

Ageing Mind Initiative

The University of Queensland

Summer 2009

AMI Coordinators

Profiles of Ageing Mind Initiative's coordinators, A/Prof. Nancy Pachana and A/Prof Gerard Byrne.

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New clinical ageing research group at UQ

The Ageing Mind Initiative, or AMI, will provide a focal point for clinical, translational aging-related research in a mental health context at UQ. The initiative seeks to build on existing synergies within the broad University community and beyond, to facilitate applied ageing research linkages across disciplines.

"This initiative is focused on capacity building as well as fostering young investigators," said Dr Pachana.



There is value in building on the potentials of a focused, collaborative and integrative approach to clinical research on ageing, so that UQ can act as a leader in this area. The Initiative seeks to increase facilitation of interdisciplinary clinical ageing research to capitalize on the continued strong and favourable funding environment in this area.

Aims of the UQ Centre for Applied Research in Ageing and Mental Health

- Longitudinal research in ageing using multiple modalities (i.e. neuroimaging, genetics)
- Investigator-initiated clinical trials using novel interventions (e.g. pharmacological and nonpharmacological treatments in RCTs)
- Large-scale population-based survey research on both healthy and clinical ageing populations
- Translational research, from the lab to clinic as well as clinic to lab
- Instrument development, building on international success with Geriatric Anxiety Inventory
- Strategic research collaborations with industry partners (e.g. Blue Care, Alzheimer's Australia)
- Fostering development of clinician-scientists (e.g. NH&MRC postdocs)



Spotlight on: Alzheimer's Australia (QLD)

Alzheimer's Australia (Qld) was formed in 2002 to address the needs of people with dementia, their families and carers.

Alzheimer's Australia (Qld) has a state secretariat on the Gold Coast and a Dementia and Memory Community Centre in Brisbane. There are eight independently incorporated member organisations in Queensland who work locally to support people with dementia and their families.

Alzheimer's Australia (Qld) offers a wide range of services including:

- The National Dementia Helpline (1800 100 500)
- The Dementia Behaviour Management Advisory Service (1800 699 799)
- Free community information sessions
- Subsidised education and training programs for family carers and people who work in aged care, respite and community care sectors
- Special programs for people with early stage dementia
- Personalised support and counselling for people with dementia and their families
- Support groups for people living with dementia

Introducing the AMI Coordinators: Nancy Pachana and Gerard Byrne

Associate Professor Nancy Pachana, from the School of Psychology, is involved in a number of research efforts within The University of Queensland and Australia, as well as across institutions and internationally. She is the national chair of the Australian Psychological Society's Psychology and Ageing Interest Group and serves on the board of directors of the International Psychogeriatrics Association.

Dr Pachana's research interests include neuropsychological assessment techniques and psychotherapeutic approaches for older adult populations across a variety of settings, as well as functional capacity for driving and competency.

Associate Professor Gerard Byrne is Head of Psychiatry within the School of Medicine at The University of Queensland and Director of the Geriatric Psychiatry Service at the Royal Brisbane & Women's Hospital (RBWH).



He is a visiting consultant to the multidisciplinary Memory Clinic and, with the assistance of a generous bequest, has recently established the Alzheimer's Disease Research Unit at the RBWH. Dr Byrne is a past president of the Alzheimer's Association (Queensland) and Chair-Elect of the Faculty of Psychiatry of Old Age of the Royal Australian & New Zealand College of Psychiatrists.

Dr Byrne's research interests include the causes of behavioural and psychological symptoms in both cognitive ageing and dementia, and the regulation of synaptic function in Alzheimer's disease. Both Byrne and Pachana are particularly interested in longitudinal and prospective studies of ageing, neurodegenerative diseases and mental health.

Their research efforts are now starting to have an impact internationally. For example, an on-going area of collaboration on late-life anxiety has resulted in the development and publication of an instrument, the Geriatric Anxiety Inventory (GAI), successfully used in a variety of populations. The GAI is in use in North America, Europe and Australasia, and has been translated into over a dozen languages so far (including Portuguese, Dutch, Spanish, Italian, several Scandinavian languages, Turkish and Mexican) and they have established collaborative links with several psychiatry/psychology research groups in Europe.

Development, Validation, and Use of the Geriatric Anxiety Inventory (GAI)

Anxiety symptoms and anxiety disorders are highly prevalent among older people. Anxiety disorders are more common in later life than depressive disorders, and are often difficult to distinguish from a variety of medical and neurological disorders. Yet clinical inventories measuring anxiety symptoms specifically in this population have been lacking.

The 20 item Geriatric Anxiety Inventory (GAI), a brief measure of dimensional anxiety specifically designed for use in older adults, was developed and validated in a variety of patient populations. Concurrent validity with a variety of other measures was demonstrated in both normal samples and psychogeriatric samples. Inter-rater and test-retest reliability were found to be excellent.

Several papers describing the use of the GAI in clinical populations have been published.

Cheung 2007 looked at concurrent validity of the GAI in a small psychogeriatric sample. In a paper by Pachana and colleagues (2007), the GAI showed evidence of good pre-post utility in treatment studies on an older population with simple phobia. Andrew and Dulin (2007) examined the influence of experiential avoidance on reported mental



Geriatric Anxiety Inventory (GAI)

Internationally Used

health problems in anxious and depressed older adults. Boddice, Pachana and Byrne (2008) looked at the utility of the GAI in a nursing home population.

Rozzini and colleagues (2008) assessed anxiety symptoms in a mildly cognitively impaired sample using the Italian version of the GAI. Such local adaptations are critical. The next phase of development of the GAI will reflect worldwide interest in the scale by involving key overseas collaborators in Europe, North and South America, and New Zealand in an international validation study of a short version of the GAI. The GAI is currently in use in Australia, New Zealand, Canada, the United Kingdom and the United States in a variety of clinical and research settings and has been translated into over a dozen languages.

Some of Our International Translation Collaborators

Canada

- Peter W. Ely, Ely and Associates, Ottawa, Ontario

Spain

- Andres Losada, Universidad Rey Juan Carlos, Madrid

Portugal

- Oscar Ribeiro, Aveiro University
- Horatio Firmino, Coimbra University
- Mario R. Simoes, Coimbra University

Bold New Study to Treat Alzheimer's Disease with Physical Activity

The National Health & Medical Research Council of Australia has recently funded a study to investigate whether doing physical activity for 150 minutes or more a week improves thinking and memory, or slows decline, in people with mild to moderate Alzheimer's disease.

Associate Professor Gerard Byrne is collaborating with Professor Nicola Lautenschlager and other colleagues around Australia in this exciting new project. This work builds on a recently published study in which a six month program of physical activity improved cognition over an 18 month follow-up period in people with mild cognitive impairment and subjective memory complaints. The study, published in the *Journal of the American Medical Association*

in 2008, was the first published clinical trial to demonstrate the value of physical exercise in improving cognition in this group of older people.

The new study will be run in Brisbane, Melbourne and Perth. People with mild to moderate Alzheimer's disease and a family member will be recruited during 2009.

"This study represents an innovative non-drug approach to the treatment of people with Alzheimer's disease. If exercise is proven effective, it will have great potential to improve the lives of people with AD." Said Dr. Byrne.

If you are interested in details of the study, contact Dr Gerard Byrne at gerard.byrne@uq.edu.au

Geriatric Anxiety Inventory: Early Adopters in Portugal

After the publication of the Geriatric Anxiety Inventory (GAI) in 2008, the first international research group to request translation permission was from Portugal. Psychologists Oscar Ribeiro (Aveiro University) and Mario Simões (Coimbra University), and psychiatrist Horacio Firmino (Coimbra University) compiled a translation of the inventory and have been using it in both clinical and healthy ageing samples.

The experience of translating the self-report inventory into another language posed interesting challenges for the Portuguese research group. Several items relating to gastrointestinal distress (for example, "I have butterflies in my stomach") needed to be rephrased to reflect the colloquial descriptions of anxiety by older Portuguese adults. This resulted in items being reworded to reflect local sensibilities.

Dr Pachana traveled to Portugal this year to meet and plan future research with Drs Ribeiro, Simões and Firmino. "I was incredibly impressed with the work these groups are doing across a range of research areas," said Dr. Pachana. Dr. Pachana gave a series of lectures on the GAI and late-life anxiety, including at Aveiro University (pictured).





Lifestyle and health variables in predicting white matter lesions and cognitive trajectory in ageing

Ada Lo - PhD student at The University of Queensland - Supervised by Nancy Pachana (School of Psychology, UQ), Gerard Byrne, Graham Galloway (School of Medicine, UQ) and Perminder Sachdev (School of Medicine, University of New South Wales)

As life expectancy increases, individuals are less concerned with how long they will live and more concerned about their health when they reach old age. In the last two decades, attention has turned to cognitive decline as the world is confronted with a soaring number of dementia cases as a result of the ageing population. The disability burden of dementia is severe and has significant impact on health care costs. It is, therefore, crucial to identify risk factors, such as smoking, drinking, weight, and activity level, to prevent or delay cognitive decline and, ultimately, dementia. Therefore, the objective of this PhD project is to determine longitudinally the prevalence and pattern of cognitive trajectory in older adults in a number of cognitive domains. A second objective is to identify clinical health and lifestyle variables that can discriminate individuals with different rates of cognitive changes.

In addition, my PhD project aims to investigate one of the possible mechanisms that have been hypothesized to explain age-associated cognitive changes and dementia. In particular, brain pathologies, such as atrophy and white matter lesions, have been assumed to underlie these deficits. White matter lesions increase significantly with age and have been found to be

more prevalent and severe in people with dementia. A number of risk factors for the development of white matter lesions have been demonstrated, including elevated blood pressure and cholesterol levels, a history of stroke, myocardial infarction, atrial fibrillation and carotid artery atherosclerosis. As white matter lesions share similar vascular risk factors to cognitive decline and dementia, it is possible that some of the modifiable risk factors for cognitive ageing mentioned above may also predict white matter lesions. Hence, the third aim of this research is to identify lifestyle and health variables that can predict the volume and location of white matter lesions on magnetic resonance images as well as to determine if these brain changes are the mediating factors between cognitive changes and the lifestyle variables.

Findings from this project are expected to inform healthcare workers in the identification of the most at-risk patients to receive early treatment in the hope of halting or reversing their cognitive decline. Moreover, these findings should enable healthcare workers to better define the target populations for future specific interventions, and consequently to better delineate preventive and therapeutic strategies.

National and International Funded Projects

AMI collaborators have achieved an exceptional outcome with respect to national and international grant funding to look at various critical issues and new approaches for people with Alzheimer's disease and other types of dementia. These include the following NH&MRC funded studies:

An efficacy study of a cognitive-communicative intervention to improve transition to residential care in dementia - Chenery, H. (Health & Rehabilitation Sciences), Humphreys, M. (Psychology), Hegney, D. (Nursing), Pachana, N.A. (Psychology), Byrne, G. (Medicine), Gallois, C. (Psychology), Copland, D. (Health & Rehabilitation Sciences), & Angwin, D. (Health & Rehabilitation Sciences)

Assessment of financial capacity in persons with dementia - Pachana, N.A. (Psychology), Wilson, J. (Social Work & Human Services), Stone, V. (Psychology), Tilse, C. (Social Work & Human Services), & Byrne, G. (Medicine)

Observational study of hospitalised dementia patients: protocols and outcomes - Gray, L. (Medicine), Byrne, G. (Medicine), & Pachana, N.A. (Psychology)

Prospective study of the emergence of syndromal and subsyndromal depression and anxiety during cognitive decline - Byrne, G. (Medicine), Professor Khoo, S. K. (Medicine), Pachana, N.A. (Psychology), King, R. (Medicine)

A multicentre randomised clinical trial of physical activity for the treatment of patients with Alzheimer's Disease - Lautenschlager, N. (University of Melbourne), Cox, K. (Arkansas Tech University), Almeida, O. & Flicker, L. (University of Western Australia), Ames, D. (University of Melbourne), Byrne, G. (UQ) and Hill, K. (University of Melbourne).

Professor Byrne also received a grant from the Alzheimer's Association in the USA for a project titled: *Synaptic dysfunction in Alzheimer's Disease*. Byrne, G., Dodd, P & Tannenberg, R. (Medicine).

For more information about the Ageing Mind Initiative, please contact A/Professor Nancy Pachana (n.pachana@psy.uq.edu.au) or A/Professor Gerard Byrne (gerard.byrne@uq.edu.au) or visit the Ageing Mind Initiative website (<http://www.uq.edu.au/sbs/ami>).



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