UNIVERSITY of OTAGO
Te Whare Wānanga o Otāgo
NEW ZEALAND
SAPERE AUDE

Department of Psychology

Psycolloquy 2020

The Department of Psychology's annual research symposium featuring short presentations by research students and special guests.

25 November 2020

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Psycolloquy 2020 Organizer

Dr Narun Pat

Special thanks to

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Cara Duffy
Department of Psychology Kaiāwhina
Department of Psychology Technicians

OPENING

9.00 am ***Matt Matahaere***
Mihi Whakatau and Te Aroha

MĀORI PERSPECTIVES

9.15 am ***Rawiri Ratahi***
Ko Koe Anake te Kaitiaki o tō Tuakiri***.*** You alone are the guardian of your own identity***.*** Exploring the use of pūrākau and technology as a modern tool for mental health

9.30 am ***Ben Hanara***
Māori perspectives of the brain

9.45 am ***Aroaro Tamati***
He Piki Raukura: Understanding and assessing Ao Māori child development constructs

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10.00 am MORNING TEA

NEUROSCIENCE

10.30 am Guest Speaker ***Dr. Mei Peng***
Searching for a personalised index for hedonic eating

11.00 am ***Alina Tetereva***
Long-range temporal correlations (LRTC): a novel fMRI-based brain biomarker

11.15 am ***Ashleigh Barrett-Young***
The eye as the window to the brain: Retinal biomarkers of cognitive decline across the life course

11.30 am ***Zihan Fang***
Testing the newly developed EEG Anxiety Biomarker in the treatment resistant group

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11.45 am LUNCH BREAK

MENTAL HEALTH

1.00 pm Guest Speaker ***Associate Professor Nicola Swain***
Psychological interventions for persistent pain

1.30 pm ***Andre Mason***
Using Reddit posts to take a top-down approach: Can understanding the reasons for not following through with a suicide attempt offer insight towards intervention and prevention?

1.45 pm ***Tanwen Ward***
Exploring autistic adults' engagement in tabletop role-playing games

2.00 pm ***Claire Liggins***
Further validation of the Comprehensive Assessment of Psychopathic Personality – Self-Report (CAPP-SR) in a large non-institutional sample

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2.15 pm AFTERNOON TEA

COGNITION + DEVELOPMENT

2.45 pm Guest Speaker ***Associate Professor Trent Smith***
Behavioural Economics and Dietary Choice: The McDonald's Equilibrium

3.15 pm ***Amber Lim***
Children see, children learn: social experiences relate to mental state vocabulary

3.30 pm ***Liz Dovenberg***
Fun and Meaningful Movement: A survey on sports and exercise in individuals with ASD

3:45 pm ***Yi-Sheng Wong***
Investigation of mind wandering and its relationship with task switching

4:00 pm ***Ayesha Qureshi***
Psychological intervention to improve resilience of informal carers of stroke survivors

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We would like to thank the Department of Psychology

for supporting the Department's presentation day

Searching for a Personalised Index of Hedonic Eating

Rachel Ginieis[1]; Sashie Abeywickrema[1]; Liz Franz[2]; Russell Keast[3]; Mei Peng[1]*

[1] Sensory neuroscience Laboratory, Department of Food Science, University of Otago.
[2] Department of Psychology, University of Otago
[3] Advanced Sensory Research Centre, School of Nutrition and Sports, Deakin University

Have you ever looked at old photos, and wondered why people had such uniform physiques prior to the mid-1900? Over recent decades, human body sizes have diversified enormously, commensurate with increased food availability. These sudden shifts raise fundamental questions about why, across individuals, responses to the modern food environment can vary so greatly. Physiological and psychological factors contributing to hedonic overeating are under scrutiny. In this presentation, I will discuss the separate and integrated role of human senses in determining an individual's eating behaviour, and share some of our recent findings on the journey of searching for a personalised sensory index. So far, we have gathered psychophysical sensitivity measures of five senses from 98 young males, together with their physiological measures relating to hedonic eating. These data present intriguing relationships between an individual's sensory sensitivities and susceptibility to hedonic eating.

Psychological Interventions for Persistent Pain

Nicola Swain

Department of Psychological Medicine, Dunedin School of Medicine, University of Otago, Dunedin, New Zealand.

Persistent pain is a prevalent health problem. It is considered to be biopsychosocialspiritual in nature and therefore responds to a range of treatments. Positive Psychological Interventions have been found to be useful treatments for persistent pain. A brief review of positive psychological interventions for health will be presented. The present talk will outline two current interventions, one for arthritis pain, and the second for shoulder pain. The first intervention consists of mindfulness and gratitude. The second intervention uses education, self-management and behavioural approaches. Preliminary results suggest that both pain related fear and disability can be improved. The experience of pain itself appears to also be reduced by the interventions. Future directions will be discussed.

Behavioural Economics and Dietary Choice: The McDonald's Equilibrium

Trent Smith

University of Otago, Department of Economics

Conventional economic theory views dietary choice as “optimal” from the consumer’s perspective, given material and informational constraints. This presentation will briefly review some cross-disciplinary evidence on the determinants of dietary choice in childhood, and argue that adopting an evolutionary perspective—and, in particular, evolutionary mismatch in the modern world—provides a powerful means of reconciling the economic perspective with real-world evidence. A current project examining the potential addictive power of blood sugar dynamics will be briefly discussed. Continuous glucose monitors were used to collect data (n=24,084) on glycaemic response to 579 meals consumed by non-diabetic adults. Preliminary results suggest meals from globally branded fast food restaurants exhibit blood sugar dynamics consistent with the dynamics of classical drug addiction.

Ko Koe Anake te Kaitiaki o tō Tuakiri. You Alone Are the Guardian of Your Own Identity. Exploring the Use of Pūrākau And Technology as a Modern Tool for Mental Health

Rawiri Ratahi

Department of Physical Education, Sports and Exercise Science, University of Otago, New Zealand

Ko koe anake te kaitiaki o tō tuakiri (you alone are the guardian of your own identity) was the main finding of my honours research. For Māori, identity is often constructed into a whānau (family), hapū (sub-tribe) and iwi (tribe) (Leoni, Wharerau & White, 2018). For Māori, psychological distress can be present when there is a lack of personal identity. The associated stigma and discrimination due to identity issues can further contribute to this distress. A way to explore identity is through pūrākau (narratives). Pūrākau are what connects us as Māori to our history, to our tīpuna (ancestors) and to our identity (Hakopa, 2019; Lee, 2009). The analysis of pūrākau, and practice of wānanga, help Māori connect to their identity and improve their wellbeing for mental health in a positive way (Rangihuna, Kopua, & Tipene-Leach, 2018). Many Māori struggle with not knowing where to start their journey. Utilising a kaupapa Māori methodology, with interviews and analysis of pūrākau as the method, I questioned whether a potential starting point to strengthen Māori mental wellbeing is within a digital mobile app based on pūrākau. Through this I found that the importance of analysing pūrākau through wānanga significantly helped Māori with identity reclamation, improved mental wellbeing, and a perceived increase in connectivity through better access to pūrākau within a digital mobile app.

Māori perspectives of the brain

Benjamin Hanara. Ngāti Kahungunu, Ngāti Rangi
Te Koronga

University of Otago, School of Physical Education Sport & Exercise Sciences

The brain is an element of creation that communities, cultures and individuals have been trying to understand for centuries as it is the most phenomenally unique structure within our human body. Māori culture has a set of beliefs, customs, and knowledge based upon connection to the physical and meta-physical elements of creation. Our ancestors were and we remain scientist by examining the world and experiences around us. Tangaroa (Māori deity of the Sea) represents, personifies and is guardian to the sea and all that it inhabits. There is a repository of knowledge pertaining to Tangaroa embedded within pūrākau (cultural narratives) and whakapapa (genealogies). It is from examining these specific cultural tools that I have concluded that Tangaroa is not only an atua (deity) of the sea and all its creatures, but he has a strong connection in being a Kaitiaki to the brain and its various complexities. My research addresses the gap of which there is a limited repository of Māori whakaaro (thoughts), kōrero (discussion) and mātauranga (knowledge) pertaining to the brain. Within this talk I will present the findings of my Masters research which is a Māori framework of the brain shaped by ancestral knowledge and genealogies entitled Te Āheinga Pū Reretahi. This research was conducted under the framework of Kaupapa Māori Theory, pūrākau analysis and interview transcript analysis.

He Piki Raukura: Understanding and assessing Ao Māori child development constructs

Aroaro Tamati[1,2,3], Erana Hond-Flavell[1,2,3], Mihi Ratima[2,3], Will Edwards[2,3], Ruakere Hond[2,3], Reremoana Theodore[1,3], Jesse Kokaua[3], Gareth J. Treharne[1,3] and Richie Poulton[1,3]

[1] Department of Psychology, University of Otago, Dunedin, New Zealand
[2] Te Pou Tiringa Incorporated, New Plymouth, Taranaki, New Zealand
[3] National Centre for Lifecourse Research, University of Otago, Dunedin, New Zealand

Quality early years education has been shown to have far-reaching positive impacts but most research has been conducted within Western science worldviews. Indigenous early years approaches have been found to make a difference in the lives of young indigenous children. However, there is a lack of rigorous evaluative research into effective kaupapa Māori early years programmes. Tamariki Māori are currently assessed using measures that do not take into account Māori cultural priorities such as the child's cultural context, language and whānau connections. This research project – He Piki Raukura – sought to add to our understanding of the role of kaupapa Māori immersion early years approaches by defining and measuring strengths-based Māori constructs of childhood behaviour. The study breaks new ground in Māori child development research by testing novel culturally appropriate assessments of tamariki Māori.

Long-range temporal correlations (LRTC): a novel fMRI-based brain biomarker

Alina Tetereva and Narun Pat

Department of Psychology, University of Otago, Dunedin, New Zealand.

Research has long documented a phenomenon whereby spontaneous brain activity fluctuates in a scale-free fashion. Characterized by a spectral power-law decay, this phenomenon can be quantified by long-range temporal correlations (LRTC) expressed in the Hurst exponent (H) of electroencephalogram (EEG) and functional magnetic resonance imaging (fMRI) signals. Studies have shown a variation of the H as a function of brain anatomy, conscious states, aging, personalities, and mental disorders. Yet, most studies use small samples. Thereby it is unclear whether the LRTC is useful as a biomarker in predicting individual differences of unseen individuals (outside of the model building process). Here we used a relatively large sample (n=943) from the Human Connectome Project and examined the predictability of the LRTC during resting-state fMRI on various individual differences. We first parcellated the brain into 246 regions and calculated the H of each region using Detrended Fluctuation Analysis. We then applied supervised machine-learning, using the H of all regions as features. While the prediction is poor for certain individual differences (e.g., personality traits), we found relatively good performance of the LRTC in predicting brain volume, gender, and age of unseen participants. Thus, we validated the usefulness of the LRTC as a biomarker.

The eye as the window to the brain: Retinal biomarkers of cognitive decline across the life course

Ashleigh Barrett-Young[1], Graham Wilson[2], & Richie Poulton[1]
[1] Department of Psychology, University of Otago
[2] Department of Medicine, University of Otago

It is increasingly accepted that the cerebrovascular system plays a role in cognitive decline and Alzheimer's disease. However, it is difficult to directly visualise the cerebrovascular system. The retina is the only part of the central nervous system which can be easily and non-invasively imaged, and has been proposed as a potential location for biomarkers to identify those at high risk of developing Alzheimer's. The purpose of this study was to examine whether the retinal vessel structure, measured via optical coherence tomography angiography (OCTA), was associated with cognitive decline in middle-aged adults. Participants were members of the Dunedin Multidisciplinary Health and Development Study, a longitudinal investigation of a birth cohort born in 1972-1973. Of the initial cohort of 1037 children, 94.1% were seen at the most recent assessment at age 45 in 2017-2019 (n = 938, 50.5% male). Cognitive tests were administered at ages 7, 9, and 11, and 45. Optical coherence tomography angiography was conducted at age 45. Using multiple regression, we found that cognitive decline from childhood to middle age was not associated with poorer retinal vessel measures. This indicates that OCTA may not be useful in detecting preclinical cognitive decline in the middle aged, though it may have potential clinical utility as the pathological processes progress.

Testing the newly developed EEG Anxiety Biomarker in the treatment resistant group

Zihan Fang[1], Shabah Shadli[1], Neil McNaughton[1]
[1] Department of Psychology, University of Otago, New Zealand

Anxiety disorder is a common and extremely disabling health issue. Current mental healthcare system practices symptom-based diagnosis and "trial & error" treatment selection that does not offer a satisfactory solution in terms of treatment responses and prognosis – 40-60% of patients remain treatment refractory (Bandelow & Michaelis, 2015). An EEG biomarker, goal-conflict-specific rhythmicity (GCSR) in the stop-signal task (SST), has been developed for a specific anxiety process that indicates hyper-reactivity of the behavioural inhibition system (BIS). Anxiolytics acting through different mechanisms were all found to reduce GCSR power suggesting that the GCSR biomarker could predict therapeutic outcomes of anxiolytics, and might distinguish treatment-resistant (TR) anxiety individuals from non-TR anxiety individuals that cannot be separated with superficial symptoms. The current study tested the standard GCSR biomarker paradigm in the TR anxiety group in comparison to the non-TR group and provided some preliminary observations supporting the hypothesis that the TR and the non-TR anxiety populations differ in the newly developed anxiety biomarker GCSR. Due to the elusive nature of both GCSR and treatment-refractory anxiety disorder, as well as sampling limitations, only indirect evidence was found in the study suggesting some differences between the TR and non-TR groups in the GCSR anxiety biomarker without revealing details. Nevertheless, findings of the current study proceeded to explore GCSR recordings in treatment-resistant patient groups along with non-patient groups are sufficient for encouraging further examinations of the ability of the GCSR anxiety biomarker in predicting treatment responses.

Using Reddit posts to take a top-down approach: Can understanding the reasons for not following through with a suicide attempt offer insight towards intervention and prevention?

Andre Mason[1], Kyungho Jang[1], Kirsten Morley[2], Damian Scarf[1], Sunny C Collings[3], Benjamin C. Riordan[4],

[1]Department of Psychology, University of Otago, Otago, New Zealand;
[2]University of Sydney, Sydney, Australia;
[3]Victoria University, Wellington, New Zealand;
[4]La Trobe University, Melbourne, Australia

Although the potential triggers for suicidal thoughts and behaviours have been well-documented throughout the literature, there is a paucity of research regarding the proximal factors that may stop an individual from engaging in a potentially lethal suicide attempt. Using publicly available data on Reddit, we sought to better understand the reasons that people give for not following through with a potentially lethal suicide attempt. Using key terms (e.g. “kill yourself”) within the subreddit /r/AskReddit, 45 threads where users were asked to discuss what reasons they had for not killing themselves were identified and the top posts from these threads (n = 7,272) were thematically coded. Eleven different themes were identified: friends and family, curiosity and optimism about the future, spite, purpose, transience, hobbies, animals/pets, fear of survival, fear of pain, death, and/or the afterlife, apathy/laziness, intervention. Our findings provide a broad overview about proximal protective factors that stopped individuals from killing themselves, which, in turn, offer insight towards top-down protection-focused approaches that may help to inform intervention and prevention strategies for suicide and those in suicidal crisis.

Exploring autistic adults' engagement in tabletop role-playing games

Tanwen Ward[1], Gareth Treharne[1], Brigit Mirfin-Veitch[2]

[1] Department of Psychology, University of Otago, New Zealand
[2] Donald Beasley Institute & Centre for Postgraduate Nursing Studies, University of Otago, New Zealand

Tabletop role-playing games (TRPGs) like Dungeons & Dragons are collaborative storytelling experiences that involve players controlling characters and a narrator, the Game Master, providing scenarios in which the characters can act. Researchers continue to investigate the uses of role-playing games in promoting social and emotional development. However, role-playing game research involving autistic people often focuses on therapeutic settings with children on the autism spectrum. Based on my professional experience running tabletop role-playing games, many autistic adults engage naturally without the intention of intervention, yet research regarding their motivations to do so is scarce. In this ongoing doctoral research project, I am exploring how and why some autistic adults engage in playing tabletop role-playing games using a qualitative grounded theory methodology. In this presentation, I will briefly introduce my research and goals of furthering research in both the fields of critical autism studies and role-playing game studies. I will then share my progress so far, including insights regarding my recruitment and data collection processes, such as managing insider knowledge and building rapport during semi-structured interviews. Finally, I will share my preliminary findings, the emerging categories of committing, belonging, exploring and connecting and highlight the future directions of the research project.

Further validation of the Comprehensive Assessment of Psychopathic Personality – Self-Report (CAPP-SR) in a large non-institutional sample

Claire Liggins[1] and Martin Sellbom[1]

[1] Department of Psychology, University of Otago, Dunedin, New Zealand

Psychopathic Personality Disorder (PPD) is a widely researched construct characterised by severe dysfunction in affective, interpersonal and behavioural domains. Inconsistencies across different definitions have major implications for research and practice. The Comprehensive Assessment of Psychopathic Personality (CAPP) model was designed as an inclusive concept map of PPD from a personality-based perspective. The current study evaluated construct validity of the CAPP-Self-Report against a similar personality-based measure of psychopathy, as well as a broader measure of personality and psychopathology. An undergraduate sample from the University of Otago (n = 924; 77% female; mean age = 19.7 [SD = 2.89]) was used. Participants completed the CAPP-Self-Report, the Elemental Psychopathy Assessment-Short Form (EPA-SF), and the Minnesota Multiphasic Personality Inventory-2 Restructured Form (MMPI-2-RF). Results indicated significant convergent validity associations between conceptually relevant CAPP-SR and EPA-SF scales. Furthermore, an exploratory factor analysis supported conceptual overlap between CAPP-SR and EPA-SF scales, yielding a four-factor structure reflecting antagonism, disinhibition, emotional stability, and narcissism. Finally, correlation analysis between CAPP-SR and conceptually relevant MMPI-2-RF scales supported good convergent and divergent validity of CAPP-SR scales with broader psychopathology symptoms and traits. Therefore, the current study supports the comprehensive nature of the CAPP-SR and its ability to validly operationalise the PPD construct.

Children see, children learn: Social experiences relate to mental state vocabulary

Ben Lorimer, Victoria Chen & Kate Edgar
(Presented by Amber Lim)

Department of Psychology, University of Otago, Dunedin, New Zealand

Conflicting empirical evidence has led to the intense scholarly debate on the origins and development of children's mental state (MS) understanding. The minimalist interpretation contends that young children's rich social experiences account for an understanding of behaviours that precede MS understanding; conversely, the mentalist interpretation argues that MS understanding is innate. In this study, we examined the association between children's exposure to patterns of behaviour and their MS vocabulary, and the role of maternal MS talk in scaffolding children's acquisition of MS vocabulary in 57 mother-child dyads. The 6- to 24-month-old children wore head cameras at home to document their exposure to behavioural regularities (e.g., repetitions or object searches) and maternal use of MS language. Mothers reported children's receptive MS and non-mental state (NMS) vocabulary. After controlling for age and NMS vocabulary, we found significant positive correlations between exposure to repetitions and children's MS vocabulary (desire, cognition, and emotion), and between exposure to object searches and belief and desire vocabulary. Maternal MS talk was not associated with children's MS vocabulary. From these findings, we posit that observing behavioural regularities facilitate improvements in children's MS vocabulary, which is a stepping stone towards attaining a genuine MS understanding.

Fun and Meaningful Movement: A survey on sports and exercise in individuals with ASD

Liz Dovenberg[1], Liz Franz[1], & Motohide Miyahara[2]

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[2] Department of Clinical Psychological Science, Hirosaki University, Hirosaki, Japan

The physical and mental health benefits of physical activity (PA) are well described, but many people with autism spectrum disorder (ASD) do not meet recommended activity guidelines. Developmental coordination disorder (DCD) commonly co-occurs with ASD, but its impact on PA is unclear. PA may be a feasible method for improving autistic individuals' health and well-being; one strategy to facilitate their PA engagement is to explore factors influencing participation. This study explored PA beliefs, barriers, preferences, and potential impacts of DCD in people with ASD in New Zealand. An anonymous survey was completed by 66 autistic adults ('individuals'), and 189 parents, caregivers, or service providers of someone with ASD ('parents'). Parents also completed a DCD screening tool (DCDQ). Results illustrate that most individuals have positive PA beliefs and want to improve their physical functioning. Few exercise 5+ times weekly. Common barriers include tiredness, weather, and ASD-related challenges. Parent responses revealed similar findings: their children with ASD have low PA engagement and encounter various participation barriers. Of 90 respondents with DCDQs, nearly all have suspected DCD. Overall, respondents generally perceive PA positively but experience several barriers to engagement. Additionally, results suggest highly co-occurring DCD, warranting further research into its impact on PA.

Investigation of mind wandering and its relationship with task switching

Yi-Sheng Wong[1], Adrian R. Willoughby[2], & Liana Machado[1]

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[2] Department of Psychology, Monash University Malaysia, Subang Jaya, Malaysia

Mind wandering refers to a mental state in which our attention is directed away from the task at hand toward task-unrelated thoughts. Somewhat surprisingly, although a number of studies have investigated mind wandering using task-switching paradigms, which are widely used to measure cognitive flexibility, the potential role of cognitive flexibility in individuals' tendency to mind wander has not yet been examined. In this presentation, we briefly introduce two previously proposed hypotheses of mind wandering: the executive failure hypothesis and the decoupling hypothesis. We then offer alternative explanations to these hypotheses from a switching perspective, and propose a new hypothesis that predicts a strong association between cognitive flexibility and the tendency to mind wander. Initial evidence for this hypothesis is presented based on findings emerging from several mind-wandering and task-switching studies, and preliminary results of our seminal study are discussed. Consistent with our hypothesis linking mind wandering to cognitive flexibility, we found that individuals with lower self-reported spontaneous mind-wandering traits performed poorer on task switching than those who are more likely to mind wander.

Psychological intervention to improve resilience and well-being of informal carers of stroke survivors

Ayesha Nisar Qureshi[1,2]

[1] School of Physiotherapy - University of Otago
[2] Department of Psychological Medicine - Dunedin School of Medicine - University of Otago

The majority of stroke survivors return to live in the community, relying on family members to meet their needs for care and support. This “informal care” can be substantial because of the traumatic and unexpected onset of stroke leaving families with little time to prepare for the caring role. Carers often experience lack of resilience, an overwhelming sense of burden, despair, and isolation. Given these complexities and stress of supporting people with stroke, interventions that enhance resilience and wellbeing of carers are crucial. The purpose of this programme of work is to develop an intervention to improve resilience and psychological well-being of the carers of stroke survivors. To inform the development of intervention, a systematic review of literature and in-depth interviews with carers have been carried out. For the intervention to directly respond to carers’ issues, challenges and experiences of carers have been explored. Suggestions have also been elicited about the nature of the intervention that carers think would assist them to adapt to their role. Findings suggest that an intervention consisting of coping and problem-solving skills combined with social support would help carers improve their resilience to cope with the demands of the caring role.

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