Women’s Healthy Ageing Project – Research Projects

Mental Health Stream

Depression and Mood

Project Title: Causes of depressive symptoms in early ageing

Supervisor: A/Professor Cassandra Szoeke
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Contact: A/Professor Cassandra Szoeke T: 61 3 8344 1835 E: cszoeye@unimelb.edu.au

Project Description
It is predicted that by 2051, 26.1% of Australians will be older than 65 years and 9.4% will be 80 years or older (Australian Bureau of Statistics, 2001). With prevalence rates of depression in the elderly set to rise in accordance with the population surge identifying preventative measures and means of early detection in this population is especially important. The focus of this project will be to examine factors which affect the rating of depressive symptoms on three different standardised and widely used measures in a cross-section of women entering late-life. The Hospital Anxiety and Depression Scale (HADS), the Centre for Epidemiological Studies – Depression Scale (CES-D) and the Geriatric Depression Scale (GDS) will be administered to the cohort of the Women’s Healthy Ageing Project in 2012/2013. Analysis will be conducted examining the consistency of item rating between measures in order to identify correlations between scales. Psychological and social data will also be obtained from the cohort and will allow for the identification of any factors influencing the rating of measures.

Major benefits from this study are:
1. There is opportunity for publication within one year
2. You will have access to a unique database with two decades of psychological and social data
3. This study would be particularly suited to an individual wishing to gain experience in the areas of geriatric psychology and/or depression.

Project Title: Vitamin D levels and mood

Supervisor: A/Professor Cassandra Szoeke
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Project Description
Vitamin D is made in the skin, a process that requires sun exposure, ingestion in the diet or being taken as a nutritional supplement. Adequate levels of vitamin D are essential for healthy bones and muscle function, and research has only recently started to associate low levels of vitamin D to depression and other mood related disorders. The effects of mild to moderate deficiency are less clear-cut, but symptoms may include muscle pain, weak bones, low energy, fatigue, lowered immunity, and symptoms of depression; moods swings, and sleep irregularities. In Australia, mild to moderate vitamin D deficiency is relatively common in the adult population, but the health consequences of this deficiency in apparently healthy adults are poorly understood. It is also not clear below which level in the blood, vitamin D level mood disorders may arise. The purpose of this project is to investigate the consequences of mild to moderate vitamin D deficiency (blood already collected) on mood including depression, anxiety, and wellbeing (measures already collected) in healthy women from the Women’s Healthy Ageing Project (WHAP).

Opportunities: You will have the opportunity to work with an internationally renowned cohort and research team, each with international recognition, and for publication. This project would suit a candidate with an interest in psychiatry.
Project Title: Alcohol use and effects on mood in elderly women

**Supervisor:**  A/Professor Cassandra Szoeke  
**Project Site:** Department of Medicine, University of Melbourne, Parkville, Victoria 3052  
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**Project Description**

Alcohol consumption in women is becoming an increasing public health concern. Depression, the most prevalent and persistent mental disorder in women, has been shown to be related to alcohol consumption. This study examines the association between alcohol intake and depression in community-dwelling older women.

The Women’s Healthy Ageing Project (WHAP) has prospective longitudinal, epidemiological data on alcohol consumption and mood of Australian women from age 45 over 25 years. This project will provide the opportunity for publication, as well as participant contact and clinical skills experience.

**Cognitive Health Stream**

**Preventing Dementia and Cognitive Decline**

**Project Title:** Can statins protect against cognitive decline associated with dementia?  
**Supervisor:**  A/Professor Cassandra Szoeke  
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**Contact:** A/Professor Cassandra Szoeke  T: 61 3 8344 1835  E: cszoee@unimelb.edu.au

**Project Description**

Cognitive impairment is becoming an increasingly researched field in ageing, particularly with dementia being in the top five leading causes of burden in Australia. Despite these already high and increasing prevalence rates, there is no curative treatment for AD. Therefore the identification of individuals who are at increased risk of AD and the implementation of preventive interventions is necessary until a treatment is found. Cardiovascular risk factors, including cholesterol, are typically thought to be associated with an increased risk of dementia. However the use of statins (cholesterol lowering medication) and its effect on cognitive performance has not been thoroughly investigated, particularly assessing duration of use. This research examines the short term and long term effects of cholesterol-lowering medication on cognition to determine the importance of timing and duration of statins as prevention against dementia.

The project will provide a unique opportunity to work on an Australian dataset with midlife and late-life data collected (data over 20 years), and will suit a candidate with interest in commercialisation and ageing. There is also opportunity for publication.

**Project Title: Lifestyle factors and cognitive health**

**Supervisor:**  A/Professor Cassandra Szoeke  
**Project Site:** Department of Medicine, University of Melbourne, Parkville, Victoria 3052  
**Contact:** A/Professor Cassandra Szoeke  T: 61 3 8344 1835  E: cszoee@unimelb.edu.au

**Project Description**

Several studies have described the benefit of lifestyle change for healthy ageing and cognitive improvement. Studies investigating lifestyle factors have been limited by cohort sampling bias, cross sectional designs, short follow-ups and small sample sizes. Furthermore the frequency and intensity of lifestyle alteration is still not defined. In this project we examine a 20 year longitudinal dataset to determine the influence of lifestyle factors on cognitive performance and health.

The main opportunities for this project are:

1. An opportunity for publication
2. Hands-on involvement in participant evaluation
3. Work with a large database with over 20 years of lifestyle data
4. This project would suit a candidate with an interest in neuropsychology
Project Title: Examining neuropsychological trajectories using data collected from a longitudinal study
Supervisor: A/Professor Cassandra Szoeke
Project Site: Department of Medicine, University of Melbourne, Parkville, Victoria 3052
Contact: A/Professor Cassandra Szoeke T: 61 3 8344 1835 E: cszoeke@unimelb.edu.au

Project Description
In this study we will examine neuropsychological trajectories over the 16 years for which we have cognitive data and the many associated factors such as menopausal status, psychological status, health status, cognitive performance, APOE e4 status, and so on, to determine risk and protective factors for cognitive decline. The WHAP also has neuroimaging data (structural and functional) for about half of its cohort, which we may be able to explore in connection with cognition in this project.
The project will suit a candidate with interest in neuropsychology. Benefits of this project include the opportunity for publication and that the data set has already been collected.

Project Title: Subjective memory complaints, frailty and dementia
Supervisor: A/Professor Cassandra Szoeke
Project Site: Department of Medicine, University of Melbourne, Parkville, Victoria 3052
Contact: A/Professor Cassandra Szoeke T: 61 3 8344 1835 E: cszoeke@unimelb.edu.au

Project Description
The early detection of those likely to develop dementia is essential. Subjective memory complaints have been associated with low mood and subjective cognitive decline. However better selection of those with subjective memory complaints to distinguish the worried well from those with disease is required. Some imaging studies have shown that increased amyloid in those subjective memory complaints despite no objective memory change. In this study we will examine 15 years of cognitive decline with subjective memory complaints and frailty measures, adjusting for mood.

Major benefits from this study are:-
• There is opportunity for publication
• You will work with a well-known longitudinal database with over 20 years of data already collected

Imaging Stream
Project Title: Early detection of age associated diseases using imaging
Supervisor: Professor Patricia Desmond, A/Professor Cassandra Szoeke
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Project Description
Australia’s population is ageing at a dramatic rate with about two million people aged over 70 years at present. Studies have identified cardiovascular diseases to be the most prevalent chronic disease in the elderly, followed by cognitive impairment. Identifying the at-risk population for these illnesses is an important step towards developing treatment and prevention strategies. An aim of this study is to examine emerging measures for identifying early at risk populations in an epidemiologically sampled cohort of women. These measures include the use of Magnetic Resonance Imaging (MRI) neuroimaging quantifying the accrual of white matter hyperintensities (WMH) as a measure of cerebrovascular disease (CVD). It has been found that white matter hyperintensity volume could predict 1-year cognitive decline, and therefore should be considered as a variable of interest in AD trials. This study will examine the two to ten year predictive capacity of baseline MRI.

Major benefits from this study are:
The study has data over 20 years already collected
There is opportunity for a publication
This project will suit a candidate with an interest in neuroimaging
**Project Title:** Nutrient intake and cognitive decline  
**Supervisor:** A/Professor Cassandra Szoeke  
**Project Site:** Department of Medicine, University of Melbourne, Parkville, Victoria 3052  
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**Project Description**
There is increasing evidence to suggest that diet may play an important role in preventing or delaying the onset of Alzheimer’s disease (AD). Research has reported that a Mediterranean-type diet is associated with a lower risk of prevalent AD. One important pathological hallmark of AD is beta-amyloid (Aβ) peptide deposition in the brain, resulting in formation of plaques. However little is known about the possible association between nutrient intake and Aβ plasma. In this study, we will examine whether dietary intake of nutrients (data already collected from a food frequency questionnaire) is associated with plasma Aβ levels in a cross-sectional analysis of women aged 65 years and over. Aβ levels will be examined using Positron Emission Tomography (PET) scans (data already collected) in collaboration with imaging experts. A major benefit of this project is that the nutritional data set has already been collected. The project will suit a candidate with interest in dietary factors and health, as well as media or commercialisation and industry interaction. This project also provides opportunity for publication.

**Vascular Health Theme**

**Cardiovascular Risk Stream**

**Project Title:** Vitamin D levels and cardiovascular disease  
**Supervisor:** A/Professor Cassandra Szoeke  
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**Project Description**
Low vitamin D levels are common amongst the Australian population, especially in ageing and elderly women. Vitamin D has been reported to be associated with increased cardiovascular risk. Cardiovascular disease is the primary cause of death in the first world and the top cause of death in the elderly. There is growing evidence that vitamin D is associated with a range of typical cardiovascular risk markers such as blood pressure and cholesterol, as well as a few studies demonstrating association with several other biomarkers that have been linked to cardiovascular risk such as C-reactive protein, homocysteine and fasting glucose. This study will investigate the relationship between vitamin D cardiovascular risk in healthy women.

The key benefits of this project are:
1. Opportunity for publication
2. Working with an internationally renowned cohort and research team
3. Working with a vast dataset with over 20 years of data already collected

This project is ideal for candidates with an interest in commercialisation, interaction with industry partners and media.

**Project Title:** Lipoproteins and cardiovascular risk from mid- to late-life in women  
**Supervisor:** A/Professor Cassandra Szoeke  
**Project Site:** Department of Medicine, University of Melbourne, Parkville, Victoria 3052  
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**Project Description**
Cardiovascular disease (CVD) remains as the number 1 cause of death worldwide and in Australia. Though elderly women have higher rates of cardiovascular disease compared to men, there is a lack of awareness and research of CVD amongst women. Whilst cholesterol is targeted lipid medication, we now know that statins do not have the benefit in women that was seen in men (Vírani, 2013). In this study we explore the broader lipid profile and other lipid measurements and their relation to cardiovascular risk as measured by a risk score (non-lipid based
Framingham 10-year CVD risk score). This study seeks to evaluate the relationship between all lipoproteins and cardiovascular risk as characterised by a risk score, in an Australian cohort of older women across 20 years.

This project will provide the opportunity to work with a rich database with data that spans over 20 years, as well as having participant contact and clinical skills experience. This project would suit a candidate who is interested in cardiovascular disease. There is also opportunity for publication.

**Project Title: Sex hormones and cardiovascular disease in postmenopausal women**

**Supervisor:** A/Professor Cassandra Szoeke  
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**Project Description**
Cardiovascular disease is currently the leading cause of death in Australia, and around the world. Post-menopausal women are particularly at risk of developing cardiovascular disease, thought to be due to the change of circulating sex hormone levels such as estradiol. However results are conflicting with latest evidence indicating the time of exposure is most relevant. This study aims to test the association of these sex hormones with cardiovascular disease risk over 20 years from pre-menopause to post-menopause, to determine whether sex hormone levels over time play a significant part in cardiovascular health.

You will also have the opportunity to work with a large database from an internationally recognised cohort that spans over 20 years. This project will provide opportunity for publication and to work directly with participants. Candidates who are interested in endocrinology, as well as industry relationships, would be suited to this project.

**Project Title: The relationship of physical activity, body composition and cardiovascular risks in older women**

**Supervisor:** A/Professor Cassandra Szoeke  
**Project Site:** Department of Medicine, University of Melbourne, Parkville, Victoria 3052  
**Contact:** A/Professor Cassandra Szoeke T: 61 3 8344 1835 E: cszoeeke@unimelb.edu.au

**Project Description**
Physical inactivity and high BMI are major risk factors impacting cardiovascular diseases, particularly in women. There is a paucity in longitudinal research into the interactions between exercise and BMI that could lead to high cardiovascular risks (CVRs) in women. The aims of this study are to investigate the impact of exercise exposures on BMI and CVR, and to examine the causality between these factors in aged Australian women.

Major benefits from this study are:
- The study has data over 20 years already collected
- You will work directly with participants
- There is opportunity for a publication

**Diet Theme**

**Project Title: Diet and healthy ageing**

**Supervisor:** A/Professor Cassandra Szoeke  
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**Project Description**
Several studies have described the benefit of lifestyle change for healthy ageing and cognitive improvement. For example smoking, alcohol consumption and a lack of physical activity have been linked to an increased rate of
cognitive impairment and cardiovascular diseases. Studies investigating diet have been limited by cohort sampling bias, cross sectional designs, short follow-ups, small sample sizes, and most have examined the Mediterranean diet. Furthermore the frequency and intensity of lifestyle alteration is still not defined. In this project we examine a 20 year longitudinal dataset to determine the influence of diets on cognitive performance and health.

Opportunities: You will have the opportunity to work with a rich database with lifestyle data that spans over 20 years. This project will provide clinical skills experience as it involves direct hands-on participant evaluation, and will suit a student with an interest in nutrition who is interested in publishing findings.

**Project Title: Iron and fatigue**

**Supervisor:** A/Professor Cassandra Szoeke  
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**Project Description**

Iron deficiency is prevalent in ageing women. Studies have shown that iron deficiency results in fatigue, reduced physical performance and impaired cognition. These symptoms are commonly reported in ageing populations. The Women’s Health Ageing Project is an epidemiological sampled longitudinal prospective study that contains 20 years’ worth of data on a number of measures including blood, cognition, diet and lifestyle, mood and wellbeing, hormones, illnesses, bone, and genes among others. This unique resource will therefore have the potential to identify new preventive health interventions and address issues relating to social determinants of health and health inequalities through social epidemiology across two decades. Over a hundred papers on this study have been published in peer reviewed journals. The results of this study have been internationally recognised and contributed significantly to the understanding of healthy ageing.

The benefits of this project are:

- Opportunity to publish
- The study has data over 20 years already collected
- Will suit a candidate with an interest in industry partnerships

**Project Title: Life-long exposures for healthy ageing**

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**Project Description**

Several studies have described the benefit of lifestyle change for healthy ageing and cognitive improvement. For example smoking, alcohol consumption and a lack of physical activity have been linked to an increased rate of cognitive impairment and cardiovascular diseases. Studies investigating lifestyle factors have been limited by cohort sampling bias, cross sectional designs, short follow-ups and small sample sizes. Furthermore the frequency and intensity of lifestyle alteration is still not defined. In this project we examine a 20 year longitudinal dataset to determine the influence of lifestyle (i.e. alcohol consumption, smoking, diet and physical activity) on health.

This project will involve direct hands-on participant evaluation. This project will involve direct hands-on participant evaluation. You will also have the opportunity to work with a rich database with lifestyle data that spans over 20 years and opportunity for publication.

**Physical Activity Theme**

**Project Title: Vitamin D levels and balance**

**Supervisor:** A/Professor Cassandra Szoeke, Professor Meg Morris (La Trobe University)  
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**Project Description**

Low levels of vitamin D are relatively common in older women Australian, which is concerning given that vitamin D is essential for the maintenance of healthy bone and muscle. There is evidence to suggest that vitamin D may also be important for the maintenance of balance in women. This project will examine the relationships between vitamin D
and balance in non-elderly postmenopausal women from the internationally renowned Women’s Healthy Ageing Project (WHAP).

Opportunities:- You will have the opportunity to work with an internationally renowned cohort and research team each with international recognition.

The study has data over 20 years already collected and there is opportunity for publication. This project will suit a candidate with an interest in balance, sports physiology and physiotherapy. There will be interaction with industry partners.

Project Title: Physical activities for healthy ageing
Supervisor: A/Professor Cassandra Szoeke
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Contact: A/Professor Cassandra Szoeke T: 61 3 8344 1835 E: cszoeke@unimelb.edu.au

Project Description
Several studies have described the benefit of lifestyle change for healthy ageing and cognitive improvement. A lack of physical activity have been linked to an increased rate of cognitive impairment and cardiovascular diseases. Studies investigating physical activity have been limited by cohort sampling bias, cross sectional designs, short follow-ups and small sample sizes. Furthermore the frequency and intensity of lifestyle alteration is still not defined. In this project we examine a 20 year longitudinal dataset to determine the influence of physical activity on cognitive performance and health.

This project will involve direct hands-on participant evaluation and provide clinical skills experience. You will also have the opportunity to work with a rich database with lifestyle data that spans over 20 years, as well as an opportunity for publication.

Sociology Theme

Social Engagement Stream

Project Title: Social engagement and ageing mental health
Supervisor: A/Professor Cassandra Szoeke
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Project Description
Mental health is a key aspect of health that is impacted by increasing population age. Nearly half of the world’s leading causes of life lost due to disability are mental illnesses such as mood and neurological disorders, accounting for 10% of the global burden of disease. Social engagement has been identified as a protective factor in ageing mental health, with a particular focus on the impact of loneliness. This project will investigate the relationship between social activities and mood, focusing particularly on loneliness from midlife into ageing. This study will access the Women’s Healthy Ageing Project (WHAP); an epidemiologically sampled, longitudinal prospective ageing cohort.

This project will involve direct hands-on participant evaluation and provide clinical skills experience. You will also have the opportunity to work with a rich database with clinical and lifestyle data that spans over 25 years, as well as an opportunity for publication.
Project Title: Social and physical activities in ageing women  
**Supervisor:** A/Professor Cassandra Szoeke  
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**Contact:** A/Professor Cassandra Szoeke T: 61 3 8344 1835 E: cszoee@unimelb.edu.au

**Project Description**  
Social engagement is important for the maintenance of physical health and cognitive function, with these outcomes found to be particularly evident in women. However the role of social engagement in age-related cognitive function is not well understood. In this project we will examine the relationship between social and physical activities, and physical and cognitive health from a cross-sectional perspective. The relationship between these variables over time will also be examined.

The key benefits of this project are:
1. It will involve direct hands-on participant evaluation and provide clinical skills experience
2. The opportunity to work with a rich database with data that spans over 20 years already collected
3. The opportunity for publication

**Family Violence Stream**

Project Title: Patterns of violence in Australian women – A twenty year follow up study  
**Supervisor:** A/Professor Cassandra Szoeke, Dr Rae Kaspiew (Australian Institute of Family Studies)  
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**Project Description**  
Women are more likely than men to experience various forms of violence. One in four Australian women experience physical or sexual assault from a current or former partner (Australian Bureau of Statistics, 2012), and since the age of 15 years, one in three women has experienced physical violence (Cox, 2015). Women are also over two times more likely than men to experience elder abuse (Boldy et al, 2002). This project will examine the cross-sectional relationship between women’s experiences of violence and their health and quality of life outcomes, and the impact that experiences of violence have on women’s health and quality of life over time.

The main opportunities in this project are:
- Working with a large dataset spanning over 20 years from an internationally renowned cohort
- Working with an internationally recognised research team
- You will also have the opportunity for publication
- This project would suit a student with an interest in women’s health

**Healthy Ageing Theme**

Project Title: Multimorbidity and ageing women  
**Supervisor:** A/Professor Cassandra Szoeke  
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**Project Description**  
Multimorbidity is an under-researched area, despite 80% of elderly Australians having 2 or more chronic illnesses. The optimal measure for multimorbidity has not yet been established. This research project will investigate which of the currently available multimorbidity measures has the best predictive power, working with the Healthy Ageing Program in the Department of Medicine. This is a unique opportunity to work on an Australian dataset with midlife and late life data collected over 25 years.

This project will provide opportunity for publication within one year and suits a candidate with an interest in a number of disease areas.