Project, please contact Rebecca Collins **rebeccacollins@swin.edu.au** 

# Sleep problems, mood and anxiety

■ Dr Ben Bullock

Achieving sufficient amounts of quality sleep is an increasingly rare occurrence for many of us. Latest figures show that 40% of Australians don't get enough sleep on a regular basis. The consequences of such poor sleep for reduced physical and mental well-being are well known. Indeed, a key recommendation of a recent parliamentary inquiry into sleep health awareness in Australia, chaired by Mr Trent Zimmerman MP, was that "the Australian Government prioritise sleep health as a national priority and recognise its importance to health and wellbeing alongside fitness and nutrition"

My particular area of interest is the association between poor sleep and reduced mental well-being. We know clinically that sleep problems commonly co-occur with mental illnesses such as anxiety, mood, substance use, and stress disorders (which themselves commonly co-occur; for example, 39% of people diagnosed with generalised anxiety disorder also meet diagnostic criteria for major depression). We are less certain about the direction of causality – are sleep problems epiphenomena of the mental illnesses, or are sleep problems a primary clinical issue that increase susceptibility to the development of mental illness. The latter raises an intriguing therapeutic possibility – that treating sleep problems as the primary issue might have a global and cascading positive effect on a range of mental illnesses. Taking such a transdiagnostic approach to treatment for mental illness has proven to be successful in a small number of studies in both adults and adolescents.

Together with my PhD student, Mr Ali Kodsi, and colleague, Dr Laura Tirlea, we investigated whether common psychological therapies for sleep problems were also effective for secondary treatment of depression and anxiety in young people aged 18-30 years. We systematically reviewed published data on the effectiveness of the most commonly used psychological therapy for insomnia, Cognitive Behaviour Therapy for insomnia (CBTi), in treating not only symptoms of insomnia, but also symptoms of depression and anxiety. By focusing our review on randomised control trials (RCTs) we were also able to use meta-analytic statistical techniques to quantify the effectiveness of CBTi in treating symptoms of depression and anxiety in a combined population of 5,244 participants across 13 trials. The results of the review and meta-analysis showed that CBTi was not only effective for treating insomnia, but also for any co-occurring symptoms of depression and anxiety. The average level of effectiveness across trials was moderate-large for insomnia, and moderate for the secondary outcomes of depression and anxiety.

The review suggests that therapy for sleep problems can have wide-ranging positive effects on problematic mood and anxiety symptoms, at least in young people aged 18-30 years. A transdiagnostic approach to treatment that targets sleep problems as a primary presenting clinical problem, rather than just an epiphenomenon of mood and anxiety disorders, may be a more effective overall treatment strategy than one that targets mood and anxiety exclusively. In the broader societal context, improving our sleep habits may also have positive implications for reducing the burden of problematic mood and anxiety symptoms.



### Compassion Focused Group Therapy for Recovery from Disordered Eating and Trauma

### A new treatment being delivered at the Swinburne Psychology Clinic

■ Inge Gnatt, Dr Danielle Williamson & A/Prof Maja Nedeljkovic

Eating disorders are psychological disorders that can cause significant distress and disability to sufferers. Prevalence rates of eating disorders in Australia have been estimated to be as high as 8% of the population, and the cost for individuals and their families is substantial. There are various treatment options available in Australia ranging from hospital inpatient/outpatient settings to private psychiatric services (e.g. Psychiatrist, GP and Psychologists), and in 2018 the Australian Government committed to a substantial increase in funding commencing this November. Nonetheless, many people delay accessing treatment due to factors such as not recognising that there is a problem until it has become severe, the high levels of shame and self-criticism that are commonly associated with eating difficulties, and even the challenge of navigating available options and finding relevant treatment services. There are good evidence-based treatments available for people with eating disorders such as family-based therapy and cognitive behavioural therapy (CBT) for eating disorders, however partial recovery and relapse are common, and the average duration of eating disorders is more than 5 years. Qualitative research has indicated that addressing the underlying problems is something that needs to be considered in order for recovery. Past experiences of trauma are a known risk factor for disordered eating, and while high rates of comorbidity are widely documented in the research and clinical literature, they are not commonly addressed together during treatment.

In order to contribute to bettering outcomes for treatment of individuals with co-occurring disordered eating and trauma symptoms, research must move beyond theoretical models. Researchers and clinicians from the Integrative Clinical Psychology Lab (ICPL) at Swinburne University of Technology led by Associate Professor Maja Nedeljkovic, are working on a program to contribute to treatments for this group. Inge Gnatt a PhD candidate (Clinical Psychology) of the ICPL and supervised by A/Prof Nedeljkovic and Dr Danielle Williamson has been investigating the interactions of relevant factors, and as a result will be delivering a new group-based intervention at the Swinburne Psychology Clinic. The foundation was presented at the 2019 World Congress of Behavioural and Cognitive Therapies in Berlin, and investigated a proposed model that explored the relationship between relevant psychological factors that impact on individuals with eating and trauma symptoms. Results supported expectations of the researchers by demonstrating that individuals with comorbid trauma and eating disorder symptoms had higher levels of psychopathology, shame, self-criticism, and lower levels of self-compassion. Subsequently, Compassion focused therapy (CFT) which was developed by Professor Paul Gilbert has been selected as a modality to address these problems.

Compassion focused therapy is grounded in CBT, and integrates concepts from evolutionary, social and developmental psychology, alongside Buddhist psychology and neuroscience. The treatment posits that humans have at least three primal types of emotion regulation systems which includes threat (protection), drive (resource-seeking) and the soothing system. Participants in the group will learn through experiential practice of the skills and attributes of compassion to help with problematic cognitions and emotions related to anxiety, shame, anger and self-criticism. Techniques such as soothing rhythm breathing allow participants to generate feelings of increased safeness and warmth in their interactions with others and themselves. CFT has been investigated as a novel treatment for several psychological disorders including psychosis and depression but further research is necessary to test the feasibility and acceptability across a broader range of problems. There has been one study that used CFT for eating disorders and the results reported promising findings. This is the first study to investigate the use of CFT for individuals with trauma and eating symptoms, and has the potential to offer validation of a potentially useful therapeutic approach that can be delivered either alongside or independently of other therapies for individuals or groups.

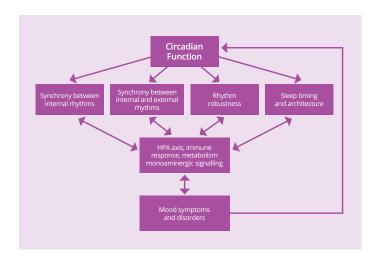


If you would like to know more about this program, please contact Inge ignatt@swin.edu.au for further information.

# Can we treat by bipolar disorder by targeting the body clock?

■ Professor Greg Murray

There is growing evidence that bipolar disorder – a serious and recurrent mood disorder characterised by episodes of mania and depression - involves disturbances in the body clock, or 'circadian system'. As reviewed recently by Swinburne's Professor Greg Murray (Murray, 2019), evidence that abnormalities of the circadian system are involved in bipolar disorder can be found at the level of genes, physiology, sleep-wake cycles, and behavioural dynamics (see Figure 1). But can such knowledge actually help people with bipolar disorder?



**Figure 1.** Figurative representation of pathways linking circadian function to mood. Note that while the four circadian parameters are presented as separate pathways, they interact in nature: interventions that improve sleep timing, for example, are likely to increase rhythm robustness and help resynchronise internal and external rhythms. (Reprinted with authors permission from Murray, 2019)

The International Society for Bipolar Disorders recently developed a Chronobiology Task Force, designed to encourage further research and clinical attention on the circadian system in bipolar disorder. An international group of experts in the field, including Professor Murray, were charged with reviewing existing chronobiological treatments that might be beneficial for bipolar disorder. That review is now complete, and will shortly be published in the journal Bipolar Disorders. The review found evidence that a number of interventions targeting the circadian system were effective and feasible in treating symptoms of bipolar disorder (see Table 1).

	ACUTE PHASE		MAINTENANCE / PROPHYLAXIS	
Chronotherapeutic treatments	Mania	Depression	Mania	Depression
Bright Light Therapy	X	<b>~</b>		•
Sleep Deprivation / Wake therapy	X	<b>~</b>		
Dark Therapy	>	X		•
Melatonin or melatonergic agonists		•		•
IPSRT		<b>/</b>	<b>V</b>	<b>/</b>
CBTI-BP			<b>/</b> *	

= Recommended

The treatment is supported by literature review-based evidence, which demonstrates efficacy, minimal safety risks, and a positive tolerability profile. \*Only applies to euthymic subjects with BD who have insomnia.

= No Recommendation

Insufficient or conflicting data which does not permit recommendation at this time. This designation indicates neither endorsement nor rejection.

X = Not Recommended

There is expert consensus that the treatment is contraindicated based on this literature review along with other, external (clinical, pre-clinical, animal, or epidemiologic) research.

**Table 1:** Summary clinical recommendations on the use of chronotherapies in treatment of the two syndromes of bipolar disorder (mania and depression) in both acute and maintenance (relapse prevention) phases.

Although much work remains to be done in this area (the yellow circles in Table 1 reflect interventions whose effectiveness is unclear), the review highlights that some interventions are ready for dissemination. Bright light therapy and sleep deprivation are useful for the hard-to-treat depressions of bipolar disorder; dark therapy is useful for mania; and stabilising people's daily routines (through Interpersonal and Social Rhythm Therapy, IPSRT) is useful for acute depression as well as preventing relapses into depression and mania. For people with bipolar disorder and insomnia, cognitive-behavioural therapy for insomnia has been shown to benefit both insomnia symptoms and mood symptoms.

The next step for the Chronobiology Task Force is to translate these findings into useful guidelines and prescriptions for practitioners. Professor Murray will feature in a webinar series being developed for this purpose later in 2019.

# Hallucinations and cognition in Parkinson's disease

Dr Wei Lin Toh

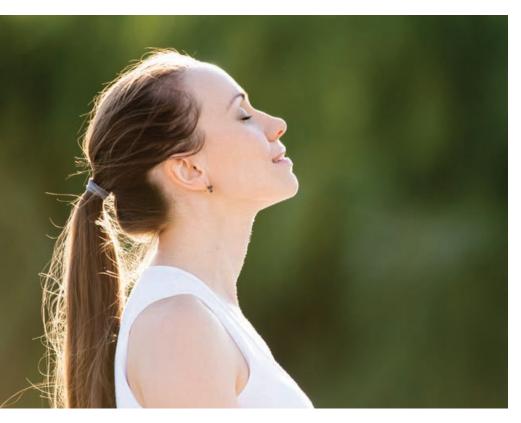


Parkinson's disease (PD) is a progressive neurodegenerative disorder predominantly affecting nerve cells in the middle part of the brain - the substantia nigra. These are responsible for producing a chemical called dopamine, which is a neurotransmitter necessary for the smooth control of muscles and movement. PD usually affects patients aged over 65 years, but earlier onset in the 40s or 50s is also possible. Conservative estimates indicate that PD is the most common major movement disorder and the second most common neurodegenerative condition in Australia, and is associated with a heightened socioeconomic load to the healthcare system, the workforce (in terms of lost productivity) as well as familial and social networks (in terms of caregiving duties and the emotional toll). With an aging population in Australia, this trend will become exacerbated in years to come. Treatments currently available are mostly aimed at managing the more debilitating symptoms, and can range from dopaminergic medications to lifestyle and environmental modifications, as well as surgery in some cases.

Key symptoms of PD may be categorised into motor and non-motor symptoms. A characteristic motor symptom is resting tremors, which refer to an involuntary quivering or shaking that occurs when a body part is at rest, but dissipates with motion. Resting tremors typically begin on one side of the body (e.g. in the hand or leg), but can eventually affect other body parts on both sides. Other motor symptoms can include balance and coordination difficulties as well as rigidity and slowing of movements. Although PD is known as a movement disorder, non-motor symptoms can be prominent as well. These non-motor symptoms, including hallucinations, dementia, depression or sleep problems, have been less studied, and form the focus of our current research. Hallucinations can be defined as unusual sensory perceptions that occur in the absence of corresponding external stimuli, for instance, hearing voices or seeing images that others do not. These symptoms are often thought to be psychiatric, but do present in PD. The most typical hallucinations in PD take place in the visual domain, and affect almost half of all patients. These visual hallucinations tend to be complex, typically involving a dynamic scene involving a person or an animal. They can last for up to a few minutes, and usually occur when patients are alert, oftentimes in one's direct line of sight. Some people are not alarmed by these experiences, whereas others perceive them as unpleasant and anxiety-provoking. Hallucinations in other sensory modalities have also been reported, including smelling odours or feeling sensations within or on the body, but much less is known about such experiences. The majority of people living with PD also tend to experience mild impairment in their cognition (i.e. their attention, memory, and reasoning skills). When such decline becomes severe, and is coupled with other symptoms (e.g. delusions or speech problems), this is termed dementia. Importantly, the presence of visual hallucinations is known to be associated with Parkinson's dementia, depression, sleep problems and other poor functional outcomes.

Our study aims to explore hallucinatory experiences across each of the senses in PD as well as delve into related cognitive decline, mood and sleep problems. We expect that such new knowledge will deepen our insights into illness progression as well as open up potential therapeutic avenues.

Researcher: Dr Wei Lin Toh; wtoh@swin.edu.au



# Mindfulness Meditation for people with Psychosis

■ Dr Stephanie Louise & Dr Sean Carruthers

People have been enjoying the benefits of meditation for thousands of years. However, it is only until recently that meditation practices such as mindfulness have been viewed as a potential treatment for severe mental illnesses such as psychosis. Mindfulness meditation involves purposively paying attention to present moment experiences non-judgementally; promoting an open and accepting attitude towards one's current experience. Practicing mindfulness has both immediate and long-term benefits and is linked to positive wellbeing and self-esteem, reductions in stress and anxiety, as well as promoting a more focused and attentive mind.

Mindfulness meditation is now being increasingly used to help individuals with schizophrenia to manage disruptive psychotic symptoms, such as auditory hallucinations or 'voices'. Helping people to observe psychotic symptoms with an open and non-judgemental awareness via mindfulness practice, has been found to help people be less reactive and more accepting of psychotic experiences. Recent research led by Dr. Stephanie Louise discovered that four, weekly one-hour sessions of individual mindfulness training significantly reduced the negative impact that hearing voices was having on the daily experience of a group of people living with chronic schizophrenia. The individual Mindfulness Program for Voices (iMPV) developed by Dr Louise combines both formal mindfulness practices, as well as informal practice and homework involving listening to audio recordings of guided mindfulness meditation at home.

Whilst still a relatively new area of research, mindfulness meditation appears to provide a range of benefits to people living with psychosis. Dr Louise and Dr Sean Carruthers are currently investigating whether mindfulness meditation training can be used to improve cognition amongst individuals with psychosis. People with psychotic disorders experience a range of debilitating cognitive impairments that do not respond well to current treatments. However, preliminary results suggest that interventions like Dr Louise's iMPV may lessen the severity of these cognitive impairments in people with schizophrenia. Furthermore, this research also seeks to understand the changes that mindfulness meditation can have on the brain networks of those living with psychosis. Brief mindfulness training has been previously shown to enhance brain network communication in non-clinical populations; however, its effect on people with psychosis, who have disrupted brain networks, has yet to be examined. Dr. Louise and Dr Carruthers are currently recruiting PhD students to follow up these lines of enquiry.

### Looking after the families affected by hoarding

Dr Maja Nedeljkovic, Glenn Little, Nina Puren and Danielle Dabley in collaboration with The Swinburne Psychology Clinic and the Melbourne Fire Brigade

Hoarding disorder is a highly debilitating disorder, which affects not only the individuals but also their families and the community. Characterised with excessive clutter of living spaces, due to excessive accumulation and non-discarding of objects, the disorder is associated with significant health consequences due to poor environmental conditions and high risk of fire and injury, that affect the whole household. While there are now effective treatments available for individuals with the disorder, many individuals with the disorder do not access these due to lack of insight into their condition. This leaves families in a very difficult position, feeling powerless and unable to change their living circumstances and often accommodating the hoarding behaviours to avoid the great distress associated with reducing the clutter. There is a dearth of research on how to support the families in managing accommodating behaviours and reducing risk to themselves and loved ones.

Our research group has focused on exploring the impact on, and the needs of, family and carers of individuals with hoarding disorder. The initial findings indicated that providing family members with practical training in rhetorical skills may increase their ability to navigate conversations about family accommodation with their loved one, and thereby potentially reduce their participation in these behaviours.

In collaboration with the Swinburne Psychology Clinic and the Melbourne Fire Brigade we also developed a group program designed to support individuals in reducing the accommodating behaviours and improving their wellbeing and relationship to their loved one. The initial evaluation of the program indicated significant improvements in participants' knowledge about, and confidence in, managing family accommodation behaviours by the end of the program. The program highlighted the importance of a more systemic approach to managing hoarding and reducing the risk to not just the individual, but the family and community.

## **Developing Online Resources for Gastrointestinal Conditions**



■ Dr Simon Knowles

Since 2004, Simon has been an academic in the Psychology discipline at Swinburne University. He recognised leading expert in the field of Psychogastroenterology, which is the application of psychological science and practice to gastrointestinal health and illness. Simon has attained over AUD\$3.2 million in competitive funding, published over 90 peer reviewed publications, and edited two books, with a third entitled "Psychogastroenterology with Adults: A Handbook for Mental Health Professionals" published in late 2019 by Routledge Press.

Gastrointestinal problems are common, with around half of the Australian community experiencing at least one gastrointestinal problem each year. On average, 30 percent of individuals living with gastrointestinal problems also report significant psychological distress which has been shown to promote non-optimal illness management strategies and lead to the exacerbation of physical symptoms. Given this, identifying optimal health strategies to promote well-being in individuals living with gastrointestinal problems is essential.

The internet is becoming an increasingly important part of clinical practice as a tool to facilitate patient well-being. Up to 92.6% of individuals with a gastrointestinal condition consult the internet to attain information about their condition. Research indicates that both now and in the future, the internet and eHealth resources will be increasing utilised by individuals with GI conditions to attain information about conditions and to seek support.

Despite the clear demand, Simon's research identified a lack of evidence-based and reliable sources of information about gastrointestinal conditions and psychological well-being on the internet. Further, access to gastrointestinal-specific psychological support services around the world was also found to be lacking.

To address this, Simon developed three online resources that provide expert-developed, evidence-based, reliable sources of information for Irritable Bowel Syndrome (IBS; www.IBS.mindovergut.com [formally www.IBSclinic.org.au]), Inflammatory Bowel Disease (www.IBD.mindovergut.com [formally www.IBDclinic.org.au]), and Gastroparesis (www.gastroparesisclinic.org). In addition, these eHealth platforms also provide gastrointestinal condition-specific psychological support programs to promote optimal psychological well-being.

To date over 300,000 individuals across the world have accessed these eHealth resources. The significant contribution of these eHealth resources to the Australian and international community was recognised in the 2019 Swinburne University Research Impact Awards.

# Dealing with occupational violence and aggression in rural health services

■ Sharon Grant, Stephanie Hartanto and Diane Sivasubramaniam

Occupational violence and aggression (OVA) against health services staff includes verbal abuse, verbal threats and intimidation, physical threats and intimidation, and physical violence perpetrated by patients or visitors. Rural health services take a range of forms and have varying team sizes, but many are small sites, with small teams of practitioners and little or no access to specialist security staff. Rural healthcare workers have a range of additional challenges in OVA situations, for example, distance to emergency back-up; lack of population that might provide a bystander response; greater access of local rural people to weapons, and poor mobile phone connectivity. When there is an OVA situation, it can be challenging to respond. One response might be to turn to other local services for assistance and support. Our project explored safe ways of dealing with OVA

situations at different types of rural health services that build on local community resources. We investigated evidence from the literature, policies, and current practices within a rural health service context, using literature/policy scoping, interviews and community co-design workshops. Responses to OVA in rural health services were captured by the following nine themes: Addressing Causes Locally, Building Capacity and Capability, Emergency Services Presence and Linkages, Internal Practices, Lockdown and Surveillance, Pushing the Training Agenda, and Response *Technologies.* The findings inform recommendations for health services in rural communities dealing with OVA situations. More broadly, the project established a methodology and template to enable rural health services to develop place-contextualised OVA (or other health-related) responses.

# It's ok if you wear a condom, it's non-consensual if you slip it off: Awareness, prevalence and severity of stealthing in emerging adults



■ Dr Simone Buzwell, Catherine Gierer and Allira Boadle

Even after conducting sexuality research for more than twenty years, Dr Simone Buzwell, continues to be surprised when she learns about a new sexual behaviour that requires examination. Stealthing is a recently coined as a term used to describe nonconsensual condom removal by a male during sexual intercourse with a female (Brodsky, 2017). As a newly defined sexual behaviour in the context of heterosexual encounters, research surrounding this practice is scarce and on-going public debate regarding the nature, prevalence and consequences of the phenomenon has perpetuated the legal ambiguity surrounding the activity. Indeed, judicial systems across the Western world are currently considering if stealthing should be criminalised and are calling for research to explore the incidence and understanding of this behaviour.

In response, Simone and her Clinical Psychology Masters students- Caty Gierer and Allira Boadle- examined the degree of familiarity with and understanding of stealthing, together with the perceptions about the severity of the behaviour, in a sample of 698 Western emerging adults (aged between 18-29 years). They found that more than 80% considered stealthing to constitute sexual assault, while almost ten percent (9.8%) of the female participants had personally been stealthed. These findings give support for the push to legislate against the behaviour especially as examination of the impact on women who have been stealthed indicated that the experience had significant consequences on their psychological wellbeing and views of their sexual self.

The project also examined the perpetrators of stealthing and found three percent of male participants admitted they had perpetrated the behaviour. Further, it was revealed that males rated the recipient of a stealthing incident as more blameworthy and as experiencing less emotional distress than did females. This provides important information that may shape prevention and education campaigns, and it is hoped these findings contribute to the recognition of stealthing in Australian legislation.

## But I want to be beautiful! Screening cosmetic customers for psychological health before the administration of aesthetic treatments

#### ■ Dr Simone Buzwell and Toni Pikoos

The Australian cosmetic industry is booming with more than one billion dollars spent in 2018 on aesthetic treatments. In particular, minor cosmetic procedures which do not require 'cutting the skin' (Medical Board of Australia) and include procedures such as Botox and Dermal Fillers are increasingly popular. Indeed, Australians have the highest cosmetic rates per capita- a rate 40% higher than the Americans- indicating how popular cosmetic procedures are in the Australian community. For many, engaging in cosmetic procedures leads to increases in self-esteem and reduced shyness. However, for some, cosmetic procedures are linked to adverse consequences. This is especially the case with minor cosmetic procedures as they are unregulated, leaving customers vulnerable to negative outcomes. What is particularly disturbing is that while many partake in cosmetic treatments without adverse effects, a significant minority have cosmetic treatments to self-manage psychological disorders. Unfortunately, engaging in cosmetic procedures will not solve underlying difficulties, life stressors or psychological problems and may exacerbate psychological conditions. Indeed, for some the practice has led to self-harm, even suicide. Other cosmetic customers have directed disappointment outwards and brought legal action against practitioners and have even

committed practitioner homicide. Other potential negative outcomes include financial distress. Indeed, a recent (August, 2018) Four Corners [ABC] report suggested some individuals deprive their families of food to fund cosmetic procedures. This led to the NSW Health Commission in 2017 offering a public warning about cosmetic practices. However, this has had no impact on the activity.

Given that it is unclear if these practices are beneficial or harmful it is timely to explore the links between people's behaviour regarding minor cosmetic procedures and their psychological health to help determine who can partake in cosmetic treatments safely. One way this might be done is to screen cosmetic customers' psychological health before treatment – but can this be done sensitively and ethically? To determine how to best screen cosmetic clients, Dr Simone Buzwell and Toni Pikoos (PhD student) have been working with Nicky Tzimas, the Director of the Cosmetic Professional Development [CPD] Institute. They have just completed their second pilot of a screening tool for cosmetic customers and are currently testing the associated information sheets and referral process that is linked with the outcome of the screening tool. Once the tool is deemed operational- they hope to make it available to cosmetic practices to ensure the ethical running of cosmetic businesses and the safety of customers and cosmetic practioners.



### Mindful Parenting Programs for Mothers

#### ■ Dr Roslyn Galligan

At Swinburne University of Technology we have developed two mindful parenting programs for mothers. The first one is an 8 session Mindfulness/Attachment group intervention where mindfulness skills are taught and fully integrated, with consideration of issues related to being a parent of an infant as way of alleviating postnatal distress. Areas covered include: 1.Introduction to Mindfulness and how it applies to parenting; 2. Being present, aware- understanding self, infant and partner; 3. Being nonjudgmental, non-reactive to parenting challenges; 4. Practicing Acceptance- fears, ideals, good enough parenting; 5. Understanding family of origin influences: nurturing and compassion; 6. Practicing security- being open, available-source of comfort, security, encouraging independence; 7. Mindfulness of emotions in you and your child; 8 Being compassionate -nurturing of self, infant and partner. The second program is an expanded mindful parenting program for mothers who have long-standing mental health difficulties, particularly with managing their emotions. These women may have children who range in age from infants to adolescents.

Students who are studying in the Clinical Psychology Masters or PhD programs at Swinburne University assist in facilitating these therapy groups with Dr Roslyn Galligan who is a clinical psychologist specialising in treating children and families. Research centres on evaluating how effective these programs are, with mothers who attend these programs answering questionnaires and being interviewed so that we might improve these programs. Our initial evaluations of the first few groups have shown that mothers not only improve in being able to be more effective and mindful in their parenting, but also improve in their capacity to regulate their own emotions, improve in their mood, and in being compassionate towards both themselves and their child.

For details regarding these programs please contact **Dr Roslyn Galligan (9214 5345).** 

#### **Examining Help-Seeking Behaviour in Fathers of Young Children**

The transition to fatherhood has important implications for the health and wellbeing of fathers and their children. We know from research that poor physical and mental health among fathers is associated with parenting difficulties, parenting stress and decreased involvement in caregiving. Promoting help-seeking for health and wellbeing during early fatherhood is important, yet research shows that men are less likely to seek help than women. Failure to seek help when health-related symptoms first appear can lead to poorer health outcomes. Late diagnoses can also increase the burden on an already stretched healthcare system.

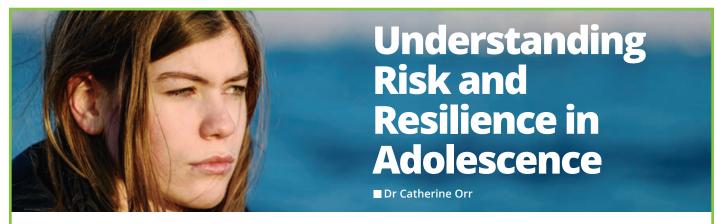
To address this area of public health concern, Ryan Peace (MPsych student) completed a study to better understand the meaning, experiences and attitudes of help-seeking behaviour in fathers with young children using a sequential explanatory research design. This project was conducted under the supervision of Dr Katie Wood and Associate Professor Rebecca Giallo and in partnership with the Murdoch

Children's Research Institute (MCRI). Fifty eligible fathers completed questionnaires. Eleven fathers and seven of their partners were then interviewed to gain greater insight into their experiences. The results showed that poorer help seeking behaviour in fathers was related to several attitudinal barriers, including, the need for control and self-reliance, minimising problems and resignation, concrete barriers, emotional control, and physical and emotional vulnerability. Fathers and partners described similar barriers in the qualitative interviews. Fathers' poor mental health, number of children, and gender of children were associated with limited help-seeking behaviour. The findings shed important light on how to best engage fathers in effective health related programs for fathers.

Post-graduate researcher: Ryan Peace, Master of Psychology (Clinical Psychology)

Primary supervisor: **Dr Katie Wood, Faculty of Health, Arts and Design, Swinburne** 

Co-supervisor: Associate Professor Rebecca Giallo, Population Health, Murdoch Children's Research Institute



Nearly two-thirds of mental health disorders begin in the first two decades of life and might reflect disturbances of typical brain development. Adolescence has been identified as a critical period for long-term mental health outcomes, with brain development and social changes during this period representing risk for chronic disability, but also opportunity for early intervention and prevention. This program of research aims to characterise the factors that influence the onset and progression of mental disorders as well as those factors that might be protective.

We use cognitive neuroscience methods to explore the genetic, environmental, and behavioural influences on mental health and wellbeing outcomes. So far, we have identified factors associated with resilience after early childhood experiences of abuse and neglect, and factors that predict which adolescents will engage in risky drinking behaviour and cannabis use. We are currently exploring ways to build resilience in children and young teens to improve their wellbeing.

#### **Improving Health among People Who Experience Homelessness** ST VINCENT'S HOSPITAL

■ Dr Jessica Mackelprang

Homelessness is a serious public health issue in Australia and rates are on the rise. Health disparities among people who experience homelessness are well-documented, but gaps in knowledge persist. In an ongoing program of research that involves collaborations within the Department of Psychological Sciences and Swinburne more broadly, and with colleagues across Australia and in the United States, Dr. Mackelprang is seeking to address some of these gaps.

Using a combination of surveys and one-on-one interviews, our Swinburne-based team is currently investigating knowledge of traumatic brain injury (TBI) among frontline workers in the homelessness sector, a study funded by the Mercy Foundation. TBI is a leading cause of death and disability worldwide and disproportionally affects homeless persons; despite this, survey responses from 150 frontline workers across the nation revealed that workers hold varying misconceptions about TBI, and one-third feel only slightly prepared or not prepared at all to work effectively with clients who may be affected by TBI. These findings have implications for developing educational resources on brain injury for homelessness service providers. In a separate study, Dr. Mackelprang is partnering with colleagues in the Department of Emergency Medicine at St. Vincent's Hospital to investigate the impact of homelessness, and the degree of homelessness, on mortality over a 15-year period among 1,575 homeless individuals who presented for emergency department (ED) care compared to a random sample of non-homeless patients who sought ED care during the same time frame. This is the first Australian study to track the mortality of a large cohort of homeless individuals over an extended period of time.

This line of research aims to improve health outcomes and health service delivery for vulnerable populations, particularly individuals who experience homelessness.

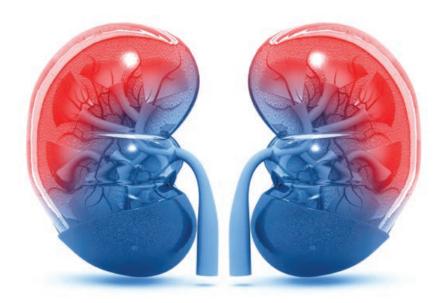
#### Supporting the wellbeing of fathers raising children with **Autism Spectrum Disorder**

There is growing recognition that along with mothers of children with ASD, fathers are at increased risk of experiencing mental health problems compared to fathers raising children without developmental disabilities. These fathers often require additional support for their wellbeing and mental health. Yet of the little direct mental health support that exists for parents of children with ASD, it is typically focused on the mother. As part of Monique Seymour's PhD research, she has explored the social support needs of fathers raising children with ASD. From a nationally representative sample of Australian families, over 70% of fathers raising a child with ASD report that support was inaccessible when needed and were significantly less likely to receive the support they required compared to fathers of children without developmental disabilities. This group of fathers also identified emotional/ informational support as the most beneficial type of social support for their wellbeing. To gain further insight into the support needs of fathers raising young children with ASD, qualitative interviews were conducted with four fathers. These fathers identified social and practical support along with respite, self-care, financial and professional support as being important to protecting their wellbeing. This group of fathers also identified barriers which impacted their access to support for their mental health. Barriers within fathers included their communication skills, attitudes towards help-seeking, being time poor, and feelings of guilt and burden. Lack of understanding from peers and small social networks were interpersonal barriers which further impacted fathers' access to social support. While, services being child/ mother focused and the processes and culture of services were structural barriers impacting fathers' access to support for their mental health. Taken together, these findings illustrate that more needs to be done within research and clinical services to support and promote the mental health of fathers raising a child with ASD.

Post-graduate researcher: Monique Seymour, Doctor of Philosophy (Clinical Psychology)

Primary supervisor: Dr Katie Wood, Faculty of Health, Arts and Design, Swinburne

Co-supervisors: Associate Professor Rebecca Giallo (Murdoch Children's Research Institute)



# The impact of chronic kidney disease on the brain

■ Dr Eric Tan

The prevalence of chronic kidney disease (CKD) has rapidly increased in the past decade, with an estimated one in ten Australians likely to develop the condition in their lifetimes and approximately 16% of adults showing signs of kidney dysfunction. These numbers are predicted to continue rising alongside related co-morbid disorders which contribute to kidney failure such as obesity, hypertension and diabetes. Transplant rates are low and a large majority of end stage CKD patients are on dialysis which comes with severe functional consequences.

A growing area of focus within CKD is the degree of cognitive impairment in the illness, in areas such as attention, processing speed, memory and forward planning. Evidence suggests that these cognitive impairments increase with decreasing kidney function, and while they can be markedly reduced post-transplant, they do not return to pre-illness levels.

A potential pathway towards cognitive impairment in CKD is as follows. When the rate of kidney filtration is reduced, uraemic toxins are not removed from the body and can cause a build-up of toxins that inhibit the central nervous system. This can lead to the indirect contribution of systemic inflammation, oxidative stress or the direct effect of neurotoxicity, which results in a greater susceptibility to changes in cognitive function and brain structure and functioning. Presently there is growing evidence for neurocognitive and neurobiological impairments in CKD, including evidence that neurocognitive problems increase with declining kidney function; however there is yet to be a comprehensive investigation of both aspects in a single CKD sample.

This ongoing study seeks to better profile neurocognitive and neurobiological changes and their impact on QOL in CKD using a comprehensive neurocognitive, neurobiological and clinical assessment battery. It is led by Dr Eric Tan and Prof Susan Rossell (Centre for Mental Health) and is conducted in collaboration with Swinburne Neuroimaging and the Nephrology departments at St Vincent's and the Austin Hospitals. The research outcomes will contribute towards a greater understanding of the kidney-brain relationship, as well as the development of new treatments for cognitive impairment across all stages of CKD.

For more information or to participate, please email erictan@swin.edu.au.

# A Focused Ethnography of Father-Inclusive Practices in an Early Parenting Centre

While there is growing recognition that parenting young children can be a time of vulnerability for some fathers, early parenting services are still primarily focused on mothers. Our research gives voice to the support needs of fathers. We conducted a focused ethnography of father-inclusive practices at an Early Parenting Centre that supports vulnerable families of children aged zero to four years. We focused on better understanding three key areas: (1) perceived outcomes for fathers and families; (2) strategies for engaging fathers; and (3) barriers to engaging fathers. In-depth qualitative interviews were completed with seven staff members at the Centre. In addition, the Early Parenting Centre's weekly session for fathers, referred to as Dads' Night, was observed on three occasions. Important strategies for engaging fathers were identified including (a) making it clear from the point of first contact that fathers are welcome and encouraged to take part in the program, (b) having a highly-skilled program facilitator to engage fathers, and (c) providing an opportunity for fathers to meet other fathers during a more informal BBQ. Some noted benefits of these fatherinclusive practices included giving fathers an opportunity to talk and create a sense of shared community, building parenting self-confidence and addressing men's mental health issues. Supporting fathers was viewed as important for promoting the father-child relationship while also allowing them to better support their partners. Some of the identified barriers to fathers' engagement were relationship conflict, and organisational policies and procedures. Our research continues to highlight the importance of supporting fathers in the early parenting period not only for their benefit but for the benefit of the whole family.

Post-graduate researcher: Jacolyn Norrish, Master of Psychology (Clinical Psychology)

Primary supervisor: **Dr Katie Wood, Faculty of Health, Arts and Design, Swinburne** 

Co-supervisors: **Associate Professor Rebecca Giallo, Bridget Robinson, Dr Matthew Roberts** 

### Virtual reality as a tool for children drowning prevention



Victoria has the lowest reported swimming and water safety competency rates in Australia; an estimated 6 out of 10 children leaving primary school in Victoria are unable to swim 50 metres continuously, making them vulnerable to drowning. Therefore, innovative solutions to engage and teach the public about water safety education are vital.

The Swinburne Babylab research team, in partnership with Life Saving Victoria, developed and implemented a virtual reality (VR) water safety program to teach children about coastal water safety and emergency response skills. The research involved the use of 360-degree videos where participants were presented with different beach environments and instructed to look for the key water safety identifiers when visiting the beach (e.g. beach warning signs, rip currents, etc.). The videos were presented via a VR head-mounted display. One hundred eighty-two children, age 10 to 12 years participated in the study. In order to compare the results of the virtual reality program, the same learning content was presented to the children via one of the three instructional learning mediums: VR, video or poster.

The results were that nearly 95% of participants demonstrated increased knowledge about water safety and retained their knowledge during the subsequent eight weeks. There was no difference in the level of water-safety knowledge obtained across the three learning mediums;. However, participants in the VR program reported higher levels of interest and enjoyment than participants using the other two mediums (91% VR, 61% video, 51% poster). Feedback from the children's teachers indicated that they thought VR was a

useful, engaging and effective method of learning. Furthermore, VR showed its effectiveness as a self-directed learning tool, allowing the participants to visualise objects and scenes, that would otherwise be difficult or hazardous to experience, making the content easier to understand and learn without the help of an expert to deliver the learning content.

Virtual reality technology is one possible innovative solution to engage the community in water safety in Victoria. Furthermore, VR technology can provide motivational advantages, requiring interaction, active participation and collaboration, along with self-directed learning, and enhanced engagement through realistic environments.

Apart from the study mentioned above, the research team also is involved in a study that will use VR eye-tracking system to provide evidence-based recommendations regarding lifeguards scanning patterns and the most appropriate ratio of pool lifeguards to patrons in public swimming pools to maximise safety and ultimately help reduce the rates of aquatic related drowning deaths within public swimming pools throughout Australia.

A/Professor Jordy Kaufman, A/Professor Therese Kean and Dr Sharon Shen, together with their PhD student Paola Araiza-Alba, are currently involved in doing research with Live Saving Victoria as part of their efforts to implement innovative technology in water safety education.









Above from top left: A/Professor Jordy Kaufman, A/Professor Therese Kean, Dr Sharon Shen, Paola Araiza-Alba

To find out more about the use of virtual reality in water safety education visit http://lsv.com. au/vr/ or if you want to find out more about the recent VR studies with children at the Swinburne Babylab visit the following link babylab.org

#### Flourishing or Floundering: Unpacking Students' Experiences of Psychological Distress

■ Assoc. Prof. Steve Theiler, Dr. Jason Skues, Dr. Jessica Sharp

In a review of literature from the past 30 years, Dr Jessica Sharp, Associate Professor Stephen Theiler and Dr Jason Skues established psychological distress is both a longstanding and current issue affecting university students worldwide.

Together, they have taken a motivational approach to understanding students' psychological distress by investigating the interplay between students' implicit motives and their perceptions about their university related goals. The three major implicit motives are the need for power, need for

affiliation and need for achievement, which are typically unconscious and function as emotional weighting dispositions that shape people's emotional experience of their circumstances. Students' goal perceptions included how well they felt they are progressing in their goals related to university, and how much pursuing their university goals interferes with their other important goals.

It was discovered that students' implicit motives play an integral role in shaping their experience of psychological distress, serving either as sources of resilience or vulnerability to psychological distress as they pursue their university related goals. An interesting outcome of this investigation is that students who differed in their levels of implicit achievement motivation experienced different types of psychological distress in relation to how well they believed they were progressing with their university goals; with links to anxiety and depression symptoms evident for high implicit achievement motivated students, and links to hostility and somatisation symptoms evident for low implicit achievement motivated students. By identifying these differentiated relationships, their research could ideally be used to target interventions to alleviate

students' psychological distress.









# Investigating compulsive buying behaviours with electroencephalography (EEG)

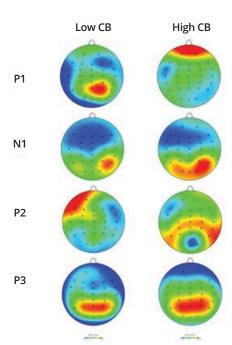
Compulsive buying (CB) has been associated with addiction (or sensitivity to reward), obsessive-compulsive disorder and hoarding. In a preliminary study, A/Prof Joseph Ciorciari and Dr Lee Lawrence investigated the underlying brain or neural responses associated with the need to purchase in a group of female participants using a shopping computer game.



Lee Matthew Lawrence -Behavioural Lab, Monash University

Using a novel EEG approach, the researchers were able to record brain responses in participants with high and low scores for compulsive buying, measured by a survey tool called the Compulsive Acquisition Scale (CAS). While performing the shopping game tasks and viewing over 60 shopping items (including luxury items), EEG was recorded continuously. Participants were also asked to respond to preferred and non-preferred images and rate their urge to buy.

The EEG data suggested that decision making was associated with frontotemporal parietal regions. Regional analysis demonstrated a strong response in both frontal and limbic regions suggestive of an addiction response or an increased sensitivity to reward, especially with luxury stimuli. Further research is exploring the early sensation processing to document the earliest non-conscious sensory responses, in highlighting why CB may be vulnerable to certain type of advertisements and product placements in media.



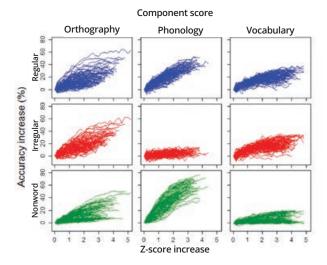
## **Dr Conrad Perry**

Learning-to-read is foundational for literacy development, yet many children in primary school fail to become efficient readers despite normal intelligence and schooling, a condition referred to as developmental dyslexia (DD). Whilst many people would like to suggest that there is one 'cure' that could help all dyslexics, this is unlikely. This is because reading is a complex process, involving vision, attention, auditory processing and language. Thus, just like the way cars can break down and need to be fixed in different ways, children get dyslexia for different reasons and need different types of help.



One of the goals of my research is to investigate the different types of problems that dyslexic children have, and to use this knowledge to devise optimal training methods to ameliorate them. To do this, I have built a mathematical model of how children read that incorporates the critical components of reading. This model can be used to predict the type of remediation any individual dyslexic child should have that would help ameliorate their problems most effectively. For example, we measured the extent to which 100 dyslexics differed on their ability to process the written form of a word (orthography), the sounds of words (phonology) and simply the number of words they had learnt in normal spoken language (vocabulary). We also measured their performance on irregular words (those that are hard to spell-out, like aisle), regular words (those that are easy to spell-out, like dog) and nonwords (those that are not real words but look like they could be, like blorf). This distinction is important in English, as different types of words are known to cause different processing difficulties. We then predicted what their performance would be if we could help increase a component score they had trouble with (e.g., processing the sounds of words).

The results of this, which are published in *Psychological Science*, can be seen in the diagram below. In that diagram, all children start at 0, which represents their current reading skill, and each line represents a single child. By increasing the predicted performance of each child on any single component score ("Z-score increase" in the diagram), we can see the extent to which it would affect their reading performance. The results show that there is great variability in the extent to which individual dyslexics benefit when a particular component score is increased, and there are even differences in the extent to which different types of word benefit. This suggests that individual children with dyslexia really are unique, and determining the best way to help them needs to take this into account.



### **Cognitive Neuropsychiatry Lab NHMRC grant success**

The Cognitive Neuropsychiatry Lab (part of the Centre for Mental Health) had success with multiple National Health and Medical Research Council (NHMRC) applications in 2018/2019.

The first was a prestigious NHMRC Senior Research Fellowship awarded to Professor Susan Rossell to conduct research into improving cognition in mental illness. This five-year program of research will be completed in collaboration with St Vincent's Hospital Melbourne. This funding will enable Professor Rossell to continue her research in the field of cognitive neuropsychology, focusing on understanding and improving the cognitive problems experienced in psychosis and related disorders.

Through this Research Fellowship, Professor Rossell aims to continue to produce impactful clinical research findings that can be translated into practice.

"Improving cognitive function has direct and indirect personal and societal benefits. In due course, such changes can result in reduced

health care and societal costs."

Dr Andrea Phillipou was awarded an NHMRC New Investigator grant to continue her novel research using eye movements to establish a biomarker in anorexia nervosa. Dr Phillipou's previous work has shown a distinctive eye movement abnormality called square wave jerks (that is, a tiny, involuntary and unconscious eye twitch) was identified in anorexia nervosa. This funding will Dr Phillipou to continue this work and uncover whether it is unique to anorexia nervosa, and could be used in diagnosis and treatment as a biomarker.

Dr Wei Lin Toh was awarded an NHMRC New Investigator grant to pursue her research investigating the types of multimodal hallucination experiences that are present in individuals with a mental health history. In addition to examining potential sensory / perceptual as well as cognitive mechanisms that may underlie these phenomena.

**Dr Andrea Phillipou (\$662,400)** for a project to establish a biomarker for anorexia nervosa;

**Dr Wei Lin Toh (\$577, 500)** for a project to investigate characteristics of multimodal hallucinations across psychiatric and neurological populations;

**Professor Susan Rossell (\$649,175)**, research fellowship, to conduct research into improving cognition in mental illness.

For more information email Prof Susan Rossell: **srossell@swin.edu.au** 



# Do underweight individuals experience weight stigma?

■ Dr Toby Mizzi & Dr Sharon Grant

Weight stigma is the social devaluation and vilification of people on the basis of their weight and can lead to prejudice, negative stereotyping and discrimination. Stigmatisation of obesity has been widely researched, however stigmatization of underweight has received less attention.

Despite thin idealization, recent studies suggest that underweight individuals may be stigmatized based on their lean body weight. It may be that thinness is idealized to a point, after which it is stigmatized. Alternatively, underweight stigma may depend on the reason for an individual's leanness. For example, individuals might presume underweight women have eating disorders, even if they do not. Eating disorders are also strongly stigmatized, possibly due to mental illness stigma. Individuals often consider mental illnesses to be controllable or self-inflicted, and may attribute eating disorders to internal causes (e.g., traits) and blame sufferers for their condition. Findings from obesity stigma research show that external attributions for body weight (e.g., genetic or medical causes) are associated with less stigma than internal attributions (e.g., overeating, laziness). However, there has been little research on the effect of causal attributions on underweight stigma. Our research aimed to compare the effect of different causal attributions for body weight on underweight stigma by examining adjective ratings of female underweight targets (described in vignettes) across three weight attribution conditions: eating disorder, physical illness and no attribution (Study 1). In addition, we examined whether causal attributions for body weight have differing effects on overweight versus underweight stigma by comparing adjective ratings of female overweight and underweight targets across physical illness (external attribution), eating and exercise habits (internal attribution), and no attribution conditions (Study 2). Here, the underweight target in the internal attribution condition was described

as 'undereating and overexercising' to facilitate comparison with the overweight target in the internal attribution condition, described as 'overeating and under-exercising'. By attributing underweight to behaviour rather than an eating disorder, this design provided a more robust test of the effect of internal versus external attributions on overweight and underweight stigma, independent of mental illness. In Study 1, the underweight eating disorder target scored significantly lower on traits representing emotional stability (e.g., even-tempered) and on 'likes food' and 'overeats' than all other targets, and significantly lower on an overall favourability rating than the underweight physical illness and control (no mention of weight) targets. The underweight physical illness target was perceived as significantly less responsible for her weight than other targets. In Study 2, we found significant differences between overweight and underweight groups reflecting jolly fat person and self-restraint stereotypes respectively. Internal attributions were associated with lower overall favourability ratings and higher perceived responsibility for both weight groups. Findings indicated that internal attributions for body weight are associated with higher weight stigma for both overweight and underweight individuals. Our findings suggest that thinness is not necessarily a protective factor against stigmatization based on body weight. Investigations of weight stigma should be expanded to include those who are thin or underweight. Weight stigma can contribute to disordered eating, prevent individuals of unhealthy weight from seeking treatment, and impair treatment.

# 'Letting go' as an antidote to McMindfulness

■ Dr Bradley Elphinstone

With the growing popularity and interest in mindfulness, often defined as nonjudgmental and present-centred awareness of momentary experience, there is a risk of falling into the trap of what has been called McMindfulness. This is where mindfulness-based practices such as meditation are used to support the existing status quo. For example, using mindfulness as a band-aid solution for work-related stress when what is really needed is to question why people are overworked and overstressed in the first place.



The point of mindfulness is not to simply reduce stress, for example, but to develop greater wisdom, compassion, and equanimity. To further understand the deeper insights and benefits of mindfulness, Dr Brad Elphinstone and colleagues have been researching nonattachment; a disposition involving a reduced tendency to 'cling to' or 'push away' any aspect of experience, including relationships, ideas, and objects.

The importance of nonattachment is based on the Buddhist realisation that our attachments – mental fixations on how we want ourselves, others, or life in general to be – is often the source of our suffering (e.g., negative thoughts, feelings, and emotions). This is because life is always changing and uncertain, and so reality might not always align with, or be accurately represented by, how we want things to be. Through the realisation that attachments, including those related to one's ego or sense of self, are just ideas that come and go, people can transcend individualistic ego-driven motivations and live with greater wisdom and compassion. Recent research at Swinburne has examined the benefits of nonattachment in a range of areas.

In an academic context, students who report greater mindfulness and nonattachment also report being more adaptable and engaged in their studies, which contributes to higher grades.

In relation to consumer orientations, nonattachment is associated with reduced materialism. This is in part because nonattachment contributes to experiencing less insecurity (e.g., low self-esteem or the tendency to compare oneself negatively with others), which can otherwise contribute to people buying things for reasons associated with status and image. People who are more nonattached also care more about ethical consumption and are less likely to be hoarders or compulsive buyers.

Recent research led by Dr Richard Whitehead at Swinburne involved interviewing people who scored high or low on nonattachment. People who were highly nonattached reported having very positive relationships due to placing fewer expectations on others. In contrast, people who scored low on nonattachment were fixated on wanting to have perfect relationships and counterproductively placed rigid expectations and demands on others. This contributed to poorer quality relationships through feeling that other people were a source of frustration and dissatisfaction.

The aim is to continue investigating the individual, interpersonal, and social benefits of nonattachment. In particular, where it may assist with managing changing situations and contribute to pro-social outcomes, such as in work environments that will be reshaped by the influence of automation and artificial intelligence. This will occur in conjunction with continued research on the benefits of nonattachment for wellbeing and mental health.



# Judging a book by its cover: Facial stereotypes

■ Dr Julian Oldmeadow



Although we are told not to judge a book by its cover, we know that people make quick judgments about others based on their facial appearance. These judgments fall along three basic dimensions, one related to how approachable a person appears, another assesses youth, attractiveness, and health, and the third assesses dominance, intelligence and competence.

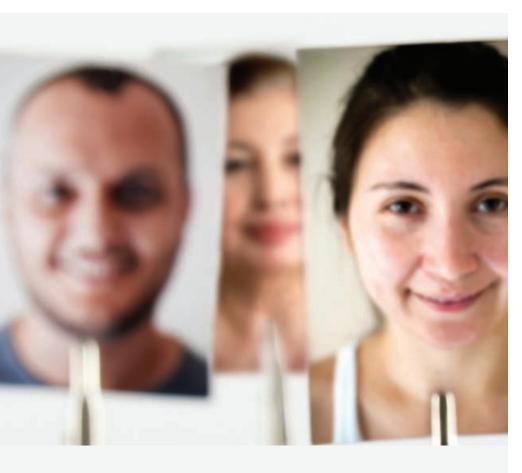
In some current research, still in its early stages, Dr Julian Oldmeadow has been exploring how these judgments come together to form clusters or types of people, and the facial characteristics of those types. Dr Oldmeadow uses statistical techniques to identify distinct clusters of faces that receive similar social judgments, and then uses face manipulation software to visualise what the typical face in each cluster looks like.

It is impossible to say how many 'types' of faces there are, and it likely varies from individual to individual as well as from culture to culture. However, preliminary research with Caucasian faces has identified eight male 'types' and eight female 'types', defined by particular combinations of perceived approachability, youthful attractiveness, and dominance or competence.

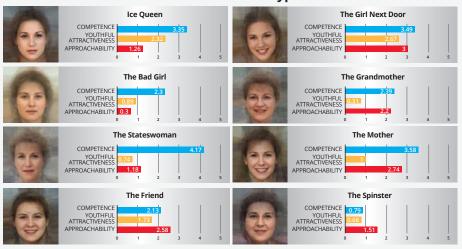
For example, The Bachelor stereotype is the type of guy you'll see on the TV show by the same name. He's a nice guy, approachable, young, healthy and good looking, and he's also quite masculine. The Statesman is an alpha male, self-assured and mature, but also not unattractive and quite approachable. Contrast him with The Godfather, also a mature alpha male but not particularly attractive, possibly unhealthy, and a bit scary or at least unapproachable. The other male types include The Dork, The Man's Man, The Delinquent, The Grumpy Old Man, and Mr Average.

Among the female stereotypes, the Ice Queen is young and attractive, and somewhat competent, but not approachable, whereas the Friend is highly approachable, young and not unattractive, but not particularly competent. The Spinster hasn't got much going for her, being rather unapproachable, not attractive, and also incompetent.

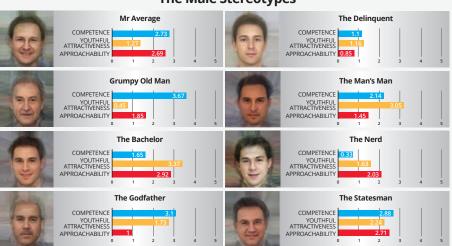
So, which face type are you? Perhaps you fit cleanly into one type, or fall somewhere in between two or three of them. And if you'd prefer to be one of the more approachable looking types, all you have to do is smile



#### The Female Stereotypes



#### The Male Stereotypes



# Researcher Spotlight

**Evaluating the Worlds of Crime, Police and Prisons** 

Assoc. Prof. Jeffrey Pfeifer



In terms of research, Associate Professor Jeffrey Pfeifer has tended to take the road less travelled both in terms of his area of specialization as well as his approach. For the past 20 years he has focussed his research energies on ensuring that he is assisting to identify and respond to the real-world challenges faces by those involved in the worlds of crime, policing and custodial institutions. In addition, he has attempted to ensure that his participation in these areas expands beyond simply "doing research on an issue" and instead has attempted to extend research findings into the creation and implementation of tools and products that are responsive to the needs of people involved in criminal activity. For example, in addition to his research, he has also been involved in the creation of a variety of programs, including: decision-making programs for offenders, wellbeing programs for prison officers as well as prisoners, Indigenous cultural programs for offenders and those incarcerated, and programs to increase the life skills of individuals preparing for re-entry after serving a sentence. In addition to program development, Associate Professor Pfeifer has also been heavily involved in evaluating programs throughout the world. To date he has evaluated a variety of offender rehabilitation and policing programs for agencies from 37 countries including; the Royal Canadian Mounted Police, the Prison Service of Namibia, the Western Australia Police Service, the Singapore Airport Authority, the Israel Prison Service, the Colorado Probation Service, the Ontario Provincial Police, and the Prison Ministry of Russia. His work in this area has been recognized in a number of ways including being the only person to have been awarded the International Corrections and Prisons Service Distinguished Research Award on two occasions



# Body worn cameras and procedural justice in encounters with police

■ Assoc. Prof. Diane Sivasubramaniam

Body-worn cameras (BWCs) have been argued to improve police accountability and legitimacy, and in turn, police-community relations following events that have been detrimental to that relationship (e.g., the police-involved death of Michael Brown in Ferguson, Missouri); however, there is little evidence directly testing this claim. Thus far, researchers have been unable to determine whether the presence of a BWC *itself* impacts citizens' perceptions of an encounter with a police officer, or whether the presence of a BWC affects the police officer's behaviour, which in turn impacts citizens' perceptions of the encounter.

It is also important to examine the impact of long-standing trust in police, which influences the way citizens perceive an encounter with a particular police officer; however, research examining citizens' perceptions of BWCs has not taken pre-existing trust in police into account.

In an ongoing research program, we examine the effects of pre-existing trust in police, the behaviour of a police officer during a traffic stop (respectful versus disrespectful), and the presence of a BWC on citizens' perceptions of encounters with a police officer.

In a recent study, we showed that pre-existing trust in police has a stabilising effect on perceptions of a specific encounter with a police officer – and the stabilising effect of trust on those perceptions is enhanced when a BWC is present. The findings indicate that citizens interpret a BWC as something of a conduit to the broader policing institution in which one trusts (or does not); and this conduit allows the trust (or distrust) in that institution to more strongly guide the interpretation of the individual encounter.

Furthermore, in our recent study, BWC presence did not impact people's perceptions of a particular encounter; this suggests that BWC presence does not itself impact citizens' perceptions of the encounter, independent of its influence on a police officer's behaviour.

This line of work has important implications for BWC policy and practice, and for the research on policing and public perceptions of justice.

Diane's work on BWCs is part of a broader program of research focusing on the social psychology of innovation in the justice system. Diane is Director of the Social Psychology of Innovation (SPI) Research Group.

Read more about Diane's work: http://www.swinburne.edu.au/health-arts-design/staff/profile/index.php?id=dsivasubramaniam and https://www.swinburne.edu.au/health-arts-design/research/social-psychology-of-innovation-research/

# Do judicial instructions improve jurors' decisions in cases with eyewitness identification evidence?

■ Dr Jennifer Beaudry & Alena Skalon

When a criminal case goes to trial, two standard approaches can be used to educate jurors about key issues that could influence their verdicts. In all criminal cases, the judge provides the jury with necessary information by reading judicial instructions. Judicial instructions can include definitions of legal terms (e.g., reasonable doubt), explain trial procedures and discuss various types of evidence (e.g., eyewitness evidence). In addition to judicial instructions, some trials also include testimony from an expert that provides relevant information to the jurors (e.g., likelihood of match between two blood samples). Expert testimony on eyewitness evidence, however, is the exception rather than the rule.

Dr Jennifer Beaudry and her PhD student, Alena Skalon (now, newly-minted Dr Alena Skalon) conducted a series of studies to investigate whether judicial instructions and expert testimony improve mock-jurors' decisions in cases with eyewitness identification evidence. The study recently published in the Journal of Experimental Criminology was the first to investigate how judicial instructions influence jurors' evaluations of eyewitness evidence. Rather than simplying hearing the eyewitness testify about who they selected from the lineup and why, the jurors also watched a video-recording of the interaction between the eyewitness and the person administering the lineup. We used this type of evidence because it is now considered best practice to videorecord identification procedures, so it is important that we understand how jurors will perceive this evidence.

In half of the videos, the lineup administrator followed best practice policy recommendations for obtaining eyewitness identification evidence; in the other half, the lineup administrator used suggestive procedures that caused the suspect to stand out in the lineup. The mock-juror participants saw an eyewitness make a correct or mistaken identification from the lineup. Half of the mock-jurors read the judicial instructions about eyewitness evidence used in Victorian courts, and half were given no additional information. Our main questions were (1) are jurors sensitive to eyewitness accuracy, (2) if so, do suggestive procedures impair that sensitivity, and (3) do judicial instructions help jurors make more accurate decisions?

We found that jurors were sensitive to eyewitness accuracy—that is, they tended to believe correct identifications more than mistaken identifications—when the evidence was obtained using best practice identification procedures. However, jurors were unable to distinguish between correct and mistaken identifications obtained using suggestive procedures. On the whole, judicial instructions did not improve jurors' decisions. Indeed, the only significant effect of judicial instructions was that they led to confusion. Participants who saw an identification obtained under suggestive circumstances were *more* willing to believe the eyewitness when they read the judicial instructions compared to those in the no-instruction control condition (ideally, jurors would have been less likely to believe suggestive identifications). Our research—the first to investigate Victorian judicial instructions—demonstrated that these judicial instructions did not improve jurors' sensitivity to eyewitness accuracy and were not an effective remedy for the damaging effects of suggestive identification procedures.

A Sample Non-Suggestive Lineup (Below) and a Sample Suggestive Lineup (Bottom)

























Note. The yellow arrow points to the suspect in each lineup; it was not present at the time of the identification.





#### **Further reading:**

Skalon, A., & Beaudry, J. L. (2019). The effectiveness of judicial instructions on eyewitness evidence in sensitizing jurors to suggestive identification procedures captured on video. *Journal of Experimental Criminology*. doi:10.1007/s11292-109-09381-2. An open access version is available at: https://psyarxiv.com/n5jem/

Skalon, A., San Roque, M., & Beaudry, J. L. (forthcoming). An interdisciplinary and cross-national analysis of legal safeguards for eyewitness evidence. In M. K. Miller & B. H. Bornstein (Eds.), *Advances in Psychology and Law, Volume 5*. Springer Nature.

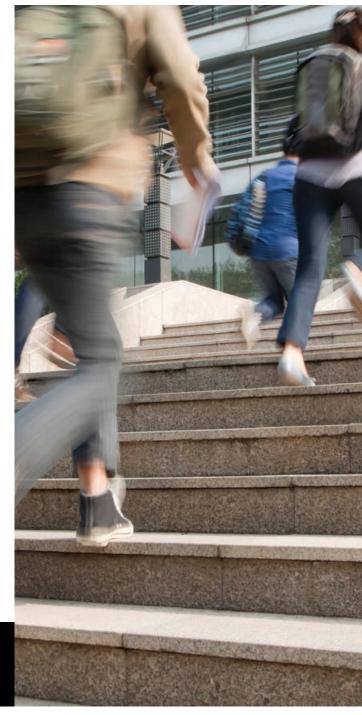
# "More than 100 years ago Swinburne opened its doors with a simple premise in mind: to provide education to a section of society otherwise denied further education":

### **Associate Professor Thielking is Continuing this Vision Through Research and the We Want to Know Study**

From a global perspective, it has long been recognised that education plays a crucial role in lifting people out of poverty. However, undergraduate attrition rates are significantly higher in students from lower socioeconomic backgrounds. Whilst research is limited, many Australian undergraduate students worry about money, work long hours to support their education, often miss classes to go to work, experience accommodation insecurity and even go without food and other necessities in order to complete their course. Even Australian homelessness services are reporting that university students are beginning to ask for support, adding increased demand for resources in an already over-burdened system.

A deeper analysis of the most recent census figures reveals 9% of the homeless population counted on census night in 2016 were university students. Yet, the impact of poverty on the undergraduate student experience is a research area that has not been given the attention it deserves and little is known about the psychosocial impacts of poverty in students. The 'We Want To Know' research, led by Associate Professor Monica Thielking is adding important findings to the limited research literature on the impact of university student poverty on student wellbeing, learning, accommodation and food security. Findings from 1,231 fully-completed surveys, published in 2019, revealed that 53% of students experienced moderate to high financial stress, with the same amount experiencing high to very high levels of psychological distress. Domestic students worked, on average, 17 hours per week, with 76% reporting that they earn less than \$20,000 a year. A quarter of students were deemed food insecure, with 15% reporting they were often experiencing hunger and went without meals. The same number had experienced homelessness in their lifetime, and the sample included 23 students who were currently experiencing homelessness. In the short amount of time that the findings have been made public, the 'We Want to Know' research has been utilised by national and state/territory government departments and non-government organisations, as well as independent media outlets. It has featured as key evidence in advocacy campaigns to improve public policy on poverty related issues, such as the Senate Inquiry into the Adequacy of Newstart and the Tasmanian House of Assembly Inquiry into Housing Affordability. The Australian Government's Australian Institute of Family Studies have listed 'We Want to Know' as a major resource in their library database under the category of Food Security and the Victorian Council of Social Services shared the report with all social services in Victoria. Creating research with real world impact that contributes to significant and positive social outcomes for disadvantaged and marginalised populations is the key driver of Associate Professor Thielking's research portfolio.

Reference: Thielking, M., Brownfield, N., Quinn, S., & Bates, G. (2019). We want to know: financial stress, accommodation insecurity and food insecurity in undergraduate students. Retrieved from Analysis and Policy Observatory Website:https://apo.org.au/node/235596



# **Department of Psychological Sciences Staff List**

#### **Professor Glen Bates**

Professor

gbates@swin.edu.au

#### **Dr. Jennifer Beaudry**

*Senior Lecturer* +61 3 9214 5028

jbeaudry@swin.edu.au

#### **Mr Tristan Berrell**

Teaching Assistant

+61 3 9214 3701 tberrell@swin.edu.au

#### **Professor Sunil Bhar**

Professor of Psychology, Chair Department of Psychological Sciences

+61 3 9214 8371 sbhar@swin.edu.au

#### Ms Catherine Brennan

Lecturer

+61 3 9214 8147 cbrennan@swin.edu.au

#### Dr. Ben Bullock

Senior Lecturer

+61 3 9214 4358 bbullock@swin.edu.au

#### **Dr. Simone Buzwell**

Senior Lecturer

+61 3 9214 8104 sbuzwell@swin.edu.au

#### Associate Professor Joseph Ciorciari

Associate Professor

+61 3 9214 8363 jciorciari@swin.edu.au

#### **Dr. Brian Cornwell**

Senior Lecturer

bcornwell@swin.edu.au

#### **Professor Christine Critchley**

Professor

ccritchley@swin.edu.au

#### Associate Professor Luke Downey

*Associate Professor* +61 3 9214 5781

Idowney@swin.edu.au

#### **Dr. Bradley Elphinstone**

Lecturer

+61 3 92144682 belphinstone@swin.edu.au

#### Dr. Lorraine Fleckhammer

Senior Lecturer

+61 3 9214 4998

lfleckhammer@swin.edu.au

#### Dr. Roslyn Galligan

Lecturer

+61 3 9214 5345 rgalligan@swin.edu.au

#### **Dr. Sharon Grant**

Senior Lecturer

+61 3 9214 4765 sgrant@swin.edu.au

#### Associate Professor Jordy Kaufman

Associate Professor +61 3 9214 5757 jkaufman@swin.edu.au

#### **Dr. Simon Knowles**

Senior Lecturer

+61 3 9214 8206 sknowles@swin.edu.au

#### Associate Professor Ann Knowles

*Associate Professor* +61 3 9214 8205

aknowles@swin.edu.au

#### Dr. Jessica Mackelprang

Senior Lecturer

(03) 92145653 jmackelprang@swin.edu.au

#### Mr Toby Mizzi

Lecturer

+61 3 9214 4436 tmizzi@swin.edu.au

#### **Professor Greg Murray**

Professor

+61 3 9214 8300 gwm@swin.edu.au

#### Associate Professor Maja Nedeljkovic

Associate Professor

+61 3 9214 4428

mnedeljkovic@swin.edu.au

#### Dr. Julian Oldmeadow

Senior Lecturer

+61 3 9214 5962

joldmeadow@swin.edu.au

#### Dr. Catherine Orr

Lecturer

+61 3 9214 5993 corr@swin.edu.au

#### Associate Professor Conrad Perry

*Associate Professor* +61 3 9214 5447

+61 3 9214 5447 cperry@swin.edu.au

#### Associate Professor Jeffrey Pfeifer

*Associate Professor* +61 3 9214 8578

jpfeifer@swin.edu.au

#### Dr. Nicole Redlich

Lecturer

nredlich@swin.edu.au

#### **Professor Susan Rossell**

Professor

srossell@swin.edu.au

#### **Professor Penelope Schofield**

Professor

pschofield@swin.edu.au

#### Associate Professor Diane Sivasubramaniam

Associate Professor

+61 3 9214 5858

dsivasubramaniam@swin.edu.au

#### Dr. Jason Skues

Senior Lecturer

+61 3 9214 4497

jskues@swin.edu.au

#### Associate Professor

**Stephen Theiler** Associate Professor

+61 3 9214 5002

stheiler@swin.edu.au

#### Associate Professor

Monica Thielking Associate Professor

+61 3 9214 4402

mthielking@swin.edu.au

#### Associate Professor Neil

Thomas

Associate Professor

+61392148742 neilthomas@swin. edu.au

#### **Dr. Benedict Williams**

Senior Lecturer

+61 3 9214 8059

bwilliams@swin.edu.au

#### Dr. Danielle Williamson

Lecturer

+61 3 9214 3701

daniellewilliamson@swin.edu.au

#### Dr. Lisa Wise

Senior Lecturer

+61 3 9214 5063 lwise@swin.edu.au

#### Dr. Katie Wood

Senior Lecturer

+61 3 9214 4627

cwood@swin.edu.au

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#### **Department of Psychological Sciences**

#### General enquiries

t: +61 3 9214 8664 e: psychology@swinburne.edu.au

#### Postal address

Department Psychological Sciences Mail H24, PO Box 218 Hawthorn Victoria 3122 Australia

#### Location

Advanced Technologies Centre (ATC) 427-451 Burwood Road Hawthorn, Victoria 3122 Australia

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