DCRC
Dementia Centre for Research Collaboration

2021 DCRC Dementia Prevention Conference

Conference Booklet

An Australian Government Initiative

UNSW SYDNEY

UNSW Ageing Futures Institute

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2021 Dementia Prevention Conference Programme

28th October 2021, 8:30am - 5:00pm (AEDT)

https://us02web.zoom.us/j/84571972992

We acknowledge and pay respects to the Traditional Custodians of the land on which we meet.

Session 1	
8:30 - 8:40	Welcome and Acknowledgement of Country – **Prof Kaarin Anstey**
8:40 - 8:45	Introduce Keynote – **Prof Nicola Lautenschlager**
8:45 - 9:45	**Keynote Presentation** – Multidomain Lifestyle Intervention to Prevent Cognitive Decline and Dementia – **Prof Laura D. Baker**
9:45 - 10:00	**BREAK**
Session 2	
	Chairs: **Prof Nicola Lautenschlager, Dr Nikki-Anne Wilson**
10:00 - 10:20	The Colour Purple: The Role of Anthocyanins in Preventing Cognitive Decline – **Prof Karen Charlton**
10:20 - 10:40	How is Sleep Altered in Early Neurodegenerative Disease? Insights from Epidemiology, Clinical Research Neuroimaging – **Prof Sharon Naismith**
10:40 - 11:00	Physical Activity and Dementia Prevention: Establishing Evidence for Implementation – **A/Prof Belinda Brown**
11:00 - 11:15	Question & Answer Panel
11:15 - 11:30	**BREAK**
Session 3	
	Chairs: **A/Prof Ruth Peters, Dr Lidan Zheng**
11:30 - 11:50	Pharmacotherapy – **Prof Ralph Martins**
11:50 - 12:10	Promoting Physical Activity in Older, Inactive Adults at Risk of Cognitive Decline The INDIGO Study – **A/Prof Kay Cox**
12:10 - 12:30	Cognitive training for dementia prevention: Evidence meet practice – **Dr Amit Lampit**
12:30 - 12:45	Question & Answer Panel
12:45 - 1:30	**LUNCH BREAK**

Session 4	
	Chairs: **Dr Terence Chong, Dr Kylie Radford**
1:30 - 1:50	Dementia Risk Assessment: Conceptual Issues and Tool Development – **Prof Kaarin Anstey**
1:50 - 2:10	Public Health Strategies for Dementia Risk Reduction – **Dr Maree Farrow**
2.10 - 2.20	Question and Answer Panel
2:20 - 2:30	**BREAK**
Session 5 – Rapid Fire Presentations	
2:30 -3:30	Chairs: **Dr Craig Sinclair, Dr Lidan Zheng** 1. Sedentary time and cognitive function in middle-aged and older adults: a systematic review and meta-analysis– **Ms Kirsten Dillon** 2. Blood-based DNA methylation of dementia-associated genes as potential biomarkers for dementia – **Dr Peter Fransquet** 3. The effects of cognition-oriented treatments and physical exercise on cognitive function in Huntington's disease: A systematic review – **Ms Katharine Huynh** 4. The relationship between alcohol use and dementia: A combined analysis of prospective, individual-participant data from 15 international studies – **Dr Louise Mewton** 5. Computerized cognitive training in Parkinson's disease: An updated systematic review and meta-analysis – **Miss Nathalie Launder** 6. Potential barriers to dementia risk reduction: An Australian survey – **Dr Nikki-Anne Wilson**
3:30 - 3:45	Reflections and IRNDP update – **Prof Kaarin Anstey, A/Prof Ruth Peters**
3:45 - 4:00	**BREAK**
Session 6 – Interactive Panel Discussion	
4:00 - 5:00	*"Why should we be concerned about dementia risk reduction now COVID-19 has become such a priority for individuals and health systems?"* Chair: **Prof Kaarin Anstey** Panel: **Prof Viviana Wuthrich, Prof Henry Brodaty, Dr Stephen Judd**. Consumer representative: **Mr Dubhglas Taylor**

Thank you for joining us!

The Dementia Centre for Research Collaboration (DCRC) is dedicated to reducing the risk of dementia for all Australians. We do this through funded projects that improve prevention efforts, assessment, timely diagnosis and optimal treatment. The DCRC is funded by the Australian government through the National Health & Medical Research Council (NHMRC). The DCRC advances the NHMRC's Strategic Roadmap for dementia research and Knowledge Translation.

Session 1

Keynote speaker: Professor Laura D. Baker

Chair: Professor Nicola Lautenschlager

Professor Laura D. Baker

Laura D. Baker, PhD is Professor of Internal Medicine, Neurology, and Public Health Sciences at Wake Forest School of Medicine, and Associate Director of the Wake Forest Alzheimer's Disease Research Center in Winston-Salem, North Carolina. She is a national leader in the areas of cognitive ageing and lifestyle interventions to protect brain health and prevent cognitive decline, Alzheimer's disease and other types of dementia.

Professor Baker has been an investigator of over 55 clinical studies on ageing and Alzheimer's disease prevention and treatment. One study that will finish next year, referred to as "EXERT," is a large multi-site randomized clinical trial testing whether aerobic exercise might be medicine to protect against cognitive decline in adults with Mild Cognitive Impairment.

Professor Baker is also a Principal Investigator of the large multi-site study supported by the Alzheimer's Association that is testing whether a change in lifestyle can protect cognitive function in Americans who may be at risk for memory decline in the future. This study, referred to as "U.S. POINTER" is part of a global network of other similar lifestyle intervention studies now conducted in nearly 30 countries worldwide.

Abstract

Multidomain lifestyle intervention to prevent cognitive decline and dementia

The spotlight on interventions to protect brain health and prevent Alzheimer's disease (AD) has recently widened to include risk modification with lifestyle changes. In the last 20 years, evidence continues to build to support cognition-enhancing effects of single-domain lifestyle interventions, which include, among others, physical exercise, diet, cognitive training, and cardiovascular risk management. A recent evolution of lifestyle trials is to combine these components as part of intervention delivery. The potential benefit of this approach on cognition in older adults, first showcased in the FINGER trial, is now under investigation by multiple groups across the nation and the globe. The combination approach offers important opportunities to boost lifestyle intervention 'dose' to examine synergistic effects of multiple domains, and to allow intervention tailoring to meet specific needs and limitations of older adults. Harmonization and data-sharing will be essential to meaningfully address the question of whether multidomain lifestyle modification can indeed be 'medicine' to protect brain health and reduce AD risk. U.S. POINTER, now being conducted in the United States of America, is one of these worldwide lifestyle intervention studies that was modeled on FINGER. The presentation will describe how this study is continuing the work started in FINGER in hopes of expanding and refining the intervention strategies to prevent cognitive decline and dementia for a more heterogeneous group of people.

Session 2

Speakers: Professor Karen Charlton, Professor Sharon Naismith & A/Professor Belinda Brown

Chair: Professor Nicola Lautenschlager and Dr Nikki-Anne Wilson

Professor Karen Charlton

Professor Karen Charlton is a nutritional epidemiologist who is a Public Health Nutrition domain leader in the Nutrition and Dietetics programme.

Professor Charlton's research investigates the role of diet on cardiovascular health and cognitive function in older adults, with a focus on flavonoids found in plant foods.

She has conducted many food-based clinical trials to elucidate how diet can improve brain health in high-risk individuals.

Abstract

The Colour Purple: The role of anthocyanins in preventing cognitive decline

The bioactive compounds that provide fruits and vegetables with purple, blue and deep red pigmentation are known as anthocyanins, a sub-class of flavonoids. Evidence from a series of clinical trials conducted by our research group has shown that consumption of anthocyanin-rich fruit significantly improved both short and long term memory, and verbal fluency in older adults with mild to moderate Alzheimer's and mixed dementia (n = 49). Interim analysis of a 6-week intervention of daily consumption of 200ml of anthocyanin-rich Queen Garnet Plum (QGP) juice did not improve memory in adults with mild cognitive decline that attended a memory training clinic but reduced the inflammatory biomarker TNF-alpha (n=31), compared to an apricot control juice. An acute high fat breakfast feeding study showed that consumption of 200ml QGP juice attenuated the reduction in post-prandial flow mediated dilatation (measure of vascular health). These study findings provide promise for dietary interventions for better brain health in older adults at risk of cognitive decline by elucidating potential mechanisms.

Professor Sharon Naismith

Professor Naismith is a Clinical Neuropsychologist, National Health and Medical Research Centre (NHMRC) Dementia Leadership Fellow and holds the Leonard P Ullman Chair in Psychology at the Charles Perkins Centre at the University of Sydney.

Professor Naismith also heads the Healthy Brain Ageing Program at the Brain and Mind Centre at the University of Sydney, an early intervention research clinic, working with older adults to assess, prevent and treat cognitive decline, dementia, Alzheimer's disease and depression.

Abstract

How is Sleep Altered in Early Neurodegenerative Disease? Insights from Epidemiology, Clinical Research Neuroimaging

With ageing, there are various changes to the sleep-wake systems, including reduced sleep time, less deep sleep, more nocturnal awakenings, daytime napping and circadian advance. Formal sleep disorders such as insomnia and obstructive sleep apnea are also more common. Many of these sleep-wake changes appear to be pronounced in dementia, and also occur in 'at risk' stages including in those with mild cognitive impairment and preclinical Alzheimer's disease, raising the possibility that sleep could a viable target for primary or secondary dementia prevention.

This talk will provide an overview of the types of sleep changes that have been linked to dementia, and will characterise how sleep disturbance is linked to cognitive decline and the development of dementia. Studies examining possible mechanisms that may link sleep disturbance to cognitive decline and dementia will be reviewed and key knowledge gaps in our understanding of these relationships with be highlighted. Possible treatment targets will also be considered.

Associate Professor Belinda Brown

A/Professor Brown is the Deputy Director of the Centre for Healthy Ageing at Murdoch University. Belinda's research focuses on understanding the role of lifestyle in maintaining a healthy ageing brain and preventing cognitive decline and dementia.

Her previous work has identified the role of physical activity in reducing toxic brain proteins associated with Alzheimer's disease, enhancing cognitive function, and maintaining brain volume.

Abstract

Physical activity and dementia prevention: Establishing evidence for implementation

Research to date has shown higher levels of everyday physical activity are linked to enhanced cognition and lower risk of dementia later in life. Nevertheless, there remains limited evidence in this field – there is not yet sufficient evidence regarding *how* physical activity benefits the brain, *what* type of physical activity is of greatest benefit, and *who* will gain the greatest benefit. Our research aims to: 1) Understand the mechanisms by which physical activity reduces dementia risk, 2) Identify the intensity of activity that contributes to the greatest brain benefits, and 3) Understand why some people respond better to physical activity, in terms of improved brain health, compared with others. We utilize observational and RCT research designs to achieve our research aims. To date, our research has identified habitual physical activity is linked to a number of markers of brain health in older adults. In addition, we have identified individual variability exists in the physical activity-brain relationship. Physical activity and structured exercise represent a preventative approach for dementia that can be rapidly implemented on a large scale, with low associated costs and utilizing widespread and readily available existing infrastructure.

Session 3

Speakers: Professor Ralph Martins, A/Professor Kay Cox and Dr Amit Lampit
Chairs: A/Professor Ruth Peters and Dr Lidan Zheng

Professor Ralph Martins

Professor Ralph Martins is the Foundation Chair in Ageing Alzheimer's Disease at Edith Cowan University within the School of Medical and Health Sciences and was appointed the Director of the Centre.

Professor Martin's collaborative seminal research involved isolating and characterising beta-amyloid and its precursor, the amyloid precursor protein (APP), which are now recognised as central to the pathogenesis of Alzheimer's disease.

He was the first to propose and demonstrate that the Alzheimer brain was under oxidative stress, which is now widely recognised by the Alzheimer research community.

Abstract TBC

Associate Professor Kay Cox

Associate Professor Cox is a researcher at the Medical School at the University of Western Australia. Kay's background is in exercise physiology and health promotion.

She has had over 30 years' experience in developing and conducting intervention trials looking at the role of lifestyle, in particular, the role of physical activity on the health of older people.

These trials have focused on the prevention of conditions affecting heart and brain health such as high blood pressure, heart disease, cognitive impairment and dementia. The interventions have looked at several strategies to encourage older adults to increase their physical activity.

Abstract

Promoting physical activity in older, inactive adults at risk of cognitive decline. The INDIGO Study

Aim: To evaluate the effects of two delivery approaches of a 6-month home-based physical activity (PA) program on adherence, PA and fitness in older, inactive adults at risk of cognitive decline.

Methods: Inactive adults, aged 60-85 years with mild cognitive impairment or subjective cognitive decline (n = 52) were recruited from the community and memory clinics. They were randomised to 6-months of 150 minutes/week moderate intensity PA with either: goal-setting with mentor support; or education and peer contact. A subset of participants (n = 36) continued for a further 6 months.

Results: Mean age (± SD) was 70.1 (6.4) years. Six-month retention was 88.5%. No significant between-group differences were observed for PA or fitness.

Post-hoc combined-group data showed a significant, moderate-large effect size increase in PA with time. PA increased by a mean 1,662 (943, 2383) steps/day (95% CI) and 1,320 (603, 2037) steps/day at 6 and 12 months ($p < 0.001$). Combined-group adherence was 88.9 (74.4 - 95.7)% and 84.6 (73.9 – 95.4)% (median, quartiles Q1-Q3) at 6 and 6-12 month respectively.

Conclusion: In this target group, both approaches were highly effective in increasing PA and fitness. This approach warrants further investigation in a larger similar target group.

Dr Amit Lampit

Dr Lampit is a Senior Research Fellow at the Academic Unit for Psychiatry of Old Age, University of Melbourne.

His research focuses on developing and evaluating technology for cognitive training delivery, as well as integration with sensors and assistive technology.

He was awarded a prestigious CR Roper Fellowship to lead an international evidence synthesis initiative aiming to refine the evidence for computerised cognitive training in ageing and across brain disorders.

Abstract

Cognitive training for dementia prevention: Evidence meet practice

Computerised cognitive training (CCT) has gained immense popularity as a scalable and efficacious intervention in older adults and a growing number of brain disorders. Following over two decades of research and hundreds of clinical trials, the field is moving from asking *whether* CCT should be used into *how* we can maximise its dementia prevention potential going forward.

Since the evidence base is large and methodologically heterogenous, methods such as multivariate and network meta-analysis allow us to compare different CCT approaches (e.g., training dose, content and delivery) in order to detect which are more likely to be beneficial. Similarly, we can estimate the unique value of individual intervention components ('active ingredients') across settings, as well as how CCT can combined with other interventions.

Whereas many of the new insights can move into implementation, others still require technological solutions to fit clinical trials and practice. To close this gap, we are currently translating the evidence into novel CCT delivery, personalisation and integration technologies in areas of unmet needs, with a strong emphasis on flexibility and affordability to maximise clinical uptake. We will review key design aspects of these systems, and demonstrate our most recent software for simultaneous cognitive and physical exercise.

Session 4

Speakers: Professor Kaarin Anstey (DCRC Director) and Dr Maree Farrow

Chairs: Dr Terrence Chong and Dr Kylie Radford

Professor Kaarin Anstey (DCRC Director)

Professor Anstey is an ARC Laureate Fellow and Scientia Professor at NeuRA and Chairs the International Research Network on Dementia Prevention.

Kaarin's research focuses on the causes and prevention of cognitive ageing, dementia and common mental disorders in adulthood.

Professor Anstey is also Director of the UNSW Ageing Futures Institute, leads an NHMRC Centre of Research Excellence in Cognitive Health and is Deputy Director of the ARC Centre of Excellence.

Abstract

Dementia risk assessment: conceptual issues and tool development

Background and aims: We aimed to evaluate the conceptual issues in dementia risk assessment and design a tool for use in low resource settings that is based on current evidence.

Method: A narrative review was conducted to synthesise conceptual issues in tool development and application. An empirical study was conducted to develop a new risk assessment tool. Risk factors were selected from high quality systematic reviews of risk factors for Alzheimer's disease (AD) and dementia.

Results: Risk assessment for dementia is complicated by the long prodromal period of the disease, the complexity in relationships among risk factors and the different interpretations of risk depending on life stage. Tools that include disease biomarkers (risk indicators) will be stronger predictors of outcomes but may not be applicable in low resource settings or at younger ages. Tools focussing on vascular risk factors are likely to be more applicable in mid-life. Tools that are based on models of best fit statistically using large datasets and genetic markers may be parsimonious but may lack useful information for guiding prevention in primary care or in low resource settings. Through reviewing systematic reviews of risk factors from cohort studies with dementia outcomes, we identified 17 risk factors for inclusion in a new tool called 'CogDrisk' for use in middle and older-aged adults.

Conclusion: Dementia risk assessment needs to take account of the desired outcome, setting and population. The CogDrisk is a new tool to inform dementia prevention in a variety of applied settings and research.

Dr Maree Farrow

Dr Farrow is a Senior Lecturer at the Wicking Dementia Research and Education Centre at the University of Tasmania, and teaches into the Public Health and Dementia stream of the Centre's postgraduate program and leads the delivery and evaluation of the evaluation of the Preventing Dementia Massive Open Online Course.

Maree's research focuses on development and evaluation of evidence-based dementia risk reduction interventions including online tools for accessible use in the community and evaluating the impact of these interventions on dementia risk knowledge, attitudes and behaviour, as well as their acceptability to consumers.

Abstract

Public health strategies for dementia risk reduction

In its global action plan on the public health response to dementia, the World Health Organization recommends raising awareness about the modifiable risk factors for dementia, linking with programs for other non-communicable diseases, and implementing evidence-based interventions for reducing dementia risk. This will require public education and community-based interventions in addition to the intensive individual risk modification programs currently being trialled. Work being undertaken by the Wicking Dementia Research and Education Centre aims to promote dementia prevention to the Tasmanian and global communities and enable self-efficacy for dementia risk reduction. Evaluation of the Centre's Preventing Dementia Massive Open Online Course (MOOC) has demonstrated reach to 150,000 individuals across the globe, high levels of course satisfaction, and improved knowledge and motivation to make lifestyle changes to reduce dementia risk.

The Island Study Linking Ageing and Neurodegenerative Disease (ISLAND) has recruited thousands of Tasmanians aged 50 and older to provide longitudinal data on risk knowledge and behaviour, cognitive performance, and biomarkers. Participants are invited to take part in the Preventing Dementia MOOC and a variety of community-based initiatives involving partner organisations. These public health initiatives can reach more people at lower cost and contribute to reducing the future incidence of dementia.

Session 5 – Rapid Fire Review

Chairs: Dr Craig Sinclair and Dr Lidan Zheng

Kirsten Dillon

Kirsten Dillon is currently in the 3rd year of her PhD at the University of Western Ontario. Kirsten does research in the Exercise and Health Psychology lab under the supervision of Dr. Harry Prapavessis and Dr. Paul Gardiner. Her Masters work involved getting older adults up and moving while investigating its effects on cognitive function, physical function and overall quality of life. Now in her PhD, she is building off this work, looking more closely at the relationship of sedentary behaviours with cognitive function.

Title: Sedentary time and cognitive function in middle-aged and older adults: A systematic review and meta-analysis

Background: An estimated 47 million people have dementia globally, and around 10 million new cases are diagnosed yearly. Many lifestyle factors have been linked to cognitive impairment; one modifiable lifestyle factor that is emerging is sedentary time.

Objective: A systematic review and meta-analysis of peer-reviewed literature examining the association between total sedentary time with cognitive function in mid-aged and older adults.

Data sources: Eight electronic databases were searched from the start of the database to February 2021. Our search included terms related to the exposure (i.e., sedentary time), the population (i.e., mid-age and older adults), and the outcome of interest (i.e., cognitive function).

Selection criteria: PICOS framework used mid-age and older adults where there was an intervention or exposure of any sedentary time compared to any or no comparison, where cognitive function and/or cognitive impairment was measured, and all types of quantitative, empirical, observational data published in any year were included that were published in English.

Main results: Fifty-three studies met the inclusion criteria of which 24 studies had appropriate data for inclusion in the main meta-analysis. The overall meta-analysis suggested that sedentary time has no association with cognitive function ($r = -0.020$ [-0.046, 0.005], $p = 0.121$) with marked heterogeneity ($I2 = 93\%$). Subgroup analyses demonstrated a significant negative association for studies using a device to capture sedentary time $r = -0.050$ [-0.080, -0.020], $p = 0.001$) and a significant positive association for studies using self-report ($r = 0.037$ [-0.019, 0.054], $p < 0.001$).

Conclusions: The association of total sedentary time with cognitive function is weak and varies based on measurement type. How future research can improve the strength of this relationship with both a validated self-report and device-based measure of sedentary time is discussed.

Dr Peter Fransquent

Dr. Fransquet completed his PhD in late 2020. His thesis topic "Epigenetic Biomarkers in Pre-symptomatic and Diagnosed Dementia" was awarded the 2020 Monash Vice-Chancellor's Commendation for Thesis Excellence. He is currently working on genomics/epigenomics in clinical childhood psychology, and has a keen interest in all things epigenetics, lifecourse ageing, and age related disease.

Title: Blood Based DNA methylation of dementia-associated genes as potential biomarkers for dementia

Aim: We aimed to investigate whether genes that have been previously implicated in dementia pathogenesis are differently methylated in peripheral blood.

Methods: Participants included 160 cognitively healthy individuals aged 70 years and over: 73 who were subsequently diagnosed with dementia and 87 controls matched on age, gender, education, smoking and baseline cognition. A total of 49 participants also provided blood samples at diagnosis. Blood DNA methylation was measured on the Illumina MethylEPIC array, and specific methylation of several genes, including APOE, APP, BDNF, PIN1, SNCA and TOMM40 were analysed.

Results: Out of 299 probes measured across the 6 gene regions, a total of 56 were differentially methylated in dementia compared with controls. Further, 39 probes were associated with dementia prior to diagnosis compared to healthy controls. The greatest effect sizes were observed in probes within the APP gene, at diagnosis cg19423170, Δ-8.32%, adjusted $p = 0.009$, and at pre-diagnosis cg19933173, Δ -4.18%, adjusted $p < 0.0001$.

Discussion: Genes implicated in dementia pathogenesis show differential blood methylation in dementia, even prior to diagnosis. These findings not only have the potential to be an early biomarker of the syndrome, but highlight an important starting point for epigenetic prevention studies.

Ms Katherine Huynh

Ms Huynh is a PhD candidate at the Experimental Neuropsychology Research Unit Monash University. Her research focuses on examining the effects of non-pharmacological interventions on clinical and neuroimaging outcomes in people with Huntington's disease. She completed a Bachelor of Psychology (Hons Class I with University Medal) at the University of Sydney, where she used neuroimaging to characterise white matter hyperintensities in patients with frontotemporal dementia and Alzheimer's disease.

Title: The effects of cognition-oriented treatments and physical exercise on cognitive function in Huntington's disease: A systematic review

Background and aims: Cognitive and physical interventions demonstrate efficacy in improving cognition in several populations but have not been reviewed in Huntington's disease (HD). This systematic review aims to examine the effects of cognitive and physical interventions in HD.

Methods: Electronic databases were searched for studies assessing the effects of cognitive or exercise interventions on cognition in HD. Eligibility was assessed independently by two reviewers. Composite effect sizes (ES) for change in cognition and psychosocial functioning were calculated as standardized mean differences. Changes in neuroimaging outcomes were considered.

Results: Fifteen studies (3 cognitive, 5 physical, 7 multidomain) were included. Interventions that included cognitive training reported larger ES on cognition, while studies of physical exercise (alone or combined with cognitive rehabilitation or stimulation) reported negligible effects. Studies with pre-manifest individuals reported greater cognitive benefits. Studies of multidomain interventions reported larger ES on psychosocial functioning. Five studies reported neuroimaging outcomes, specifically structural changes.

Discussion: While preliminary, our results indicate that cognitive training may benefit cognition in HD, especially when commenced in the pre-manifest stage. Some evidence suggests that these interventions may ameliorate structural degeneration, but functional mechanisms are unclear. Larger studies are needed to confirm the benefits of cognitive or physical interventions.

Dr Louise Mewton

Dr Mewton is a UNSW Scientia Senior Lecturer at the Centre for Healthy Brain Ageing. Louise's research focuses on the application of innovative methods, techniques and technologies to further our understanding of the epidemiology, assessment and prevention of problematic alcohol use across the lifespan. Her program of research makes links across epidemiology, information technology, neuropsychiatry and prevention research, and reflects global research priorities. Her current program of research focuses on the impact of alcohol use on the brain at key periods across the lifespan, including gestation, adolescence and older adulthood.

Title: The relationship between alcohol use and dementia: A combined analysis of prospective, individual participant data from 15 international studies

Objective: To synthesise international findings on the alcohol-dementia relationship and provide a cross-national comparison of the alcohol-dementia relationship with critical evidence for the relationship between alcohol use and dementia in under-studied populations.

Design and setting: Individual participant data meta-analysis of 15 prospective epidemiological cohort studies from countries situated in five continents. Cox regression investigated the dementia risk associated with alcohol use. Sensitivity analyses compared lifetime abstainers with former drinkers, adjusted extensively for demographic and clinical characteristics, and assessed the competing risk of death. Participants: 24,472 community dwelling individuals without a history of dementia at baseline and at least one follow-up dementia assessment. Main outcome measure: All-cause dementia as determined by clinical interview.

Results: During 151,574 person-years of follow-up, there were 2,137 incident cases of dementia (14.1 per 1,000 person-years). In the combined sample, when compared with occasional drinkers (<1.3g/day), the risk for dementia was higher for current abstainers (HR: 1.29; 95% CI: 1.13, 1.48) and lower for moderate drinkers (25g/day-44.9g/day; HR: 0.79; 95% CI: 0.64, 0.98). When the combined sample was stratified by sex and gross domestic product, current abstainers had a greater risk of incident dementia when compared with light-to-moderate drinkers in both sexes and in the higher income countries. When comparing lifetime abstainers and former drinkers there were no consistent differences in dementia risk. Among current drinkers, there was no consistent evidence to suggest that the amount of alcohol consumed in later life was significantly associated with dementia risk. Adjusting for additional demographic and clinical covariates, and accounting for competing risk of death, did not substantially affect results. When analysed at the cohort level, there was considerable heterogeneity in the alcohol-dementia relationship.

Conclusions: In a large and diverse international sample of older adults, the current study found that abstinence from alcohol is associated with an increased risk for all-cause dementia. Among current drinkers, there was no consistent evidence to suggest that the amount of alcohol consumed in later life was significantly associated with dementia risk

Miss Nathalie Launder

Miss Launder a research assistant with the Cognitive Interventions Technologies and Evaluation Group at the Academic Unit for Psychiatry of Old Age at the University of Melbourne. Her research focuses primarily on the development and evaluation of non-pharmacological interventions for the prevention and treatment of mental illness and cognitive decline. Nathalie has been involved in several systematic reviews and meta-analyses investigating the impact of computerised cognitive training and moderators on cognitive, psychosocial and functional outcomes in various populations including people with depression, Parkinson's disease and cognitively healthy older adults.

Title: Computerised cognitive training in Parkinson's disease: An updated systematic review and meta-analysis

Background and Aims: Cognitive impairment is a central non-motor symptom in Parkinson's disease (PD) for which there are currently no established treatments. Computerized cognitive training (CCT) has been found to be efficacious for cognition across many older adult populations, however, is unknown in people with PD. Thus, this study sought to investigate the efficacy of CCT and moderators in people with PD without dementia on cognitive, psychosocial and functional outcomes.

Methods: A systematic search and duplicate screening of RCTs through May 14 2020 was conducted and a multivariate meta-analysis and meta-regressions performed.

Results: Seventeen studies encompassing 679 participants were included. The effect of CCT on global cognition was moderate with no evidence of heterogeneity, and small-to-moderate for overall cognition, abstract reasoning, retrieval fluency and short-term memory. Total CCT doses exceeding 14 hours were associated with larger overall cognitive effect sizes.

Discussion: This review is the first meta-analysis on CCT in people with PD, with the evidence suggesting an overall cognitive benefit for this population. The current review provides support for larger future studies of CCT in PD as well as the establishment of CCT as a first-line treatment for cognitive decline in PD.

Dr Nikki-Anne Wilson

Dr Wilson is a Postdoctoral Fellow in Cognitive Health at Neuroscience Research Australia and Knowledge Translation Fellow with the Dementia Centre for Research Collaboration. Dr Wilson has extensive experience in the cognitive and neural mechanisms underlying the social changes in rare dementia syndromes in which she completed her PhD at the Brain and Mind Centre in 2021. Now working with Scientia Prof Anstey, Dr Wilson is currently investigating sensory loss and dementia risk and was recently awarded an RM Gibson Grant from the Australian Association of Gerontology to develop a novel theatre-based intervention.

Title: Potential barriers to dementia risk reduction: An Australian survey

Background and aims: Up to 40% of dementia cases could be prevented by addressing modifiable risk factors across the lifespan (Livingston et al., 2020). Complementing these findings are recent advances in genetic testing and the early detection of dementia. Understanding potential barriers to community uptake of risk-reduction strategies is needed to inform public policy and viable future testing options.

Methods: The survey was distributed by Orima Research to Australian residents (n = 607, 49.3% male), over the age of 18, living in metropolitan and rural areas, with 29.2% of respondents holding a Bachelor degree. A total of 51 multiple choice questions were included covering community perceptions of dementia risk reduction and testing.

Results: Only 31% of participants reported dementia risk-reduction as a current priority, although this increased with age (60+ 38.8%). Few participants (32.8%) were aware that dementia risk-reduction overlaps with other illnesses. Potential barriers identified included limited knowledge (21.9%) and motivation (29.5%); comorbid health issues (16.3%) and lack of time (15.2%). Financial barriers were reported across age groups (18-39 21.1%; 40-59 21.9%; 60+ 20.8%); reflected in 45.1% endorsing the need to lower the cost of healthy food. Over half (51.1%) of respondents would be willing to pay for dementia testing and 65.7% report this information would influence their lifestyle choices. However, there was limited support for invasive testing (lumbar puncture, 11.9%).

Conclusions: The results support the need for greater awareness of, and support to enable, dementia risk-reduction strategies for Australians. Dementia testing was welcomed, however, community uptake of more invasive testing may be challenging.

Session 6 –Interactive Panel Discussion

The **UNSW Ageing Futures Institute** is proud to present the Interactive Panel Discussion titled:

Why should we be concerned about dementia risk reduction now COVID-19 has become such a priority for individuals and health systems?

Whilst COVID-19 has been the forefront of national and international discourse from 2020 onwards, this interactive session will highlight another growing issue facing the world – the *increasing rates of dementia with ageing populations*. In this interactive session, the audience will be asked a series of questions regarding dementia prevention and COVID-19, with responses contributing to a facilitated panel discussion.

This session will be Chaired by **Professor Kaarin Anstey** (Director, UNSW Ageing Futures Institute).

Panellists

Professor Henry Brodaty (DCRC Director)

Director Professor Henry Brodaty is Scientia Professor of Ageing and Mental Health at the University of New South Wales. He is the Director of the Dementia Centre for Research Collaboration (Assessment and Better Care) and Co-Director of the Centre for Healthy Brain Ageing at UNSW. Henry's lifetime achievements in ageing, brain health and dementia research have been recognised with such awards as the Ryman (International) Prize.

Dr Stephen Judd

Dr Stephen Judd was Chief Executive of HammondCare for 25 years until she stepped down in August 2020. During his tenure HammondCare came to be acknowledged as Australia's leading provider of dementia services, sharing its expertise through consulting services including Dementia Support Australia. As well as being a Critical Friend to a number of health and aged care providers, Dr Judd is now a member of UNSW Ageing Futures Institute and is a Senior Visiting Fellow at the UNSW School of Population Health.

Professor Viviana Wuthrich

Professor Viviana Wuthrich is a Professor in the Department of Psychology, Macquarie University and the Director of the Centre for Ageing, Cognition and Wellbeing at Macquarie University. Viviana's research interests relate broadly to understanding and treating mental disorders across the lifespan. Prof Wuthrich's research has been recognised with several large grants, including an MRFF Emerging Leader 2 Fellowship (2021-2025) and the Allastair Heron Award (Australian Psychological Society) for contributions to older adult mental health.

Mr Dubhglas Taylor

Dubhglas Taylor helped develop the first dementia support organisation in Brisbane. He has supported and been involved with his partner Eileen Taylor in advocating for her and others over the years; including supporting Eileen through her dementia clinical trial journey. Dubhglas is a co-founder of DAAT (Dementia Awareness Advocacy Team) and is actively involved with their 'Remember Me' Dementia Support Group. He has a Master's Degree in Social Science and a clinical background in social work, working for the past thirty years as a therapist/supervisor/educator and lecturer.