Curtin University

PUBLIC HEALTH HONOURS MAJOR

2025 PROJECTS

WELCOME

ABOUT HONOURS

The Public Health honours is a specialised year of study for those students who have demonstrated a high level of academic achievement in their undergraduate degree. The honours year offers an opportunity to immerse yourself in a research topic under the expert guidance of an academic supervisor, providing you with advanced training in contemporary approaches to health research.

If you have performed well in your undergraduate studies, have a capacity for defining and solving problems, enjoy discussing concepts, and exploring ideas, we encourage you to apply for honours.

Honours has the ability to improve your employment opportunities, as many prospective employees view honours as an indicator of advanced skills and knowledge and an ability to work independently. The completion of an honours year shows that you have persistence, the ability to apply yourself to achieving a complex goal, and are able to manage your time when presented with a large task to complete independently.

Public Health honours students are a select group. If you are successful in your application, we look forward to welcoming you to our stimulating, supportive and growing research community.

YOUR HONOURS COORDINATOR

Professor **Jonine Jancey**
PHHonours@curtin.edu.au

INSTRUCTIONS TO STUDENTS

We encourage you to review the available projects listed under the School of Population Health themes in this booklet. We then invite you to contact the academic supervisor responsible for the project to discuss the research project in more detail.

ABOUT THE SCHOOL OF POPULATION HEALTH

The School of Population Health is one of four schools within the Faculty of Health Sciences, and was formed in a recent merger of the Schools of Public Health and Psychology. We teach and conduct cutting edge, world-class research across six themes: Nutrition and Dietetics, Occupation, Environment and Safety, Health Economics and Data Analytics, Health Promotion and Sexology, Mental Health Psychology, and General Psychology. The breadth these themes provide, gives opportunities for the School to excel in cross-disciplinary, end-user focused research.

The research undertaken within the School has an international outlook supported by a network of strong relationships with universities across Southeast Asia and Europe, making us an attractive destination for international students wanting to pursue education in public health.

HEALTH PROMOTION & SEXOLOGY PROJECTS

PROJECT TITLE

Examining the vulnerability of culturally and linguistically diverse (CaLD) populations to homelessness in a Western Australian context

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Gemma Crawford - g.crawford@curtin.edu.au

Secondary Supervisor: Dr Krysten Blackford - k.blackford@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

People from culturally and linguistically diverse (CaLD) groups, including international students, are vulnerable to homelessness in Australia. However, this group is not currently well recognised in current prevention efforts and policies. This project will explore insights from CaLD people regarding homelessness prevention, and barriers and enablers to accessing homelessness services for both themselves and their communities in the Perth metropolitan area. It will also review the appropriateness of current homelessness evaluation tools for CaLD groups in Australia.

The research objectives are to:

• examine perceptions of homelessness prevention from CaLD people;

• explore barriers & enablers to accessing homelessness services amongst CaLD people;

• review the appropriateness of homelessness evaluation tools for CaLD people; and

• develop recommendations for homelessness prevention resources and evaluation tools specifically designed for people from CaLD backgrounds and their communities.

This research will employ a mixed methods design. A literature review will be conducted to explore current homelessness prevention, service use, and evaluation methods for CaLD populations. Participants will be recruited from community organisations with established CaLD populations and will be invited to participate in qualitative data collection (e.g. semi-structured interviews or focus groups). A semi-structured discussion guide will be developed, pilot tested with the target group, and refined prior to implementation. Commonly used homelessness evaluation tools will be assessed for use in CaLD groups in an Australian context.

The information from this research will assist with developing recommendations for homelessness prevention, service provision and evaluation for CaLD groups in WA.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Crawford, G., Connor, E., McCausland, K., Reeves, K., & Blackford, K. (2022). A scoping review on housing, mental health, and cultural and linguistic diversity. International Journal of Environmental Research and Public Health 19(24). https://www.mdpi.com/1660-4601/19/24/16946

Blackford, K., Crawford, G., McCausland, K., & Zhao, Y. (2023). Describing homelessness risk among people from culturally and linguistically diverse backgrounds in Western Australia: A cluster analysis approach. Health Promotion Journal of Australia. https://doi.org/10.1002/hpja.704 [IF 2.033]

GENERAL METHODOLOGICAL SUMMARY
Mixed methods

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?
Yes

ETHICS
Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT
Requires experience with SPSS and a current drivers license and the ability to travel within Perth to collect data.

NUMBER OF STUDENTS FOR PROJECT
1

PROJECT TITLE

A cocktail of advertising, access, availability and aquatic environments: exploring the use of zero-alcohol beverages by young Western Australians.

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: A/Prof Justine Leavy - j.leavy@curtin.edu.au

Secondary Supervisor: Dr Gemma Crawford- g.crawford@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Alcohol use amongst young people has declined over the past three decades, however there has been little change in risky drinking. Alcohol use in and around water is a risk factor for injuries, including fatal and non-fatal drowning. In Western Australia, young people are over-represented in water-related injury statistics and drowning deaths. Young people are regularly exposed to the pervasive effects of alcohol advertising. One emerging industry strategy of concern is the availability and marketing of 'zero alcohol'. 'Zero alcohol' refers to beverages that contain no or negligible amounts of alcohol. These beverages are designed as alternatives to alcoholic beverages, providing individuals with options that mimic the taste, appearance, and social experience of alcoholic beverages, without the intoxicating effects. The project aims to: 1) explore the presence and content of 'zero alcohol' beverage advertising in coastal locations in Western Australia (WA); and 2) explore what impact consumption of 'zero-alcohol' beverages in youth has on social norms and initiation of alcohol consumption.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Leavy, J. E., Della Bona, M., Abercromby, M., & Crawford, G. (2022). Drinking and swimming around waterways: the role of alcohol, sensation-seeking, peer influence and risk in young people. PLoS one, 17(11), e0276558.

Abercromby, M., Leavy, J. E., Tohotoa, J., Della Bona, M., Nimmo, L., & Crawford, G. (2021). "Go hard or go home": exploring young people's knowledge, attitudes and behaviours of alcohol use and water safety in Western Australia using the Health Belief Model. International journal of health promotion and education, 59(3), 174-191.

GENERAL METHODOLOGICAL SUMMARY

A mixed-methods, parallel exploratory design will be used. The final quantitative and qualitative data collections tools will be decided in consultation with the successful Honours candidate.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Excellent critical reading and writing skills, strong oral communication skills, self-directed, enthusiastic, likes water based activities, SPSS proficient, current drivers licence.

NUMBER OF STUDENTS FOR PROJECT

1 - 2

PROJECT TITLE

Reflection on a long-term community sexual health clinic for MSM trans, gender diverse and non-binary people

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Rochelle Tobin - rochelle.tobin@curtin.edu.au
Secondary Supervisor: Dr Daniel Vujcich - daniel.vujcich@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

The M Clinic is a Perth-based sexual health clinic that provides STI, HIV, and BBV testing and treatment for men who have sex with men (MSM), trans, gender diverse and non-binary people. The M Clinic was established in July 2010. It is a WAAC (formerly the WA AIDS Council) service and receives funding from the Department of Health. To learn more about the M Clinic visit https://www.mclinic.org.au/.

The communities that the M Clinic services are diverse in their sexual and gender identities, sexual behaviours and sexual health service needs. These identities, behaviours and service needs have changed over time. There is a need to understand the current needs of M Clinic clients and reflect on how M Clinic is meeting these needs and identify opportunities for improvement within the current service model.

This project aims to:

1) Explore how M Clinic's aims and services have changed since 2010

2) Examine the sexual health, screening and treatment needs of M Clinic clients

3) Reflect on how M Clinic is meeting the needs of its clients in 2024 and make recommendations for improvement within the current service model.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Selvey LA, Slimings C, Adams E, and Manuel J. 2018. Incidence and predictors of HIV, chlamydia and gonorrhoea among men who have sex with men attending a peer-based clinic. Sexual Health 15(5) 451-459 https://doi.org/10.1071/SH17181

Minas BC, Giele CM, Laing SC, Bastian L, Burry AW, Sales KJ, Mak DB. 2015. Early diagnosis of HIV among men who have sex with men in Western Australia: impact of a peer-led sexually transmissible infection testing service. Sexual Health .12: 360–3. ttps://doi.org/0.1071/SH14214

GENERAL METHODOLOGICAL SUMMARY

Mixed methods: Literature review, focus groups and online survey

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Understanding of the diversity within men who have sex with men (MSM), trans, gender diverse and non-binary communities.

Excellent verbal and written communication skills.

Ability to learn how to use data analysis software such as SPSS or NVivo.

NUMBER OF STUDENTS FOR PROJECT
1

PROJECT TITLE

Adapting and promoting the Mentally Healthy WA Wellbeing and Assessment Tool for Adolescents

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Professor Sharyn Burns - s.burns@curtin.edu.au
Secondary Supervisor: A/Prof Christina Pollard - c.pollard@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Mentally Healthy WA manages the Act, Belong Commit Campaign. Act-Belong-Commit (ABC) is a state-wide evidence-based mental health promotion campaign, implemented designed by Mentally Healthy Western Australia (MHWA). ABC's wellbeing self-assessment tool is a strategy of the MHWA and was developed to assess engagement in mentally healthy behaviours. The tool's questions enquire about frequencies of mentally healthy behaviours and provide scores for each of its four sections. The tool has been tested and used with adults, however there is no research to determine suitability with adolescents. This project will involve the testing of the tool using qualitative (focus group discussions and/or interviews) and quantitative methods (online survey) with school-aged adolescents (12 – 18 years). It is anticipated that the tool be tested for validity and potentially reliability. The research would also explore how best to promote the tool to adolescents. There may also be potential to test some other Mentally Healthy WA messages during the qualitative research.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Smith, J, t'Hart, L, Leaversuch, F, Walton, A, Jameson, G, Samsa, H, Clarey, M, Millar, L, Burns, S, Pollard, C.M. "Promoting mental well-being in Western Australia: Act Belong Commit® mental health promotion campaign partners' perspectives." Health promotion international 39, no. 1 (2024): daae014, https://doi.org/10.1093/heapro/daae014

Logan, B, Burns, S. 2021 Stressors among young Australian university students: a qualitative study, Journal of American College of Health, https://doi.org/10.1080/07448481.2021.1947303

GENERAL METHODOLOGICAL SUMMARY

Mixed methods: Qualitative (focus group discussions and/or interviews) and quantitative methods (online survey)

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Desirable skills

Good written and verbal communication skills

Sound organisational skills

Qualitative data collection and analysis (it is not expected students will have well developed data collection and analysis skills however a desire to learn and be involved is essential – I will be providing support and mentoring these tasks)

Use of software, for example NVIVO (again not essential but willing to learn)

NUMBER OF STUDENTS FOR PROJECT
1

PROJECT TITLE

Disease burden and government spending on promoting healthy living

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: A/Prof Delia Hendrie - d.v.hendrie@curtin.edu.au
Secondary Supervisor: Professor Janine Jancey - j.jancey@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

In Western Australia, the joint effect of risk factors on the burden of disease is 39%, with two of the leading causes being tobacco (9%) and alcohol and illicit drug use (9%). Reducing risk behaviours is a public health function, yet relatively little is spent on this compared to treatment of patients with conditions caused by these behaviours (e.g. diseases stemming from tobacco). Additionally, the extent to which spending across risk behaviours relates to the burden of associated conditions is not known. The purpose of this research is to assess health spending on risk factors for leading causes of disease burden, including smoking, harmful levels of alcohol consumption and gambling. Expenditure will be compared with the health impact of these conditions, for example, the number of life years lost, and the cost of treating these conditions. Findings of the study will be shared with health agencies responsible for promoting healthy living, which will provides these agencies with crucial information with which to advocate for additional resources to counter marketing by corporates involved in production and distribution of products negatively impacting on health and well-being. The extent of this marketing will also be explored. More generally, findings will potentially contribute to improving population health and the allocative efficiency of health spending.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Very little research has addressed the question of efficient allocation of health spending on reducing adverse health outcomes. The following paper is instructive in comparing disease burden and government spending on selected disorders. Vigo et al. Disease burden and government spending on mental, neurological, and substance use disorders, and self-harm. Lancet Public Health. 2019;4:e89-96.

GENERAL METHODOLOGICAL SUMMARY

Mixed methods including literature/document review, interviews, and descriptive (and possibly analytical) statistical methods

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Skills in accessing and reviewing literature/documents. Basic statistical methods. Good communication and inter-personal skills.

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Greenwashing and Tobacco Companies

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Prof Jonine Jancey- j.jancey@curtin.edu.au Secondary Supervisor: Kahlia McCausland - k.McCausland@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Greenwashing is a misleading marketing practice used by companies or organisations to make their products, services, or overall business appear more environmentally friendly or sustainable. The term "greenwashing" is a blend of "green" (referring to environmentalism or eco-friendliness) and whitewashing" (referring to glossing over negative information).

The purpose of greenwashing is to attract environmentally conscious consumers and improve the company's public image without necessarily implementing substantial changes in their practices or operations. By creating a false perception of eco-friendliness, these companies hope to boost sales, increase brand loyalty, and gain positive media coverage. There are various ways in which greenwashing can occur: misleading labels and claims, incomplete information; distraction from real issues; emphasising a single positive environmental initiative while diverting attention away from more significant environmental problems associated with the company; and unsubstantiated claims.

Transnational tobacco companies (e.g., Phillip Morris International, British American Tobacco, Japan Tobacco International, Imperial Brands and Altria) are keen to position themselves as responsible corporations who care about the environmental sustainability.

This study aims to identify greenwashing by tobacco companies exploring their social media accounts, such as LinkedIn and Twitter

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Australian Competition and Consumer Commission 2023. Greenwashing by business in Australia - Findings of the ACCC's internet sweep of environmental claims. Located at https://www.accc.gov.au/system/files/Greenwashing%20by%20businesses%20in%20Australia.pdf

Tobacco Tactics: Greenwashing (Bath University) https://tobaccotactics.org/article/greenwashing/

GENERAL METHODOLOGICAL SUMMARY

Predominantly qualitative: literature review and content analysis

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Sound verbal and written communication skills, an interest in qualitative/ quantitative research and an ability to learn how to use data analysis software such as SPSS.

NUMBER OF STUDENTS FOR PROJECT

1

BIOTECHNOLOGY PROJECTS

PROJECT TITLE

Organ-on-a-chip: the design of an artificial organ using cutting-edge bio-nanotechnologies and bio-printing platforms
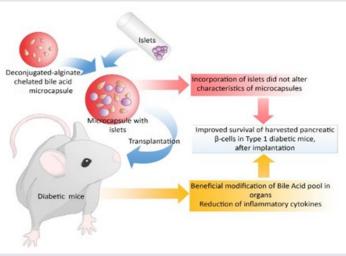
SUPERVISOR/S & CONTACT DETAILS

Primary Supervisors: A/Prof Hani Al-Salami - hani.al-salami@curtin.edu.au
and A/Prof Ryu Takechi - R.Takechi@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Multiple chronic disorders remain untreated despite best effort and ongoing research to design new therapies. A chronic disease that remains untreated, and a contributing factor to many disorders including hearing impairment, is diabetes. Diabetes is an epidemic and its incidence is rising by 2% every year in Australia and the world. It is costing the Australian government $10 billion a year with one Australian being diagnosed with diabetes every 5 minutes. There are three types of diabetes mellitus, Type-1 diabetes (T1D), Type-2 diabetes (T2D) and Gestational diabetes (GD). Current antidiabetic drugs remain ineffective in treating the disease and its complications as well as in improving long-term prognosis. Insulin is a widely used antidiabetic drug, and currently being prescribed for all T1D patients, more than third T2D patients and the majority of GD patients. Insulin is administered by injections and since its discovery in 1921, its route of administration has remained largely unchanged. Due to its current way of administration, insulin has many side effects and limitations, which compromise its antidiabetic effects. Ways to revolutionise insulin delivery include either designing a device that measures glucose continuously and pumps insulin from a reservoir carried out by patients, or by creating a healthy pancreas that can be transplanted and replaces currently damaged pancreas (known as islet transplantation). Over the last a few years, cell encapsulation and bio-printing have become new scientific adventures and are gaining significant interests as new technologies to revolutionise islet (and organ) transplantation. In 2014, Dr Al-Salami was the first in the world to introduce a new concept of bile acid incorporation via bio-nanotechnologies to enable organ creation and islet transplantation. This project builds on current findings and will focus on carrying out specific sets of experiments appropriate for innovative and timely completion of an Honour degree

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Armin Mooranian, Corina Mihaela Ionescu, Susbin Raj Wagle, Bozica Kovacevic, Daniel Walker, Melissa Jones, Jacqueline Chester, Thomas Foster, Edan Johnston, Momir Mikov, Marcus D. Atlas, Hani Al-Salami. Probucol Pharmacological and Bio-Nanotechnological Effects on Surgically Transplanted Graft Due to Powerful Anti-Inflammatory, Anti-Fibrotic and Potential Bile Acid Modulatory Actions. Pharmaceutics, 13, 8, 10.3390/pharmaceutics13081304

GENERAL METHODOLOGICAL SUMMARY

Basic lab skills can be taught during induction and all needed training will be provided during the first two months.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Highly motivated to learn lab-based medically oriented projects.

NUMBER OF STUDENTS FOR PROJECT

1 - 2

PROJECT TITLE

Transforming current drug uptake in patients, via using advanced bio-nanotechnologies.
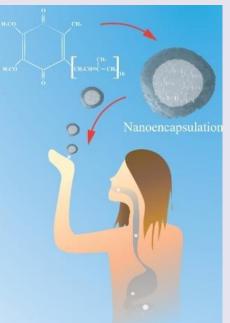
SUPERVISOR/S & CONTACT DETAILS

Primary Supervisors: A/Prof Hani Al-Salami - hani.al-salami@curtin.edu.au
and A/Prof Ryu Takechi - R.Takechi@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Since early 1900s, oral drugs have been formulated in tablets or capsules to optimise drugs' stability and to control drugs' release (either immediate release for fast effects or slow/controlled release for extended effects). Oral drug absorption occurs when a drug (in a tablet or a capsule) is swallowed and the tablet/capsule breaks down and drug is released in the upper part of the gut, where it moves down until it reaches a specific segment of the lower gut where the drug permeates the gut-membrane into the blood (i.e. absorbed). Different drugs are maximally absorbed from different segments of the gut, with antidiabetic drugs being absorbed mostly from the lower part of the small intestine. Diabetes mellitus is one of the most common chronic diseases in children, occurring more frequently than cancer, cystic fibrosis, multiple sclerosis and muscular dystrophy. Most antidiabetic drugs are not completely absorbed into the body after oral administration in tablets/capsules due to either[1] being degraded during their gut-passage and before reaching the specific gut-segment with maximum drug absorbability, or [2] once reaching the specific gut-segment with best absorbability, fail to permeate gut-membrane and reach blood/systemic circulation. Accordingly, current tablets/capsules carrying antidiabetic drugs are often loaded with far more drug than what patients actually need, in order to compensate and accommodate for two things: [1] poor gut-targeting: inefficient delivery of the tablet/capsule to the drug, to the best gut-segment where most of the drug will be absorbed, and [2] poor gut tissue-permeation: insufficient amount of drug permeating through the gut membrane and reaching blood. Due to both points, current tablets and capsules cause many side effects and damage of healthy tissues. Thus, to date and despite new and sophisticated pharmaceutical formulations, lack of tissue-specificity remains a serious health concern and hence, for every dollar spent on acquiring drugs, another dollar is spent fixing/treating side effects. In order to revolutionise current oral drug administration in diabetes treatment, the new delivery system needs to possess: [1] gut-targeting property, so the drug is released with pin-point accuracy in the specific gut-segment with maximum drug absorbability for optimum effects and safety profile, and [2] the ability to enhance drug gut-membrane permeation and force drug molecules through the cell membrane via direct effect on cellular protein transporters. This project aims at examining new ways to improve how drugs work using nanotechnology.

Nanoencapsulation

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Armin Mooranian, Nassim Zamani, Momir Mikov, Svetlana Goločorbin-Kon, Goran Stojanovic, Frank Arfuso, Bozica Kovacevic, Hani Al-Salami. A second-generation micro/nano capsules of an endogenous primary un-metabolised bile acid, stabilized by Eudragit-alginate complex with antioxidant compounds. Saudi Pharmaceutical Journal, doi.org/10.1016/j.jsps.2019.11.017

GENERAL METHODOLOGICAL SUMMARY

Basic lab skills can be taught during induction and all needed training will be provided during the first two months.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Highly motivated to learn lab-based medically oriented projects.

NUMBER OF STUDENTS FOR PROJECT

1 - 2

PROJECT TITLE

Creation of new therapies for hearing-impaired patients using nanotechnologies with pin-point accuracy: advanced chemical drug analysis using cutting-edge analytical methods for medical applications
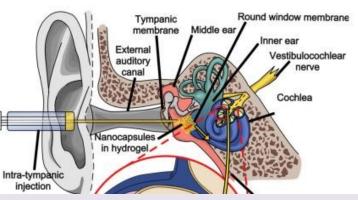
SUPERVISOR/S & CONTACT DETAILS

Primary Supervisors: A/Prof Hani Al-Salami - hani.al-salami@curtin.edu.au and A/Prof Ryu Takechi - R.Takechi@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Hearing disorders are affecting significant number of people in Australia and worldwide with the prevalence rising at an alarming rate. Steroids are widely prescribed to treat a range of Hearing and Balance Disorders, such as: Autoimmune Inner Ear Disease, Sudden Sensorineural Hearing Loss, Acoustic Trauma, Meniere's disease, Labyrinthitis and Cochlear Implantation with residual hearing. Steroids can either be delivered systemically or via injection through the eardrum. However, the efficacy and safety profiles of current therapy lacks robustness and consistency and varies greatly between individuals, and this is generally due to the poor permeation and transport of steroids into fluids, compartments, and tissues in the inner ear. Recent research is aimed at developing techniques that enhance the transfer of steroids into the inner ear, and to assess the impact of these techniques the level of steroids in the inner ear fluids or tissues must be measured. The inner ear is very small, and poses a limit on the accuracy of drug level measurement, particularly in the smaller compartments of the inner ear, which are nonetheless vital to the inner ears function.

To date, none of recently developed techniques for inner-ear steroids-targeted delivery, or robust steroids' analytical methods have proved that effective, and hence, this project explores new and highly innovative ways to use nano and micro technologies to target-deliver steroids and enable development of unique HPLC/LCMS analytical systems for measuring steroid permeation and delivery (within the available time frame for Honours). Accordingly, in this project, we will develop new delivery matrices and optimise HPLC/LCMS methods for the detection of the commonly used steroid, dexamethasone, in inner ear, and demonstrate the practicality of measuring dexamethasone in the smallest of tissue spaces in the inner ear.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Armin Mooranian, Nassim Zamani, Momir Mikov, Svetlana Golocorbin-Kon, Goran Stojanovic, Frank Arfuso, Bozica Kovacevic, Hani Al-Salami. Bio Micro-Nano Technologies of Antioxidants Optimised Their Pharmacological and Cellular Effects, ex vivo, in Pancreatic β-Cells. Nanotechnology, Science and Applications, doi.org/10.2147/NSA.S212323

GENERAL METHODOLOGICAL SUMMARY

Basic lab skills can be taught during induction and all needed training will be provided during the first two months.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Highly motivated to learn lab-based medically oriented projects.

NUMBER OF STUDENTS FOR PROJECT

1 or 2

HEALTH ECONOMICS
&
DATA ANALYTICS
PROJECTS

PROJECT TITLE

Climate-related exposure and health: what would it take to change our conclusions?

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Professor Gavin Pereira - gavin.f.pereira@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

There is an abundance of studies that have demonstrated associations between climate-related exposures (notably temperature and air pollution) and health. Some inconsistency in findings from observational studies is inevitable due to differences in the study populations and levels of exposure. These differences have motivated researchers to conduct more studies. The consequence of this feedback is a burgeoning research effort that results in marginal gains and increases confusion. Policy makers might interpret inconsistency in findings between as evidence that we are not certain whether a climate-related effect exists, when in fact we are relatively confident of harm, but we are not certain as to the magnitude of the harm.

Aim: The aim of this honours project is to establish the stability of of associations between climate-related exposures and health as they have been published over time. Or stated another way, to assess what would it take for a new study to change our conclusions?

Method: The approach to undertake the proposed analysis was developed at Curtin.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Ignore the mathematical detail. Focus on the message of the Abstract and story conveyed in the figures of this paper:

Int. J. Environ. Res. Public Health 2022, 19(4), 2036; https://doi.org/10.3390/ijerph19042036

GENERAL METHODOLOGICAL SUMMARY

Quantitative synthesis (ie. clever averaging) of results from previously published studies

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Basic knowledge of environmental determinants of health.

Experience using any statistical software package.

NUMBER OF STUDENTS FOR PROJECT

2

PROJECT TITLE

Past, Present and Future of Vision Testing for Glaucoma in Western Australia

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Professor Andrew Turpin - andrew.turpin@curtin.edu.au
Secondary Supervisor: Professor Allison McKendrick - allison.mckendrick@lei.org.au

PROJECT BACKGROUND & OBJECTIVES

Measuring both peripheral and central vision with visual field machines is currently part of standard procedures for diagnosing and monitoring the eye disease glaucoma. The spatial pattern of testing, frequency of testing, and the measurement algorithm used to assess visual fields have all varied globally over the last three decades. This project will examine how visual field testing has been used in Western Australia over that period using approximately 50,000 tests collected at the Lions Eye Institute glaucoma clinic over the last 30 years. Of particular interest is the stage of disease at which testing commences, the estimated time to blindness for those tested, demographic differences in testing, and changes in visual field practice over the period. Given the data set size and complexity (each test consists of at least 50 measurements), computational data manipulation (data science methods) will be essential. The results from this study will inform optometrists and ophthalmologists on current practice in WA in relation to global best practice guidelines, and will help inform development of new, more effective and efficient visual field tests for glaucoma.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

https://pubmed.ncbi.nlm.nih.gov/24282228/

https://pubmed.ncbi.nlm.nih.gov/25642569/

https://pubmed.ncbi.nlm.nih.gov/23613506/

https://pubmed.ncbi.nlm.nih.gov/27862125/

GENERAL METHODOLOGICAL SUMMARY

Quantitative, data science

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Some experience with R, Python of some scripting language capable of manipulating large data sets.

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Predicting unplanned neonatal readmission using machine learning

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Kim Betts - kim.betts@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

A recent trend in maternal/neonatal care has been a move towards rapid discharge from hospital of both mother and baby following delivery, especially for uncomplicated pregnancies/deliveries. Although being an effective method of reducing inpatient resourcing, the trade-off has been that some mothers and/or babies are now sent home prior to identifying important health conditions, requiring prompt readmission and resulting in delayed treatment. This project leverages health administrative data collections and advances in machine learning with the aim of developing prediction models which can identify mothers and babies at need of delayed discharge (in other words at risk of prompt unplanned readmission). Due to the heterogeneous nature of conditions leading to readmission, the project will also draw on unsupervised machine learning techniques to identify common groups at risk of readmission.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Betts KS, Kisely S, Alati R. Predicting neonatal respiratory distress syndrome and hypoglycaemia prior to discharge: Leveraging health administrative data and machine learning. Journal of Biomedical Informatics. 2021 Feb 1;114:103651.

GENERAL METHODOLOGICAL SUMMARY

Supervised and unsupervised machine learning in the R language (quantitative)

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Student will require a keen interest in quantitative analysis, big data sets and machine learning, plus experience carrying out data analysis in the R language.

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Predicting complications after caesarean delivery

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Kim Betts - kim.betts@curtin.edu.au

Secondary Supervisor: Professor Rosa Alati - rosa.alati@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

The increasing rates of caesarean delivery for a broader range of indications necessitates prompt and accurate knowledge of potential risks to mothers. In this project, the honours student will use data of all births in QLD (2008-2021) and machine learning methodologies (available in R) to predict complications arising from caesarean delivery. As part of this project, the student is also likely to identify and further investigate novel influential risk factors for complications. The output will be a novel prediction model which will be published in a scientific journal.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Betts, K.S., Kisely, S. and Alati, R., 2019. Predicting common maternal postpartum complications: leveraging health administrative data and machine learning. BJOG: An International Journal of Obstetrics & Gynaecology, 126(6), pp.702-709.

GENERAL METHODOLOGICAL SUMMARY

Statistics and machine learning using R.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

This project is reserved for a student who has completed the data Health Data Specialisation (SPUC-HLTDA) in the Bachelors of Health Sciences, as it builds off the skills/knowledge developed in the specialisation.

NUMBER OF STUDENTS FOR PROJECT

Up to 2 students (the project can be divide into two separate but related projects).

PROJECT TITLE

Periprocedural biomarkers and adverse outcomes in patients undergoing percutaneous coronary intervention in Vietnam

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Ngoc Minh Pham - Minh.N.Pham@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Percutaneous coronary intervention (PCI) is a non-surgical and minimally invasive procedure used to treat coronary artery disease. The procedural success is influenced not only by technique itself, but also by the patient's conditions (e.g., renal function, myocardial injury and infarction, heart failure) indicated by elevations in certain biomarkers before or during the procedure. Data remains scarce and inconsistent regarding the association between periprocedural biomarkers and outcomes following PCI. This study will use data from a PCI registry conducted in northern Vietnam to investigate the association of renal and cardiac biomarkers with adverse outcomes post-PCI. Conducted during 2017-2018 in a leading cardiovascular centre in Hanoi capital of Vietnam, this project included baseline data (approximately 1000 participants), in-hospital and follow-up surveys at one month and 12 months post PCI.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Vu HTT et al. Establishment of a Percutaneous Coronary Intervention Registry in Vietnam: Rationale and Methodology.Glob Heart2020;15:30

Vu HTT et al. Novel insights into clinical characteristics and in-hospital outcomes of patients undergoing percutaneous coronary intervention in Vietnam. Int J Cardiol Heart Vasc 2020:31:100626.

Vu HTT et al. Access route selection for percutaneous coronary intervention among Vietnamese patients: Implications for in-hospital costs and outcomes. Lancet Reg Health West Pac. 2021:9:100116.

Vu HTT et al. Outcomes following the percutaneous coronary intervention in contemporary Vietnamese practice: Insight from a single centre prospective cohort. Heart Lung. 2021;50:634-639.

GENERAL METHODOLOGICAL SUMMARY

Only quantitative methods will be used to assess the association between biomarkers and outcomes (e.g., mortality, major adverse cardiovascular events).

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

A prospective student should have basic knowledge about epidemiological study designs, particularly prospective cohort studies and biostatistics. It is necessary for the student to possess fundamental skills in data cleaning, preparation, analysis and exploration. Familiarity with at least one statistical software (e.g., Stata, SPSS, R, SAS) is essential.

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Factors associated with quality of life in patients undergoing percutaneous coronary intervention in Vietnam

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Ngoc Minh Pham - Minh.N.Pham@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Percutaneous coronary intervention (PCI) is a non-surgical and minimally invasive procedure commonly used for treating coronary artery disease. This procedure has been shown to improve patients' health quality of life (QoL). Previous studies explored the association of various factors with QoL (e.g., demographics, medical history, disease severity, health status...). However, results remain inconsistent and studies are still scant in Asia. This study will use data from a PCI registry conducted in northern Vietnam to investigate factors associated with quality of life post-PCI, measured with the EuroQoL-5 Dimensions 3-Level (EQ-5D-3l) and EuroQoL Visual Analogue Scale (EQ-VAS). Conducted during 2017-2018 in a leading cardiovascular centre in Hanoi capital of Vietnam, this project included baseline and in-hospital data (approximately 1000 participants), as well as follow-up surveys at one month and 12 months post PCI.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Vu H et al. Sex differences in quality of life of patients following percutaneous coronary intervention in Vietnam.Qual Life Res. 2023;32:71-79.

Tin BT et al. Quality of life in patients with unstable angina before and after percutaneous coronary intervention: a single-center pilot study using the European quality of life 5-dimension 5-level (EQ-5D-5L) questionnaire. Cureus 2023;15:e45886.

GENERAL METHODOLOGICAL SUMMARY

Only quantitative methods will be used to investigate factors associated with quality of life following PCI.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

A prospective student should have basic knowledge about epidemiological study designs, particularly prospective cohort studies and biostatistics. It is necessary for the student to possess fundamental skills in data cleaning, preparation, analysis and exploration. Familiarity with at least one statistical software (e.g., Stata, SPSS, R, SAS) is essential.

NUMBER OF STUDENTS FOR PROJECT

1

NUTRITION PROJECTS

PROJECT TITLE

How to engage consumers in osteoporosis and bone health recommendations: Assessing knowledge, attitudes and intentions

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Prof Deborah Kerr - d.kerr@curtin.edu.au

Secondary Supervisors: A/Prof Christina Pollard –c.pollard@curtin.edu.au

Emeritus Prof Satvinder Dhaliwal - s.dhaliwal@curtin.edu.au

Prof Richard Prince

PROJECT BACKGROUND & OBJECTIVES

Osteoporosis remains essentially undiagnosed with suboptimal prevention and management of the condition being widely acknowledged [1]. Factors identified in The National Strategic Action Plan for Osteoporosis include limited awareness around risks of osteoporosis by consumers and health professionals, "…operational silos across the healthcare system and a lack of focus on osteoporosis compared to other chronic diseases. There is a major mismatch between the burden of disease associated with osteoporosis and its prioritisation in policy and resourcing which must be addressed " [1, p4]. These concerns are strongly supported by a 2020 comprehensive metanalysis of publications in this area that could only find 25 suitable publications, including one from Australia in 2006, that reported "Although there was general awareness of osteoporosis, many misconceptions and concerns were evident" [2]. Given this surprising lack of available information to inform health resources, campaign messages and policy, the limited community understanding of the importance of osteoporosis prevention and management and what people can do to improve and prioritise their bone health throughout their lives, this needs to be urgently tackled. Lived experience is increasingly sought to inform strategies to address consumer and health professional behaviour and practice. Effective communications rely on a contemporary understanding of the relative importance of consumer concerns and conflicting interests.

This project explores beliefs and concerns about osteoporosis and how these concerns are influenced by other co-existing chronic health conditions. It will explore how consumers' level of concern are prioritised and provide insights and guidance on potential opportunities for policy and practice. This is a serious and unmet research priority, and this project will identify and provide guidance on ways to address contemporary issues that undermine osteoporosis prevention and clinical practice.

Study objectives:

1. To develop and validate a questionnaire to identify awareness and concerns regarding osteoporosis in relation to other diseases.

2. Explore awareness, intentions and concerns regarding osteoporosis and lifestyle behaviours in relation to other diseases amongst 1200 Australians aged over 50 years

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

[1] Department of Health, Australian Government. National Strategic Action Plan for Osteoporosis 2019. https://www.health.gov.au/resources/publications/national-strategic-action-plan-for-osteoporosis-2019.

[2] des Bordes J, Prasad S, Pratt G, Suarez-Almazor ME, Lopez-Olivo MA. Knowledge, beliefs, and concerns about bone health from a systematic review and metasynthesis of qualitative studies. PloS one 2020;15:e0227765.

GENERAL METHODOLOGICAL SUMMARY

The project will involve questionnaire design & validation, knowledge of bone health, health messaging statistical evaluation of data

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

It would be advantageous for the student to have a background in statistical analysis and /or nutrition/health promotion or psychology, as well as an interest in bone health in relation to other health disorders. However, if the student only has one of these, they will be supported over the project to develop the other.

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Exploring the Barriers for Schools to Engage with the OzHarvest FEAST Program

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Rebecca Russell - rebecca.russell@curtin.edu.au

Secondary Supervisor: A/Prof Andrea Begley - a.begley@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

OzHarvest's FEAST (Food Education and Sustainability Training) is a 10-week education program for primary (years 5-6) and high schools (year 7-8), which explores the issue of food waste and the environmental impact, sustainability, healthy eating, and builds self-efficacy with cooking skills (equipment provided - no kitchen required). The program is aligned to the Australian Curriculum (STEM, English, Health, Physical Education), and can be adapted to suit the school's needs.

FEAST is currently running in ~1200 schools nationally (12%) with over 66,400 students having completed the program and another 99,600 students currently enrolled. The program has been well-received by schools and the positive benefits have been reported; however, national uptake is low (12%).

The aim of this project is to conduct online focus groups with teachers across Australia who have previously and/or are currently delivering FEAST, to explore their perceptions on how FEAST has impacted their schools and the students, their recommendations relating to the ongoing program, and perceived barriers to uptake and how to overcome them.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Karpouzis, F., Lindberg, R., Walsh, A., Shah, S., Abbott, G., & Ball, K. (2024). Impact and process evaluation of a primary-school Food Education and Sustainability Training (FEAST) program in 10-12-year-old children in Australia: pragmatic cluster non-randomized controlled trial. BMC Public Health, 24(1), 657-657. https://doi.org/10.1186/s12889-024-18079-8

GENERAL METHODOLOGICAL SUMMARY

Qualitative

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Nutrition background, communication skills, an interest in qualitative research, no prior knowledge of FEAST required, as the curriculum will be explained as part of the Honours project

NUMBER OF STUDENTS FOR PROJECT

1– 2

PROJECT TITLE

Population Attributable Fraction of Dementia Associated With Dietary Patterns and Food Intake

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Professor Mario Siervo - mario.siervo@curtin.edu.au

Secondary Supervisor: Professor Blossom Stephan - blossom.stephan@curtin.edu.au

Dr Rebecca Russell - rebecca.russell@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Dementia affects over 57 million people worldwide, prompting a focus on prevention due to the absence of a cure and recent declines in age-specific prevalence in some high-income countries. The 2020 Lancet Commission identified 12 modifiable factors across the life-course contributing to around 40% of global dementia cases including less education, hearing loss, hypertension, obesity, smoking, depression, social isolation, physical inactivity, diabetes, alcohol excess, traumatic brain injury, and air pollution. Stephan et al. updated these findings, highlighting that factors like low education, hypertension, obesity, smoking, inactivity, depression, and diabetes account for significant dementia risk. However, missing from the literature is data on the proportion of dementia cases (also termed the population attributable fraction [PAF]) linked to diet and food consumption. This is despite clear associations between increased dementia risk and dietary and nutritional factors such as sugar, salt or fish intake.

Aims: This project aims to provide a global, ecological perspective on the association between dietary patterns and food consumption with dementia risk and determine the PAFs for dementia associated with dietary patterns and food intake.

Objectives: The first objective is to conduct an ecological analysis to link global estimates of food availability for consumption, socio-demographic and lifestyle factors with between-country variability in the prevalence of dementia. The second objective is to determine the variations in PAFs of dementia risk associated with known dietary patterns (i.e., Mediterranean Diet, Ultra-Processed Food, etc) and food (i.e., fish, sugar, salt, fibre, fat, etc) intake.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Stephan, Blossom C M et al.Population attributable fractions of modifiable risk factors for dementia: a systematic review and meta-analysis. The Lancet Healthy Longevity, 2024, Vol(5), Issue 6, e406 - e421

Oggioni C, Lara J, Wells JC, Soroka K, Siervo M. Shifts in population dietary patterns and physical inactivity as determinants of global trends in the prevalence of diabetes: an ecological analysis. Nutr Metab Cardiovasc Dis. 2014 Oct;24(10):1105-11.

Oggioni C, Cena H, Wells JC, Lara J, Celis-Morales C, Siervo M. Association between worldwide dietary and lifestyle patterns with total cholesterol concentrations and DALYs for infectious and cardiovascular diseases: an ecological analysis. J Epidemiol Glob Health. 2015 Dec;5(4):315-25

GENERAL METHODOLOGICAL SUMMARY

This is secondary analyses of quantitative data involving publicly available information on the prevalence of diet adherence, food consumption and dementia and dementia risk estimates.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Student will have a background in nutrition and an interest in public health and mental health. Desirable are advanced computer skills, database management and a very good understanding of principles of nutrition and epidemiological research. Advanced statistical analyses skills are also desirable (i.e., SPSS or STATA), but not necessary. Regular online or in person meetings will be arranged with the supervisory team to support data analysis and results preparation.

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Evaluation of the Personalised Nutrition Questionnaire

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Megan Rollo - megan.rollo@curtin.edu.au

Secondary Supervisor: Professor Deborah Kerr - d.kerr@curtin.edu.au

Emeritus Prof Satvinder Dhaliwal - s.dhaliwal@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Sub-optimal dietary intakes is the third leading contributor to disease burden in Australia. Changing eating habits is a complex and challenging process requiring time and ongoing support. In particular, tools to identify specific behavioural issues and provide support to individuals through personalised strategies are necessary to optimise dietary behaviours.

The Personalised Nutrition Questionnaire (PNQ) allows an individual to self-identify factors impacting on their ability to eat healthily and is designed to streamline the selection of behavioural intervention strategies. Based on the COM-B (Capability, Opportunity, Motivations - Behaviour) model that is central to the Behaviour Change Wheel, the PNQ has been used successfully in a variety of situations including healthy and clinical adult population in the context of dietitians providing telehealth consultations. Currently the PNQ is being used in NHMRC MRFF project (led by Professor Deb Kerr) using telehealth sessions with a dietitian to improve diet quality in adults living with obesity. The PNQ has potential to be used as a self-administered standalone tool with applications in public health, where individual could use to identify and prioritise their self-perceived barriers to healthy eating. The PNQ could be linked resources to support behaviour change and that are personalised to addressing an individual's barriers. A self-administered approach could have applications as an initial contact point, which would require less resources and has potential for high reach. Evaluating the PNQ in a larger sample is necessary to determine the utility of this approach as a future application.

This projects aims to establish the repeatability and validity of the PNQ as a self-administered standalone tool for the identifying an individual's capacity, opportunity and/or motivation barriers to healthy eating.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Rollo, M.E.; Haslam, R.L.; Collins, C.E. Impact on Dietary Intake of Two Levels of Technology-Assisted Personalized Nutrition: A Randomized Trial. Nutrients 2020, 12, 3334. https://doi.org/10.3390/nu12113334

GENERAL METHODOLOGICAL SUMMARY

Quantitative -Test-retest reliability and construct validity will be evaluated

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS
Project already has ethics approval

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT
It would be advantageous for the student to have a background in statistical analysis and /or nutrition/health promotion or psychology, as well as an interest in behaviour change. However, if the student only has one of these, they will be supported over the project to develop the other.

NUMBER OF STUDENTS FOR PROJECT
1

PROJECT TITLE

Prevalence of Food Insecurity and Food Literacy-Based Solutions for Curtin University Students

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Megan Rollo - megan.rollo@curtin.edu.au

Secondary Supervisor: Dr Rebecca Russell - rebecca.russell@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Food insecurity is defined as the lack of reliable access to sufficient, affordable, and nutritious food, and it is a growing concern among university students. Recent studies indicate that up to over 40% of university students experience food insecurity, but the current prevalence is unknown. Food literacy (the knowledge, skills, and behaviours to plan, manage, select, prepare, and eat foods that meet ones needs) encompasses skills such as budgeting, meal planning, and understanding nutrition labels, and enhancing food literacy can help combat food insecurity by empowering individuals to maximise their resources and make healthier food choices.

This project aims to capture the current prevalence of food insecurity and the level of food literacy among Curtin University students. This mixed-methods project will involve an online survey to determine the prevalence of food insecurity and food literacy and focus groups to explore food-related resources that would enhance food literacy and therefore potentially reduce food insecurity.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Dana LM, Wright J, Ward R, Dantas JAR, Dhaliwal SS, Lawrence B, O'Connor M, Booth S, Kerr DA, Pollard CM. (2023) Food Insecurity, Food Assistance, and Psychological Distress among University Students: Cross-Sectional Survey Western Australia, Nutrients, https://doi.org/10.3390/nu15112431

Bruening M, Argo K, Payne-Sturges D, Laska MN. (2017) The Struggle Is Real: A Systematic Review of Food Insecurity on Postsecondary Education Campuses. Journal of the Academy of Nutrition and Dietetics, https://doi.org/10.1016/j.jand.2017.05.022

GENERAL METHODOLOGICAL SUMMARY

Mixed methods

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Experience of SPSS or other statistical software

Interest in mixed-methods research

NUMBER OF STUDENTS FOR PROJECT

1

OCCUPATIONAL ENVIRONMENTAL AND SAFETY PROJECTS

PROJECT TITLE

What codes the development of asthma in children?

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: A/Prof Guicheng (Brad) Zhang - Brad.Zhang@curtin.edu.au

Secondary Supervisors: Peter LeSouef, Ingrid Dias, Ryan Mead-Hunter - r.mead-hunter@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

We use novel advanced epigenome molecular analysis approaches: Illumina Infinium EPIC methylation array and next-generation sequencing techniques to explore the whole methylome and miRNAome of peripheral blood mononuclear cells and nasal epithelial cells. The two important epigenetic features — methylation and miRNAs — will be thoroughly investigated in young children with early acute wheezing. The whole epigenome method has great advantages over the traditional candidate-gene epigenetic investigation method. The systemic (blood cells) and local (nasal cells) epigenetic variations will all be unveiled and examined for their contribution to the aetiology of persistent wheezing/asthma. If epigenetic biomarkers are identified by using the whole epigenome method, our studies will 1: guide translational clinical trials that will seek to impose an extremely substantial shift in treating and managing paediatric patients with asthma, e.g., a biomarker-targeted treatment protocol; 2: define subgroups of children with early wheezing and targeted or personal-tailored prevention strategy can be implemented accordingly to prevent the development of asthma; 3. these epigenetic biomarkers will provide new key regulatory checkpoints that can be targeted for novel asthma therapies and new drug development.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Children with nut allergies have impaired gene expression of Toll-like receptors pathway. Poole A, Song Y, O'Sullivan M, Lee KH, Metcalfe J, Guo J, Brown H, Mullins B, Loh R, Zhang GB. Pediatr Allergy Immunol. 2020 Aug;31(6):671-677. doi: 10.1111/pai.13246. Epub 2020 Apr 8.

Cellular and molecular mechanisms of vitamin D in food allergy. Poole A, Song Y, Brown H, Hart PH, Zhang GB. J Cell Mol Med. 2018 Jul;22(7):3270-3277. doi: 10.1111/jcmm.13607. Epub 2018 Mar 25.

Western environment/lifestyle is associated with increased genome methylation and decreased gene expression in Chinese immigrants living in Australia. Zhang G, Wang K, Schultz E, Khoo SK, Zhang X, Annamalay A, Laing IA, Hales BJ, Goldblatt J, Le Souëf PN. Environ Mol Mutagen. 2016 Jan;57(1):65-73. doi: 10.1002/em.21989. Epub 2015 Dec 16.

GENERAL METHODOLOGICAL SUMMARY

Using quantitative methods to investigate the epigenetic mechanisms for asthma in children.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Biomedical skills and data analysis.

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

E-cigarettes: prevalence and attitudes among WA university students according to age and socioeconomic background

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: A/Prof Krassi Rumchev - k.rumchev@curtin.edu.au

Secondary Supervisors: Sue Gilbey - sue.gilbey@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Electronic cigarettes (e-cigarettes) are a means of recreational use that can potentially eliminate the need to smoke tobacco. Little is known about the prevalence of use among university students in Western Australia and their attitudes toward e-cigarettes. There is growing evidence that e-cigarette vapour is not safe and can lead to serious health problems. Of particular concern is the popularity of these devices among younger populations, especially considering how little is known about the content of the e-liquid and the flavours, as well as the long-term health impacts This study aims to investigate the use of and attitudes toward e-cigarettes among Western Australian university students with different socioeconomic background.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Soneji, S., Barrington-Trimis, J. L., Wills, T. A., Leventhal, A. M., Unger, J. B., Gibson, L. A., Yang, J., Primack, B. A., Andrew, J. A., Miech, R. A., Spindle, T. R., Dick, D. M., Eissenberg, T., Hornik, R. C., Dang, R., & Sargent, J. D. (2017). Association between initial use of e-cigarettes and subsequent cigarette smoking among adolescents and young adults: A systematic review and meta-analysis. JAMA Pediatrics, 171(8), 788-797. doi.org/10.1001/jamapediatrics.2017.1488

GENERAL METHODOLOGICAL SUMMARY

This study will comprise a random sample of university students. Participants will be asked to complete an online anonymous questionnaire about their use of and attitude towards e-cigarettes. The study will involve quantitative method for data analysis.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Ethics approval required

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

The research project will offer students the opportunity to apply their knowledge and technical skills in a supervised research project. They will further develop their skills in problem-solving, critical thinking capacities in the context of research, communication skills and the ethical approval processes. Knowledge in quantitative research methods and data analysis .

NUMBER OF STUDENTS FOR PROJECT

1

PSYCHOLOGY PROJECTS

PROJECT TITLE

Mortality After Release from Incarceration in 13 countries: Using meta-regression to inform prevention

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Professor Stuart Kinner - stuart.kinner@curtin.edu.au
Secondary Supervisors: Dr Matt Legge - matthew.legge@curtin.edu.au
Rohan Borschmann - rohan.borschmann@psych.ox.ac.uk

PROJECT BACKGROUND & OBJECTIVES

The Mortality After Release from Incarceration Consortium (MARIC) is an NHMRC-funded collaboration that has used two-step, individual participant data meta-analysis to examine mortality outcomes for >1.5 million people released from prisons in 13 countries, across 30 cohorts. An opportunity now exists to identify cohort- and country-level factors (e.g., healthcare policies, measures of income inequity, incarceration rate) associated with particular causes of death (e.g., suicide, overdose, homicide, cancer) using meta-regression. Students will work with supervisors to source cohort-level statistics from relevant global sources (e.g., WHO Mental Health Atlas, Global State of Harm Reduction report, Global Burden of Disease data), and use multi-variable meta-regression to explore the association between these factors and a particular cause of death. Students will be supported to publish their findings in an appropriate peer-reviewed journal.

EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Borschmann R, The Mortality After Release from Incarceration Consortium (MARIC) collaborators & Kinner SA (2024). Rates and causes of death after release from incarceration: an individual participant data meta-analysis from 1,471,526 people in eight high- and middle-income countries. The Lancet, 403(10438), 1779-1788.

GENERAL METHODOLOGICAL SUMMARY

Meta-regression.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

The Mortality After Release from Incarceration Consortium (MARIC) has used two-step, individual participant data meta-analysis to examine mortality outcomes for >1.5 million people released from prisons in 13 countries. Honours projects will involve using meta-regression to identify cohort-level factors associated with a particular cause of death. For example: gun control legislation, opioid agonist treatment policies, mental healthcare coverage, incarceration rate. Familiarity with regression and/or generalised linear models is an advantage.

NUMBER OF STUDENTS FOR PROJECT

2

Contact

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