

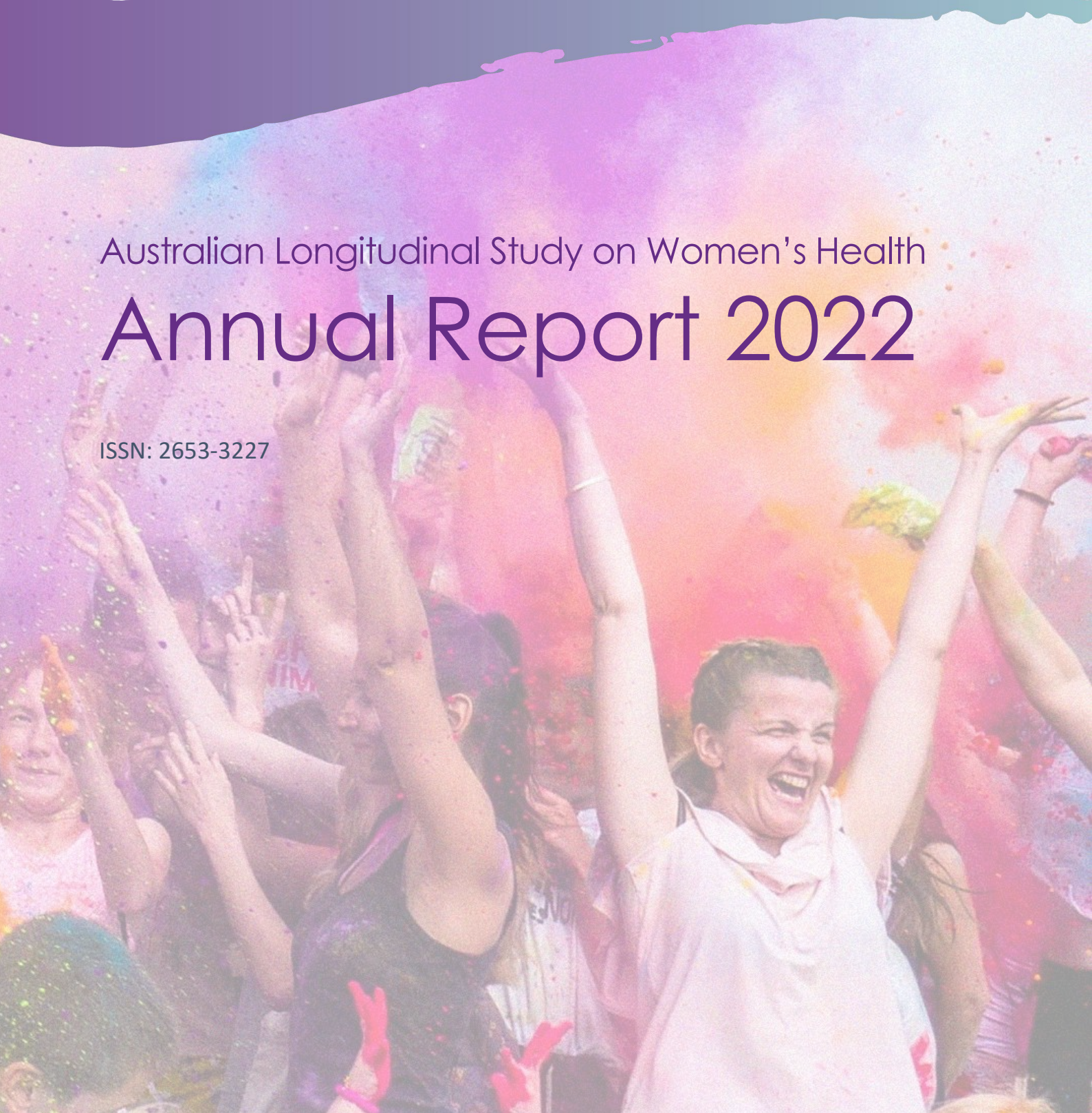


Australian Longitudinal Study
on Women's Health

Australian Longitudinal Study on Women's Health

Annual Report 2022

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THE UNIVERSITY
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Table of Contents

Introduction.....	2
Director’s Report.....	3
2022 Major Report: Health and wellbeing of women in midlife - Findings from the Australian Longitudinal Study on Women’s Health.....	5
Informing the National Plan to End Violence against Women and Children 2022- 2032	12
ALSWH Policy Symposium	15
New projects in 2022.....	17
Completed Student Projects	32
Current Students.....	42
Study Management Committee	46
Project Staff.....	48
Publications.....	51
Conference Presentations.....	59
Seminars and Workshops	65
Submissions to Government	68
Data Archiving.....	69
Collaborators and Investigators	70
Enquiries	83

Introduction

The Australian Longitudinal Study on Women's Health (ALSWH) assesses women's physical and mental health, as well as socio-demographic and lifestyle factors, and their use of health services. ALSWH is a national research resource, and since 1996 has provided an evidence base to the government and other decision-making bodies within Australia for the development and evaluation of policy and practice in many areas of service delivery that affect women.

ALSWH now involves more than 57,000 women in four cohorts that encompass the adult lifespan:

- Women born 1989-95 (aged 27-33 in 2022)
- Women born 1973-78 (aged 44-49)
- Women born 1946-51 (aged 71-76)
- Women born 1921-26 (aged 96-101)

Women from the 1973-78, 1946-51 and 1921-26 cohorts were recruited in 1995 and women from the 1989-95 cohort in 2012-13. Most of the women in the 1921-26 cohort are now deceased, although a few (around 200) are still participating. ALSWH strongly supports the use of linked data in health services research to provide evidence for evaluation of the use and impact of health services. The Study data can be linked with data from national administrative datasets (e.g., Medicare Benefits Schedule (MBS), Pharmaceutical Benefits Scheme (PBS), National Death Index (NDI), and the National Aged Care Data Collection) as well as state/territory datasets (e.g., hospital admissions, perinatal data, and cancer registries).

This report outlines progress and achievements of the Australian Longitudinal Study on Women's Health (the Study) during 2022.

Director's Report

During 2022, the ALSWH team settled into the new normal of living with COVID-19, and adopted the learnings of the past two years. The ALSWH team is proud that the study has flourished despite the disruptions of the last two years. The women's participation and the data they so generously share continues to inspire us, and provide insights into new and emerging health and wellbeing challenges and opportunities for Australian women.

We continued surveying our oldest cohort, women born 1921-26 and now aged 96 -101, at six monthly intervals (May and November), and celebrated the women who turn 100 by sending congratulatory birthday cards. The ninth survey of the 1973-78 cohort (aged 44-49) was completed, and work continued on 'refreshing' the Study's two youngest cohorts by recruiting women with ancestry from North-Eastern, South-Eastern, and Southern Asia, to improve the representativeness of the Study.

During the year, data collection for a major substudy on endometriosis, '*Genetic variants, Early Life exposures, and Longitudinal Endometriosis symptoms Study (GELLES)*' began. GELLES includes completion of an online survey and collection of a saliva sample, and over 5,500 women from the 1989-95 cohort had participated by the year's end. Women from the 1973-78 cohort will be invited to take part in 2023. The data collected in the survey on the women's early life and adolescence transform ALSWH into a true life course study with a wide range of benefits for future research and policy development. Research using GELLES data will advance our understanding of the causal pathways in development and progression of endometriosis, with findings translated to improve guidelines for endometriosis diagnosis by health professionals.

Other ongoing activities this year included preparation of a major report for the Australian Government Department of Health and Aged Care on women's health and wellbeing at midlife.

The report, *'Health and wellbeing of women in midlife: Findings from the Australian Longitudinal Study on Women's Health'* is available on the Study [website](#) and a summary is included in this report. ALSWH data was also used to prepare a report *'A lifecourse approach to determining the prevalence and impact of sexual violence in Australia: Findings from the Australian Longitudinal Study on Women's Health'* for Australia's National Research Organisation for Women's Safety (ANROWS) – this report is available [here](#). A feature on ALSWH activities related to domestic violence is included in this report.

In June 2022 we farewelled University of Newcastle Director Professor Julie Byles, who has retired from the university and moved on to other exciting projects. Julie has played an outstanding and leading role in ALSWH, right from her time as a member of the original investigator team that initiated the Study in 1994. Throughout her tenure with ALSWH, Julie has focussed on the health of older women and made important contributions to health and aged care policies. In her 'retirement' Julie is continuing to advocate for the wellbeing of older people, including development of programs to support people in Australia as they age. While we miss Julie on a day to day basis, she remains involved with ALSWH as special envoy for the cohort born 1921-26.

The ALSWH symposium for the Department of Health and Aged Care was held in Canberra in December 2022, and showcased our latest research on topics including women's patterns of health service use during the COVID-19 pandemic, maternal and child health, violence against women, and healthy ageing.

In addition, 36 new projects using anonymised ALSWH data, including 19 with linked administrative data, involving national and international collaborators began during the year. Fifty-two peer-reviewed scientific papers, on all aspects of women's health, were published or accepted for publication, and 43 presentations were made at national and international conferences.

We extend our thanks to the Department of Health and Aged Care for their ongoing commitment and support for the Study, to the University of Newcastle and the University of Queensland for hosting us, and to the ALSWH teams at Brisbane and Newcastle for all their hard work over the last year. Most of all, we thank the women who have continued their participation in the Study over the last 26 years.

Professor Gita Mishra

Professor Deborah Loxton



2022 Major Report: Health and wellbeing of women in midlife - Findings from the Australian Longitudinal Study on Women's Health

This report used longitudinal data collected across the four cohorts of women in the ALSWH to focus on health and risk factors in midlife. In 2022, women in the 1973-78 cohort were just entering their middle years (aged 43-48), and the 1946-51 cohort were in their 70s, while the 1989-95 cohort were in their late 20s/early 30s. Consequently, while the report concentrates on changes for women in the 1946-51 cohort as they aged from their 40s to their 70s, the report also contrasts the experiences of these women with those of the 1921-26 cohort (who may shed light on these women's future health expectations), and those of the younger cohorts as they move into their middle years.

The findings aim to improve understanding of midlife for women in Australia and the implications for health and wellbeing in midlife and beyond. They can help identify intervention points at earlier stages of women's lives to reduce risk of adverse outcomes, and inform preventive health policy and targeted intervention strategies to improve women's health and wellbeing over the medium and long term.

Overview of the four ALSWH cohorts across the life course

The initial analyses used longitudinal data from ALSWH, collected since the baseline survey (in 1996) up to the most recent surveys. These data provide an overview of health and key factors across the four cohorts, essentially covering the life course from early adulthood to old age. This overview clarifies the changes across the course of women's lives, often showing progress in health states, but also highlighting areas of rising concern, with each generation of Australian women:

- Successive cohorts of women are: better educated, less likely to smoke, more likely to undertake sufficient physical activity for health benefit, but more likely to be in an overweight or obese body mass index (BMI) category.
- The 1989-95 cohort, the youngest in ALSWH, have poorer self-rated health and poorer mental health, as is clearly evident in comparison with the 1973-78 cohort.
- Rates of obesity have increased rapidly in the 1989-95 cohort compared with previous generations. Over 20% were in an obese BMI category by their late 20s, a rate not seen in the 1973-78 cohort until their late 30s, and not until women in the 1946-51 cohort were aged in their 50s.

Then and now: Comparing two generations of women during midlife

Longitudinal data for women in the 1973-78 and 1946-51 cohorts were then compared across midlife, with a specific comparison point used for women in the 1973-78 cohort when they were aged 40-45 in 2018, with the 1946-51 cohort women when they were aged 45-50 in 1996. This showed that:

- The prevalence of overweight and obesity increased over time for women in both cohorts. The increase was greater among the 1973-78 cohort, who were more likely to be in an overweight or obese BMI category at the age of 40-45 in 2018, than the older women were when they were aged 45-50 in 1996 (57% compared with 45%).
- The 1946-51 cohort were more likely than the 1973-78 cohort to meet Australian Guidelines for fruit and vegetable consumption, physical activity and sitting time, and alcohol consumption.
- Both cohorts showed a decline in smoking over time, with less than 10% of the 1973-78 cohort being smokers in their 40s, a rate substantially lower than for 1946-51 cohort around that age. While smoking in the 1946-51 cohort has continued to decline to less

than 5% by their 70s, in the 1973-78 cohort the rate of decline in smoking has slowed in recent surveys.

- Most chronic conditions considered in this report increased with age. These included diabetes, arthritis, cancer, heart disease, urinary incontinence, and difficulty sleeping, together with more doctor visits and poorer self-rated health.
- Consistent with the higher rates of obesity for the 1973-78 cohort in their 40s, the prevalence of diabetes at age 40-45 is already around 5% and is on the rise. This prevalence only occurred for the 1946-51 cohort when they were 50s. Similarly, there are early indications that women in the 1973-78 cohort in their 40s are tracking higher than expected for both heart disease and urinary incontinence when compared with the 1946-51 cohort.
- The mental health of women in the 1946-51 cohort improved with age, with measures of depression, anxiety, and stress all showing a consistent decline. For the 1973-78 cohort, however, after an initial decline there was a sharp rise in depression, anxiety and stress scores, since their mid-30s or since around 2010, that has yet to show a shift to a decline again.
- There were some other notable differences between cohorts, possibly reflecting changes in medical practice. Asthma prevalence increased over time but was much more common overall in the 1973-78 cohort. For hysterectomy less than 5% of the 1973-78 cohort had the procedure by age 40-45 years, compared with more than 20% of women in the 1946-51 cohort by age 45-50.

Social and personal circumstances

We compared the patterns of change in the social and personal circumstances of women in the 1946-51 cohort as they age from their mid-40s to their 70s with those in the 1973-78 cohort (from their 20s to their early 40s). This showed that:

- In terms of employment, women in the 1946-51 cohort not in the workforce most of the time had the lowest 36-Item Short Form Survey (SF-36) scores for mental health and physical functioning at each age point compared with other employment categories that showed little difference. Similarly for the 1973-78 cohort, though here the category combined part-time employment and not in the workforce.
- For relationship status, those in the 1946-51 cohort who were always partnered had the highest SF-36 mental health and physical functioning scores, while those who were single or were no longer in a partnership had the lowest. Again similar differences were evident in the 1973-78 cohort (with the differences being clearest for physical functioning as the women approached their 40s).

- Social needs and roles of women are a key factor in women's lives, with women in both cohorts who reported lower levels of social support having the lowest mental and physical functioning score across the age range. This was similarly the case for women who needed help with daily tasks and for those who had a caring role.
- Women in the 1946-51 cohort at age 68-73 who reported a fall to the ground in the previous 12 months were found to have markedly lower social and physical function and mental health scores and a higher percentage were stressed about different aspects of their lives (from relationships with spouse and children to health and managing on their income). The same findings were seen for those who ever had reported a fall to the ground.

Abuse and violence in midlife

The surveys of interpersonal violence reported by the women covers the experience of childhood abuse, domestic violence, and sexual abuse.

- At age 45, half of the women (52%) in the 1973-78 cohort reported experiencing interpersonal violence compared with 36% of women at that age in the 1946-51 cohort.
- On average, women in midlife who have reported interpersonal violence also experience poorer physical functioning, poorer mental health, worse social functioning, and consistently higher levels of stress.
- Among mid-aged women, use of health services (GP visits, specialist consultations, etc.) was higher for women who had experienced interpersonal violence, which was consistent with women in the 1973-78 cohort at age 45 years.

Then and now: Comparing two generations of women in their early 70s

Women in the 1946-51 cohort, aged 70-73 in 2019 were compared with women at the same age in 1996 in the 1921-26 cohort:

- In their early 70s, women in the 1946-51 cohort generally had better scores across the domains of SF-36 Health Related Quality of Life than the older generation of women in the 1921-26 cohort at the same age. This was clear for *general health* and *vitality*, but particularly so for *physical functioning* and *role physical* (limitations in activity or participation in terms of physical functioning) and similarly for *role emotional*.
- The 1946-51 cohort were also less likely to smoke but had a higher prevalence of obesity than the 1921-26 cohort.

- Women in the 1946-51 cohort had better self-reported general health and lower prevalence of a range of symptoms, from poor memory and eyesight problems, to breathing difficulties. The exceptions were stiffness or painful joints (which were the same across cohorts) and a higher prevalence of leaking urine in the 1946-51 cohort compared to the 1921-26 cohort, which is consistent with the higher rates of obesity in the younger generation.
- The relationship with health service use by the 1946-51 cohort in their early 70s is not straightforward. These women had a higher prevalence of specialist and hospital doctor attendances, but with a lower proportion having seven or more GP visits in the previous year, when compared with the 1921-26 cohort. These differences may reflect changes in the health system and policy since 1996.

Women's attitudes to ageing and their outlook for the future

A qualitative analysis of the free-text responses from women in the 1946-51 cohort when aged in their late 60s and early 70s has provided a rich narrative on their diverse perceptions of ageing. Five major themes were identified:

- *Attitudes towards health with ageing* were expressed as an anticipation of worsening health over time, attention to activities that support health, and perceptions of (both positive and negative) changes to mental health with age.
- *The experience of slowing down* that included acceptance and reflection on past experiences and achievements.
- *Loss of independence and reduced capability due to ageing* with views expressed on the implications and limitations, including on forming relationships and the need for support.
- *The impact of financial security on life choices and health*, including concerns about the future and managing on their income, and the difficulty of undertaking paid work, that contrasted with others who felt financially secure.
- *Life transitions and changes in purpose and identity*, including experiences of both positive adjustment to and the difficulties of coping with life events such as retirement or bereavement – ranging from a loss of purpose and social isolation, to taking on new opportunities for work, study, and caring roles with grandchildren.

Implications and recommendations

Compared to women in the 1946-51 cohort, women in the 1973-78 cohort in their early 40s are generally better placed in terms of their physical and mental health and across various aspects of their lives including education levels and participation in the workforce, than the previous generation. However, there are a number of key areas of concern, that have important implications for their health and wellbeing going forward:

The comparatively higher rates of overweight and obesity in the 1973-78 cohort already appear to correspond with the higher trajectory of diabetes prevalence (and possibly with higher rates of leaking urine) compared with the older generation. Further research on cancers and cardiovascular disease will confirm if these are also on a higher trajectory than seen in the 1946-51 cohort.

- **Recommendation:** Further research and interventions are needed to reverse the rising obesity rates that risk undoing the current health and wellbeing advantage this generation has otherwise gained, with increased risk of chronic conditions going forward and their associated demand on health services.

Progress on smoking cessation, which shows the 1973-78 cohort has a lower prevalence of current smokers than the older generation, which appears to have slowed. If this slowing continues, then smoking rates may be higher than the older generation by their 60s.

- **Recommendation:** Smoking cessation research and preventive health policy needs to focus on women in the late 30s and early 40s (in addition to initiatives directed at younger women) to support them quitting before the major health consequences of later midlife develop, such as cardiovascular disease and cancer.

The rise in depression, anxiety, and stress scores since 2010 in the 1973-78 cohort are yet to show signs of a return to the expected trajectory of improvements with age as seen in the 1946-51 cohort. With the challenges posed in recent years by major life-events, including those related to the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic and major disasters, such as bush fires, we may see a further rise in these markers of poor mental health.

- **Recommendation:** Research should continue to focus on the depression, anxiety, and stress levels seen in these women, which if worsening further due to recent events, would underscore the importance of initiatives to return the trajectory to improving mental health with age.

The high prevalence of women in the 1973-78 cohort who reported the experience of interpersonal violence by their early 40s, with the poorer physical functioning, mental health, social functioning, and consistently higher levels of stress.

- **Recommendation:** Interpersonal violence is a major issue that remains unresolved for women; one that requires on-going policy initiatives and research to evaluate progress and to help mitigate the substantial health and wellbeing consequences going forward.

The low participation in the workforce in the 1973-78 cohort (and supported by similar findings in the older generation) is consistently linked with poorer mental health and physical functioning scores.

- **Recommendation:** Further research is needed on the direction and causal pathways for these relationships and initiatives are needed to focus on increased workforce participation across midlife.

If there are clear warning signs on overweight and obesity in the 1973-78 cohort, then there should be alarm bells ringing on the rapid increase for the 1989-95 cohort. These women in their late 20s already have overweight and obesity rates not seen in previous generations until much later, even decades older in the 1946-51 cohort.

- **Recommendation:** Intervention studies and preventive health strategies are needed that are targeted at women prior to midlife with corresponding research evaluation of their efficacy, if we are to mitigate the increased risk of chronic diseases and burden on health service use in the decades ahead.

Compared to the 1921-26 cohort, there is some evidence that women in the 1946-51 cohort may have better self-reported health and health-related quality of life scores. However higher rates of obesity in this cohort may limit gains in healthy ageing.

- **Recommendation:** Continue to monitor the 1946-51 cohort to understand the drivers and impact of higher obesity rates, and to unpack those factors that might be supporting the overall better quality of life that seems apparent for these women.



Informing the National Plan to End Violence against Women and Children 2022- 2032

The new *National Plan to End Violence against Women and Children 2022-2032* brings together Australia's state, territory and federal governments with a commitment to end violence against women and children within one generation. The ambitious plan has four focus areas: prevention; early intervention; response; and recovery and healing.

ALSWH was the first study to show the significant long-term physical and mental health impacts of domestic violence using longitudinal data.

The evidence-base

ALSWH has collected data on the prevalence and impact of interpersonal violence among its 1921-26, 1946-51, and 1973-78 cohorts for over 25 years. The youngest cohort of women, born 1989-95, have also provided almost a decade of data on their health, wellbeing and experiences of violence. Participants have also answered survey responses about their historical experiences of violence, including childhood abuse.

Research using ALSWH data has shown that:

- Domestic violence continues to have significant long-term impacts on women's physical and mental health for at least 16 years
- Women who have experienced violence have higher rates of health service use

- The prevalence of sexual violence against women in Australia was much higher than previously thought – 51% of women in their 20's, 34% of women in their 40s, and 26% of women aged 68 to 73 have experienced sexual violence.
- Sexual violence was related to poorer health and financial stress across all age groups
- 1 in 20 middle-aged women in a caregiving role has also experienced intimate partner violence. They are twice as likely to suffer from depressive symptoms and stress and have worse health than other women.
- Social support was indicated as a factor that might assist in recovery from domestic and sexual violence

Research Translation

Research and data from ALSWH contributed directly to the new plan throughout the consultation process.

Inquiry into family, domestic and sexual violence

In 2020, ALSWH provided a written submission to the Inquiry into family, domestic and sexual violence. Representatives from ALSWH were invited to provide further evidence at the Committee's Public Hearing. ALSWH's submission made the following recommendations:

1. Existing national studies, such as ALSWH, should be funded to analyse existing data to answer key questions about the long-term impacts of domestic, sexual and family violence, and the factors that mitigate those impacts.
2. Existing national studies should be funded to collect more extensive and comparable data on domestic violence and abuse as a part of standard data collection. Building on existing studies ensures cost-effectiveness.
3. Facilitation of linkage between existing study data with administrative data (e.g. crime statistics, Centrelink) would strengthen the existing evidence base and enable timely responses.
4. Many of the terms of reference included in this inquiry can be examined using existing data, such as ALSWH. For example, ALSWH includes, but is not limited to, data on health, housing, and different forms of violence.
5. The long-term impact of violence indicates the need to understand how women recover from abuse experiences, in order to inform the development of much needed trauma recovery services.

National Plan Consultation Reports

ALSWH made a submission to the National Plan Consultation through an online questionnaire and staff attended two Victim Survivor Advocates workshops as part of the consultation process. Participation in the workshops was by invitation only. In addition, the *National Plan Stakeholder Consultation Report* references the ALSWH website in its source list. The ALSWH website lists publications and reports and provides access to other resources drawing on ALSWH data.

The National Plan also cites the 2022 report *A life course approach to determining the prevalence and impact of sexual violence in Australia: The Australian Longitudinal Study on Women's Health*. This report was undertaken with project funding from Australia's National Research Organisation for Women's Safety (ANROWS). It gives recommendations for:

- A holistic response to sexual violence that takes account of women's whole lives at both policy and practice levels
- Consistency in defining sexual violence
- The need for a life course approach to understanding sexual violence and its impacts
- The prevention of further disadvantage through addressing economic distress
- Reducing the risk of poor physical and mental health
- Promotion of recovery from experiences of sexual violence through social support and accessible health services

The Study has advocated strongly for polices to include recovery, and it is pleasing to see that the new Plan includes action items to support women's long-term recovery and to further invest in research on the long-term impacts of gender-based violence.

ALSWH Policy Symposium

The ALSWH 2022 symposium for the Department of Health and Aged Care was held on 5 December. The sessions were held in Canberra, and a range of stakeholders from the Department of Health and Aged Care, other Government sectors and related agencies, attended in-person and virtually. Findings from current research were presented by the ALSWH team - topics covered were:

Healthy Ageing (Prof Gita Mishra)

- **Intergenerational comparisons:**
 - Comparisons of the health and health service use - including Commonwealth home support programs and home care packages, and residential aged care - of women currently in their seventies (i.e., the 1946-51 cohort) with the previous generation (1921-26 cohort)
 - Comparisons of reproductive ageing (menopause and symptoms) of women currently in their 40s (1973-78 cohort) with the previous generation (1946-51 cohort).

Maternal and Child Health (A/Prof Leigh Tooth)

- **Results from the first Mothers and their Childrens Health Survey**
 - Preconception health
 - Perinatal mental health
 - Breastfeeding patterns
 - Screen time

- **Overview of new substudies:**

- Matches: The Mothers and their Children's Healthcare Experiences Study (funded by the Medical Research Future Fund)
- Maternal and early life origins of menstrual disorders and pelvic pain (MAPPS; funded by the National Health and Medical Research Council)

Health service use (Dr Hsiu-Wen Chan, Peta Forder, Natalie Townsend)

- **COVID and the effects on health care use by Australian women**

Reproductive health (Prof Gita Mishra, Natalie Townsend)

- **Contraception use among young women (born 1989-95)**
- **Gynaecological conditions: Endometriosis, Polycystic Ovary Syndrome, Fertility issues**

Violence against women (Prof Deborah Loxton)

- **Update on current research**

New projects in 2022

ALSWH data is available for use by approved researchers. Two types of datasets are available – the ‘full’ dataset, which includes all data available to ALSWH; and the ‘core’ dataset, which are confidentialised subsets of the full ALSWH survey datasets and available through the Australian Data Archive.

Full datasets

Thirty-six collaborative projects using the full ALSWH datasets were approved in 2022 – the titles, lead collaborators, and synopses of these new projects are listed here.

A1285: Body dissatisfaction and psychological well-being in pregnancy

- Dr Robyn Brunton - Charles Sturt University

Findings from previous research indicate that pregnant women can experience high levels of body dissatisfaction and that greater body dissatisfaction is associated with lower levels of psychological well-being. Therefore, this study explores whether pregnant women have greater body dissatisfaction (weight/shape concerns and weight control measures), depression, and anxiety than non-pregnant women. We also examine whether body dissatisfaction predicts anxiety and depression for pregnant women, and if this is moderated by parity (i.e., number of previous births).

A1223A: Dietary patterns and infertility problems

- Dr Jessica Grieger - The University of Adelaide

Infertility affects around one in six couples, and is associated with significant emotional, social and health burden. There are a number of studies demonstrating certain foods or nutrients

may associate with infertility, but there is still no conclusive guidance on the best types of foods to support fertility. Moreover, assessment of dietary patterns, as a holistic approach, has been rarely assessed in relation to fertility and increasing age.

Increasing age is a strong risk factor for infertility problems, but so is high BMI, and poor diet. In both younger and older women, the percent contribution of these risk factors to infertility problems has not been assessed. Furthermore, it is not known whether the contribution of BMI, diet, or lifestyle variables to infertility problems changes over the course of a women's life, independent of the adverse effects of increasing age.

This study investigates dietary patterns and the association with reproductive health parameters. It also assesses the independent and joint contribution of diet and lifestyle variables, and risk for infertility problems, and determines whether the contribution of diet and lifestyle variables to fertility problems changes over time.

A1277: The impact of infertility experiences and fertility treatments on women's emotional well-being and work outcomes

- A/Prof Suzanne Chan-Serafin - University of New South Wales

The 'invisible' challenge of infertility affects one in six Australian couples of reproductive ages. Reproductive age is often the prime of one's career. Fertility treatments are lengthy and emotionally draining processes in which significant variability in family interference with work and emotional states is expected. This study investigates the work and emotional outcomes for women experiencing infertility and those undergoing fertility treatments over time. The study advances diversity and work-life literature by addressing the temporal aspect of infertility. By gaining a better understanding of the work and emotional impact of infertility on employees, the study will inform organizations on how to better support these employees when developing their diversity and equity human resource practices.

A1292: Depression, anxiety and quality of life during Assisted Reproductive Technology (ART) treatment

- Dr Katrina Moss – Australian Women and Girls' Health Research Centre, The University of Queensland

One in six Australian couples experience infertility and up to 75% will seek treatment, most commonly IVF. Assisted reproductive technology treatment (ART) is burdensome and approximately 25-53% report depression or anxiety before treatment and 40-75% during treatment. Clinic-based research often measures key variables during a treatment, but many

women require multiple cycles and women's experience between cycles is not currently represented. This research aims to understand changes in depression and health-related quality of life during ART.

A1303: Associations between fertility problems and pregnancy and birth outcomes

- Dr Jessica Grieger – The University of Adelaide

Certain known risk factors influence fertility, including poor diet, polycystic ovary syndrome, increasing maternal age, and increasing BMI. Such factors are also known to be associated with a range of pregnancy complications including gestational diabetes, preeclampsia, and the delivery of an earlier or heavier baby. There are increased risks of obstetric and/or neonatal complications in infertile patients, thus, potentially shared and underlying risk factors that contribute to infertility may also contribute to pregnancy complications and long-term health outcomes of the mother and child. This study investigates relationships between infertility problems and a range of pregnancy outcomes, taking into account key risk factors for infertility and pregnancy outcomes, such as BMI, diet quality, smoking, and physical activity.

A751B: The association of dietary factors with inflammation and infertility in women with and without polycystic ovary syndrome (PCOS)

- A/Prof Lisa Moran – Monash Centre for Health Research and Implementation, Monash University

Polycystic ovary syndrome (PCOS) is a condition affecting up to one in five reproductive-aged women associated with reproductive, metabolic and psychological complications. Inflammation is proposed as one of the aetiological factors associated with PCOS and conditions associated with increased inflammation such as infertility which is more prevalent in women with PCOS. Different foods are understood to modify inflammation so that better quality diets or diets higher in fruit and vegetables tend to be anti-inflammatory and subsequently improve spontaneous fertility outcomes and outcomes of assisted reproductive technologies. However, the contribution of dietary quality to conditions associated with inflammation in PCOS has not been well-elucidated. This study investigates whether dietary quality is associated with infertility in women with and without PCOS.

A1318: Infertility, fertility and pregnancy complications in women with polycystic ovary syndrome

- Dr Maria Forslund – Monash Centre for Health Research and Implementation, Monash University

PCOS is a complex hormonal disorder, affecting one in five women. It is one of the most common causes of infertility. This project uses longitudinal data to explore prevalence, incidence and predictors of infertility, and specially the role of modifiable risk factors, including BMI, for women with and without PCOS when it comes to infertility, infertility treatment and difficulties to conceive. Time to first child, and time between children, will also be studied, as this can be a different aspect of difficulties to conceive. Women with PCOS have an increased prevalence of pregnancy complications. Using the long term follow-up available in ALSWH, we can study how not only lifestyle factors and preconception BMI, but also infertility and infertility treatment influence the risk.

A1276: The relationship between a diagnosis of PCOS and menstrual irregularity, use of contraception and mental health over time

- Prof Jenny Doust – Australian Women and Girls' Health Research Centre, The University of Queensland

In the women in the ALSWH 1989-95 cohort, 16% report a diagnosis of PCOS and in the 1973-78 cohort, 9% report this diagnosis. This study examines the relationship between the diagnosis of PCOS and a) menstrual irregularity, b) the use of the contraceptive pill and other hormonal contraceptive methods and c) the mental health of women with PCOS.

A1288: The metabolic impact of combined oral contraceptive pills in women with and without polycystic ovary syndrome

- Dr Jillian (Chau Thien) Tay – Monash University

PCOS is a common hormonal disorder in women which is associated with health complications including diabetes and cardiovascular risk factors. Combined oral contraceptive pills (COCPs) are the first-line pharmacological treatment for women with PCOS as they improve typical PCOS symptoms. Previous research has linked COCPs with increased diabetes risk and worsened cholesterol levels which raised concerns regarding their usage in women with PCOS who are already prone to these disorders. However, research findings regarding COCPs usage on the actual development of diabetes and high cholesterol in women with and without PCOS are inconsistent and deserves further evaluation.

A819B: Lifetime reproduction outcomes in women with polycystic ovary syndrome

- Dr Anju Joham - Monash Centre for Health Research and Implementation, Monash University

PCOS is a complex hormonal disorder common affecting one in five women and one in four Australian Indigenous women. It is one of the most common causes of infertility and more than two-thirds of women with PCOS required fertility treatment to conceive. Family planning in women with PCOS is therefore extremely important as the success of fertility treatment is highly dependent on age. We intend to examine throughout the women's reproductive life, their preconception health and fertility outcomes including the mean age of first and subsequent deliveries, delivery mode, pregnancy complications, delivery, use of fertility treatment, and final family size.

A492C: The experience of breastfeeding for women with chronic health conditions.

- Dr Catherine Chojenta – Centre for Women's Health Research, The University of Newcastle

Characterised by long-term development and persistent symptomatology, chronic conditions impact on healthcare expenditure and burden of disease. Women with chronic conditions may require specialised care and advice during postpartum to ensure optimal health for mother and baby. Existing evidence suggests that women with chronic conditions are less likely to breastfeed, although there is increasing evidence that breastfeeding is generally optimal for women with chronic conditions and their infants. Despite this, there are no specific guidelines to direct clinicians and patients in these situations. The aim of this project is to examine breastfeeding initiation and duration among women with chronic conditions.

A1323: Breastfeeding in Australian women with maternal metabolic conditions: A study of rates, durations, and predictive factors

- Dr Kate Rassie – Monash Centre for Health Research and Implementation, Monash University

Metabolic conditions such as diabetes (pre-gestational Type 1 and 2, and gestational) and PCOS affect an increasing proportion of Australian pregnancies. Breastfeeding represents an important opportunity to optimise both neonatal and future maternal health and may have particular benefits for women at high metabolic risk. However, existing national and

international data suggests that rates of both initiation and continuation of breastfeeding may be lower in these metabolic subgroups than in the general population.

A1294: Development of diabetes and cardiovascular events following gestational diabetes or pre-eclampsia: An Australian mothers data linkage project

- A/Prof Sarah Zaman – The University of Sydney

This study assesses the association of novel female risk factors, such as pre-eclampsia, gestational diabetes, breast feeding and premature menopause, on clinical outcomes of diagnosis of diabetes and cardiovascular outcomes that are currently not included in risk factor calculators. Healthy lifestyle factors such as diet and exercise will be accounted for in the analysis, and we will provide further evidence of their association with diagnosis of diabetes and cardiovascular outcomes.

A1322: Asthma exacerbations among childbearing women in Australia

- Dr Annemarie (Annelies) Robijn – The University of Newcastle

Asthma is the most common chronic condition among women of childbearing age in Australia. Up to 45% of pregnant women with asthma experience an asthma exacerbation during pregnancy. Asthma and exacerbations are associated with adverse perinatal and infant health outcomes, such as gestational diabetes, preterm birth and childhood asthma. The purpose of this study is 1) to describe characteristics of pregnant women with asthma in comparison to pregnant women without asthma, 2) to identify and describe exacerbation patterns among pregnant women with asthma and, 3) to predict exacerbation patterns based on characteristics.

A1314: Fibroids in Australian women

- Dr Louise Wilson – Australian Women and Girls' Health Research Centre, The University of Queensland

The aim of this project is to better understand fibroids in Australian women through investigation of prevalence, incidence, characteristics, risk factors, symptoms and treatment pathways. It will address an important gap in existing evidence with potential implications for clinical practice.

A038D: Relationship between diet quality and health service utilisation: An updated analysis

- Prof Clare Collins - College of Health, Medicine and Wellbeing, The University of Newcastle

This project evaluates whether healthy eating is associated with reduced health care costs and all-cause and cardiovascular mortality. So far, we have shown consuming a greater variety of vegetables to be associated with lower 10-year and 15-year cumulative Medicare charges and claims. We have also previously shown that women whose diet quality worsened over 12 years had higher healthcare costs (Medicare charges) compared with those whose diet quality improved or remained the same. Now, we are investigating whether these relationships are strengthening over a greater time period, or not. We will also examine whether healthy eating is associated with reduced all-cause and cardiovascular mortality. This research may help to identify appropriate dietary targets associated with reduced health care costs and mortality. Further evaluations in other studies are needed so that modelling of potential future cost savings can be conducted. The results will inform a policy brief related to diet quality and healthcare costs over time.

A1298: Does diet mediate the relationship between sociodemographic factors and cardiovascular and dementia outcomes in Australian women?

- Dr Briar McKenzie – The George Institute for Global Health

Cardiovascular disease (CVD) and dementia are the leading causes of death and disability for Australian women. Poor dietary patterns are an established key risk factor for CVD and are likely a risk factor for dementia. The relationship between sociodemographic factors, poor dietary patterns and CVD and dementia outcomes needs to be assessed to ensure equitable risk reduction. We aim to use the ALSWH data to assess the relationship between socio-demographic equity factors (ethnicity, SES, income, and location of residence) with dietary intake (both as a continuous measure of diet quality and in terms of food group intakes) and CVD (heart disease and stroke) and dementia outcomes. The aim of this study is to identify whether diet mediates the relationship between sociodemographic equity factors and disease outcomes.

A1302: Artificial sweetened beverages consumption and maternal and child health

- Dr Jo Zhou – The University of Adelaide

Consumption of artificial sweeteners has increased substantially over the last few decades. Emerging evidence suggests that regular consumption of artificial sweeteners impairs blood glucose control in healthy adults, and may increase the risk of childhood obesity in children whose mothers consumed artificial sweeteners in pregnancy. This study examines the relationship between maternal consumption of artificial sweeteners in pregnancy, and maternal and child health in the ALSWH and MatCH cohorts.

A1306: Comparison of omnivore, vegetarian and vegan dietary patterns and depressive symptoms in Australian women

- Dr Megan Lee – Bond University

There are over 300 million people in the world who experience the symptoms of depression. Research suggests that healthy dietary patterns may have an inverse impact on depressive symptoms in the general population. However, the evidence on the association between meat (omnivore) and plant-based dietary patterns (vegetarian and vegan) and depression (20 observational studies and four systematic reviews) is conflicting and inconsistent. This project aims to compare the association of diet quality (high and low) and depressive symptoms in omnivore, vegan and vegetarian women in Australia across time.

A1278: Optimism as a potential protective factor for mental health outcomes following sexual assault

- Rebecca Fellowes - The University of Newcastle

Whilst sexual assault is associated with a range of detrimental outcomes, many survivors also experience personal growth following the traumatic experience. A range of cross-sectional studies have demonstrated a positive association between increased optimism and improved mental health in sexual assault survivors specifically. However, high-quality longitudinal research investigating this relationship is still lacking. As such, using data from the 1946-51 cohort, this study explores the relationship between sexual abuse, victims' level of dispositional optimism and their long-term mental health outcomes. We primarily aim to explore whether optimism protects against detrimental mental health outcomes following sexual abuse.

A1319: The role of perceived social support in the relationship between premenstrual symptoms and postnatal depression

- Sophia Bracken – The University of Newcastle

Postnatal depression is a debilitating mental health disorder affecting approximately 15% of mothers in the 12 months after delivery. Previous research has established that women who frequently experience premenstrual symptoms are especially vulnerable to developing postnatal depression. It has also been established that low perceived social support in the postpartum is associated with postnatal depression, but it is unclear whether this is the case for women with frequent premenstrual symptoms. To identify a potential prevention/treatment target for these women, this study aims to determine whether low perceived social support in the postpartum is linked to postnatal depression in women with premenstrual symptoms.

A1296: Positive aspects of caregiving - a cross-country comparison approach

- Emily Princehorn – Centre for Women's Health Research, The University of Newcastle

Few studies examine the trajectories of caregivers across their caregiving journey and even fewer, if any, of these focus on the positive aspects of caregiving. Data from the ALSWH will be used to examine how caregiver experiences change across time and identify predictors of positive caregiver experiences. We are interested in not only elucidating the components of positive care interactions but also in sharing this knowledge so that interventions could be developed to enable care partners to have better experiences.

A1300: Health-related quality of life among Australian women cancer survivors

- Dr Md Jijanur Rahman – The Daffodil Centre, The University of Sydney

Cancer survivors are a large and growing population worldwide. Optimising their health-related quality of life (HRQOL) has become a major public health goal. A growing number of studies have examined the determinants of HRQOL but few have focussed on psychosocial determinants such as the role of optimism and social support. Using data from two large cohorts (born 1946-51 and 1921-26) of the ALSWH and linked Australian Cancer databases from 1996 to 2019, this study will assess HRQOL among cancer survivors over time, identify the patterns of change, and examine how optimism and social support are associated with HRQOL, adjusting for socio-demographic and behavioural factors, time from diagnosis, and other health conditions.

A762A: Healthy mother, sustainable nation: A study into the factors averting poor perinatal mental health

- Melissa Sherrel Pereira – Centre for Women’s Health Research, The University of Newcastle

Occurrence of depression and anxiety in the perinatal period have devastating consequences on the mother, child and the immediate family. This project investigates the preventative factors associated with poor perinatal mental health in women with a history of depression and anxiety. It involves data linkage where data from the Medicare Benefit Schedule will be utilized to analyse access to therapy prior to and during the perinatal period. Other known risk factors for poor mental health will be controlled for in the analyses.

A1297: Sex differences in the play equipment available at Australian children’s homes

- Stephanie Duncombe – The University of Queensland

Different combinations of play equipment are associated with children's physical activity levels. While there is evidence that girls and boys have different activity preferences and choice in games, no studies have investigated whether sex differences exist in the play equipment that children have at home. The aim of this study is to investigate differences between the play equipment that boys and girls have at home. This could be useful for future interventions aimed at increasing children's physical activity levels.

A1290: Physical activity and sedentary behaviour of mothers and children among culturally and linguistically diverse communities

- Dr Susan Paudel – Institute of Physical Activity and Nutrition, Deakin University

Cultural diversity is increasing in Australia with around one-fifth of the population speaking a language other than English at home. Evidence regarding physical activity and sedentary behaviour of mothers and children of culturally and linguistically diverse (CALD) communities and understanding of how different factors interact to shape these behaviours is limited. This study will examine if the prevalence of physical activity and sedentary behaviour among mothers and children differ by CALD and non-CALD background and identify associated factors. The study outputs will improve our understanding of the physical activity and sedentary behaviour practices of mothers and children from CALD communities and the sociodemographic and home environmental factors shaping these behaviours.

A1313: Physical activity behaviour before and after diagnosis of Type 2 Diabetes in Australian women: Data from a large population-based cohort study

- Dr Emily Cox – The University of Newcastle

Regular physical activity is an effective primary and secondary prevention strategy for people with type 2 diabetes (T2D). However, it is unclear whether people change their daily physical activity after being diagnosed. We aim to identify and compare physical activity trajectories before and after diagnosis of T2D in young- and middle-aged Australian women (born in 1946-51 and 1973-78, respectively). We will also compare the associations between sociodemographic, behavioural and health characteristics with physical activity trajectories in these women.

A1309: Care transitions among women living with dementia

- Prof Mariko Carey – The University of Newcastle

Unplanned moves into hospital or residential aged care can be stressful for people with dementia and their families. Planned transitions to hospital and to residential care may ease pressure on emergency services and assist in maintaining quality of life for people with dementia and their families. This project investigates planned and unplanned transitions to residential aged care and hospital and the factors associated with these.

A1321: Prevalence and risk factors for osteoporosis, falls and fractures in Australian women with inflammatory arthritis

- Prof Cathie Sherrington – The University of Sydney

The lifetime risk of minimal trauma fractures for women is 44% for women and 25% for men. Osteoporosis and falls are both major independent predictors of minimal trauma fractures, with approximately one-third of individuals older than 65 years falling each year. Inflammatory arthropathies (IAs) are associated with higher prevalence of osteoporosis, falls and fracture burden. The aim of this project is to define the prevalence and risk factors for osteoporosis, falls and fractures in Australian women with rheumatoid arthritis and other inflammatory arthropathies and to describe trends for screening and treatment.

A770A: Elder abuse: Terminology, detection and prevention among older Australian women living with and without dementia

- Prof Julie Byles – Centre for Women’s Health Research, The University of Newcastle

This project comprises two studies. Study 1 is “Believe me I’m awake”: Dementia and the propositional density of written language among older women in the Australian Longitudinal Study on Women’s Health (ALSWH)’. Women living with dementia can be supposed to have lost capacity to control life choices such as living arrangements, activities, medical treatments, and management of assets. With an increasing focus on abuse of the human rights of older people, suggested protective solutions include capacity assessment and documented planning for future decisions. Study 1 examines the written language of older women 1) with no dementia, 2) with a confirmed diagnosis of dementia and 3) with dementia diagnosed within 3 years (lagged diagnosis), via external linked data, using propositional density (a linguistic measure) as a marker of cognitive decline. Propositional density has been identified as a measure sensitive to cognitive decline in other studies of older age. This new knowledge is clinically useful and may lead to a new direction in the development of more sensitive capacity assessment tools and earlier detection of dementia, which will allow for proactive medical intervention as well as life planning.

Study 2 is ‘The terminology of elder abuse among older Australian women, living with and without dementia’. Accurate detection is fundamental to addressing elder abuse. Globally, women have a higher likelihood of experiencing elder abuse than men, and are more likely to report it, but they may not use direct terminology like “abuse”. Dementia, a risk factor for abuse, may further inhibit women from overtly reporting. This study qualitatively examines the terminology of abuse among older women, including those living with dementia, from written comments in the ALSWH surveys. It also examines their responses on survey items relating to abuse and vulnerability to abuse. Findings will contribute to the evaluation of current methods of elder abuse detection for older women living with and without dementia and inform possible education programs for health professionals and others working with older women.

A1295: Submission to consultation on the new Queensland Women’s Strategy

- Prof Gita Mishra– Australian Women and Girls’ Health Research Centre, The University of Queensland

Queensland Health is seeking input for their new Queensland Women’s Health Strategy, providing ALSWH with the opportunity to use Study data to inform the Queensland Government of the key issues in women’s health and health service use in the State. This

report will examine general health, behavioural and lifestyle factors, female reproductive characteristics, chronic conditions, and health service use amongst Queensland women and girls, compared to Australia overall. Additionally, areas of health inequality due to area of residence, education, income management, employment stability, housing, and domestic violence will be identified.

A1316: Cohort profile updates: Where are we now?

- Prof Deb Loxton – Centre for Women’s Health Research, The University of Newcastle

This project will provide an up-to-date snapshot of the ALSWH cohorts, including comparisons against baseline surveys and the most recent Australian census data. The project will also compare cohorts with respect to key sociodemographic and health behaviours when the participants were the same age, notably between the 1973-78 and 1946-51 cohorts, and for the 1946-51 and 1921-26 cohorts, as well as the 1989-95 and 1973-78 cohorts. Finally, the project will include an up-to-date cohort profile that provides an overview of the ALSWH cohorts for other researchers (similar to previous publications), including a summary of recent major findings for each cohort.

A1327: Survey of women's health in the ACT

- Dr Merri Andrew – Women’s Health Matters, Australian Capital Territory

This project will use ALSWH data to inform the development of a repeatable survey on the state of women's health and wellbeing in the ACT and conduct an initial wave of research. The findings of the repeatable Women's Health Matters survey will be used to identify gaps, monitor the ACT Wellbeing Framework for women, and advocate for gender responsive services for all ACT women.

A1329: 2023 MAJOR REPORT: COVID and the effects on health care use by Australian women

- Prof Gita Mishra– Australian Women and Girls’ Health Research Centre, The University of Queensland

This report will examine the impact of the COVID-19 pandemic on women’s health care use and cost. Health care use before and during the pandemic will be compared between specific groups of women based on their sociodemographic characteristics. Women's experiences with their health and health care services during the pandemic will also be examined using the fortnightly short surveys undertaken in the first six months of the COVID-19 pandemic (April-

Oct 2020). These pandemic surveys collected both quantitative and qualitative data, allowing for contextual examination about how women responded to their health care needs during the initial months of the pandemic.

A849A: Three essays in Health Economics: IVF Policy Change Implications

- Prof Brenda Gannon – School of Economics, The University of Queensland

This research uses a microeconomics health production model and econometric models to assess the economic impact of a policy change in the reimbursement for medical care in Australia, and the resulting impact on the use of health services for women who received reproductive treatments such as In Vitro Fertilisation (IVF). This project will also study the mortality and morbidity rates differentials among IVF-born and conventionally born children.

W122: Mothers and their Children's Healthcare Experience Study (MatCHES)

- Prof Gita Mishra – Australian Women and Girls' Health Research Centre, The University of Queensland

This substudy collects new data on the experience of preventive healthcare by mothers from the 1989-95 cohort and their children, from before conception, through pregnancy and early childhood. This will generate the new knowledge needed to address issues with the effectiveness and delivery of current maternal and child preventive care. In collaboration with doctors, nurses, and the community, the study will make detailed recommendations to improve preventive healthcare, including for disadvantaged women and children.

Core dataset

The 'core' datasets include total scale scores, with a reduced number of single survey items; sensitive variables are omitted; and in some cases, response categories are collapsed. Ten applications to use the 'core' datasets were approved in 2022:

- *Identifying health behaviours as key targets for lifestyle modification and pre pregnancy intervention* (Dr Paige van der Pligt, **Deakin University**)
- *Pregnancy intentions and subsequent fertility and contraceptive behaviors among Australian women* (Dr Otobo Ujah, **University of South Florida**)
- *Adverse childhood experiences and the risk of pregnancy complications and adverse* (Tuhin Biswas, **The University of Queensland**)
- *The role of stress in the relationship between premenstrual tension and postpartum depression* (Sophia Bracken, **The University of Newcastle**)
- *The influencing factors of premenstrual tension and its influence on other mental disorders* (Dr Lulu Hou, **Shanghai Normal University**)
- *Partnering patterns associated with polycystic ovary syndrome (PCOS) in Australian women* (Yoobin Park, **University of Toronto**)
- *The relationship between optimism and work experience* (Weiwen Yang, **The Chinese University of Hong Kong**)
- *Trajectories of physical activity across the lifespan in Australian women: Correlates and health consequences* (Dr Yuta Nemoto, **The University of Queensland**)
- *The economic cost of violence, abuse, neglect and exploitation for people with disability* (Dennis McCarthy, **The Centre for International Economics**)
- *The harms and benefits of sun exposure: Striking the right balance* (Dr Namal Nishantha Balasooriya Mudiyansele, **The University of Queensland**)

Completed Student Projects

Modelling the incidence of admission of older women to hospital, and the impact of comorbidity and frailty on hospital use

PhD candidate: Dinberu Shebeshi

Supervisors: Prof Julie Byles, Dr Xenia Dolja-Gore and Prof Jimmy Efirid

Institution: The University of Newcastle

Australians have one of the highest life expectancies in the world - the proportion of the population over 60 years is increasing, and these older people account for a large proportion of health service users. In addition, at these ages, women outnumber men due to their longer life expectancy. However, women are more likely to be frail, and are more likely than men to require hospital services in later life. Even though hospital care should not be denied for older people, prevention of avoidable hospital admission and reduction in length of hospital stays are important in decreasing adverse health outcomes and the subsequent burden on the healthcare system.

This study identified the frailty and chronic disease burden among older women and examined the impact on hospitalisations, unplanned readmission, length of hospital stay, and mortality. This study linked data from women in the 1921–26 birth cohort of the Australian Longitudinal Study on Women’s Health (ALSWH) with New South Wales Admitted Patient Data Collection and the National Death Index, to identify hospitalisations (admission and discharge dates) and death dates. Using the International Statistical Classification of Diseases Australia Modification (ICD-10-AM) diagnostic codes, scores were calculated for the Charlson Comorbidity Index (CCI), and the Hospital Frailty Risk Score (HFRS). Self-report survey data

were used to calculate the Frail Scale and to provide other demographic, health and social information.

Predictors of unplanned and planned hospitalisations were independently assessed according to the Andersen Newman healthcare utilisation model, showing predisposing and need factors were associated with unplanned admission. In contrast, predisposing and enabling factors were associated with planned admission. Women with a higher CCI had increased risk of repeated hospital admissions and mortality. More women were identified as frail through the Frail Scale compared to the HFRS. This finding highlighted that a single score may be inadequate to prognosticate for all poor outcomes associated with frailty in older people.

Adverse pregnancy outcomes in Australia: Prevalence, recurrence, pattern of multiple outcomes and risk factors

PhD candidate: Habtamu Bizuayehu

Supervisors: Dr Melissa Harris, Dr Catherine Chojenta and Prof Deborah Loxton

Institution: School of Medicine and Public Health, The University of Newcastle

Introduction: The rates of adverse pregnancy outcomes (preterm birth and low birth weight) and labour interventions (episiotomy, instrumental birth and unplanned caesarean section) have progressively increased in high income countries in recent years. In particular, adverse outcomes have increased in Australia by about 10% over the past decade and are higher than reported in a number of other high income countries. In 2017 in Australia, nearly one in ten births were preterm (8.7%) or low birth weight (6.7%), and about half of babies were born involving labour interventions (episiotomy [23%], instrumental birth [12.6%], and/or unplanned caesarean section [18.2%]). While a range of biological, psychological, and social factors have previously been identified as being associated with adverse pregnancy outcomes and labour interventions, these have mainly come from cross-sectional secondary data which lacks temporality. Further, previous studies have failed to consider the examination of predictors within a framework that considers the influence of biological, psychological and social factors on these outcomes concurrently. This study therefore harnessed the power of national community-based longitudinal data by investigating adverse pregnancy outcomes and labour interventions among women prospectively followed for 19 years, using a comprehensive biopsychosocial framework.

This thesis had four aims:

- to determine the variation in preterm birth, low birth weight and caesarean sections (planned and unplanned) by maternal residential area
- to calculate the prevalence and recurrence rate of preterm birth and to assess the associated biopsychosocial factors
- to calculate the prevalence and recurrence rate of low birth weight and to assess the associated biopsychosocial factors
- to describe the rate of patterns of labour interventions (episiotomy, instrumental birth, and unplanned caesarean section) and to determine the associated biopsychosocial factors.

Methods: A mix of research methods and robust analysis techniques (path analysis, multilevel analysis of the longitudinal data), which have been less frequently applied by prior studies, were used. Firstly, an integrative review was carried out to assess the geographical variation in preterm birth, low birth weight, and caesarean section and biopsychosocial risk factors in Australia. Secondly, the prevalence and recurrence rate of adverse pregnancy outcomes, patterns of labour interventions and associated biopsychosocial factors were examined using the 1973-78 cohort of Australian Longitudinal Study on Women's Health (ALSWH).

Results: The integrative review found that while women who lived in rural and remote areas had higher rates of preterm birth and low birth weight and lower rates of caesarean section compared to their urban and city counterparts, the reviewed studies lacked quality due to being carried out using administrative secondary data and not considering the confounding associated with a range of biopsychosocial factors. The analysis of ALSWH data showed that adverse pregnancy outcomes were reported in about five per hundred babies. Labour interventions were used in about three fifth of births. Preterm birth was shown to be significantly associated with biological factors (hypertension, diabetes, asthma, birth order, age at menarche, and history of miscarriage) and social factors (educational status and relationship status). Low birth weight was also associated with biological factors including body mass index, diabetes, hypertension, age at menarche, and birth order. Labour interventions were found to be associated with both maternal biological factors (body mass index, diabetes, hypertension, age, height, length of labour, induction of labour) and social factors (educational status, relationship status, area, and private hospital insurance). Importantly, consistent across the studies, biological factors including hypertension, diabetes, body mass index and social factors including educational status, relationship status, and area were found to influence both adverse pregnancy outcomes and labour interventions.

Conclusion: The key to preventing adverse pregnancy outcomes and labour interventions may lie in improving and developing evidence-based multi-sectoral policies to enhance the

prevention of hypertension and diabetes and the monitoring of weight through nutritional and exercise interventions. Improving the utilization of preconception care and antenatal care are also required for the early detection and intervention of the risk factors of adverse pregnancy outcomes and labour interventions. Strengthening prevention of adverse pregnancy outcomes and labour interventions are keys for improving the health and wellbeing of mothers and babies, which are two main public health agendas, will have long-term benefits for not only this generation but future generations.

The association between maternal and childhood environmental exposures and mental health and cognitive function of Australian children

PhD candidate: Salma Mohamed Ahmed

Supervisors: A/Prof Luke Knibbs, Prof Gita Mishra and Prof Ian Yang

Institution: School of Public Health, The University of Queensland

Background and aims: Environmental exposures can induce epigenetic processes in organisms, particularly during developmental stages. As postulated in the Developmental Origins of Health and Disease (DOHaD) framework, early-life environmental risk in children can manifest as long-term disease risk later in life. With the existence of diverse air pollutants, the task of attributing its impact on neurodevelopment and cognitive function in children continues to accumulate more research. Furthermore, greenspaces (i.e., parks, forests etc.) are thought to counteract the effects of air pollution and enhance mental health and wellbeing in children. This research examined the association between environmental exposures and the neurodevelopment and cognitive functioning of Australian children aged up to 13 years.

Environmental toxicants are shown to have an impact on the health and development of children from pregnancy through childhood. For this reason, multiple exposure windows from pregnancy and through childhood were considered in each research objective:

- 1) to examine the association between ambient fine particulate matter (PM_{2.5}) and nitrogen dioxide (NO₂) during early life and childhood and mental health symptoms and developmental delay
- 2) to examine the impact of greenspaces on early childhood development and academic performance

3) to assess the association between greenspaces and children's quality of life.

Methods: Self-reported data on mothers from the 1973–78 cohort (aged 18–23 years in 1996) of the Australian Longitudinal Study on Women's Health (ALSWH) were used. Child data (n=5,799 children aged <13 years from 3,048 mothers) was obtained from a sub-study in ALSWH 1973–78 cohort, known as the Mothers and their Children's Health (MatCH) study and conducted in 2016/17. Guided by the DOHaD framework, several exposure windows based on longitudinal exposure data since 1996 were calculated. Using land-use regression models, annual PM_{2.5} and NO₂ estimates were linked to geocoded residential addresses in ALSWH and MatCH.

This was followed by evaluating the associations between ambient air pollution exposure in early life and during childhood and behaviour and emotional problems (aged 2–12 years, n=5,471 children), and psychomotor delays in children (1–66 months, n=1,265 children). Education data linked to the MatCH children were used i.e., the Australian Early Development Census (AEDC) and the 'National Assessment Program – Literacy and Numeracy' (NAPLAN) to assess early child development (median age: 5.3 years, n=936 children) and academic performance (n= 1,679 children in Year 3, at baseline), respectively. Two high-resolution (30 m) remote-sensing-based measures were used to capture green (Normalized Difference Vegetation Index, NDVI) and non-green vegetation (fractional cover of non-photosynthetic vegetation, fNPV) within 100 m and 500 m buffers of each residential address.

Finally, the association between greenspace and the quality of life of all children surveyed in MatCH was analysed. In addition to descriptive statistics, regression models were employed using generalised estimating equations with directed acyclic graphs developed to guide the selection of variables that required adjustment.

Results: In MatCH, lifetime exposure to moderate levels of PM_{2.5} (5.9-7.1 µg/m³) during childhood was associated with higher odds of emotional/behavioural problems (OR: 1.27, 95% CI 1.03, 1.57). Similar associations were found for moderate PM_{2.5} levels in the 'first year of life' in a two-pollutant model only (OR: 1.30; 1.05,1.60). No evidence of a significant association was present between NO₂ exposure and residential road proximity and children's emotional/behavioural problems and psychomotor development. For the second analyses, a one standard deviation (SD) increase in residential fNPV ('at the year of test' and 'child lifetime' period) within 500 m buffer was significantly associated with unsatisfactory NAPLAN scores relative to national standards in reading, writing, and grammar and punctuation at baseline Year 3 and Year 5 (follow-up) in both the crude and adjusted models. However, residential greenness within 100 m and 500 m was not significantly associated with early childhood

development and academic performance. Also, isolated findings were presented across all exposure windows between children's health-related quality of life and surrounding greenspaces. Finally, our sensitivity analyses suggest that the observed associations across all analyses reported did not change based on maternal residential status or geocoding method used.

Conclusion: There was limited evidence children's early life and lifetime exposure to PM2.5 is associated with emotional and behavioural problems and gross motor skills. However, to address causality from varying exposure time windows, longitudinal studies in low-exposure settings should be prioritised. Our study further demonstrates stronger associations between non-photosynthetic vegetation within 500 m of homes and poor academic scores. However, current evidence using fNPV exposure is too scarce to offer a conclusion. Therefore, further longitudinal studies are warranted on this topic to fully understand not only the relationship but also the mechanisms linking environmental exposures and brain development.

Physical Activity and reproductive health problems in women

Masters candidate: Dr Gabriela Mena Ribadeneira

Supervisor: Prof Wendy Brown

Institution: School of Human Movement and Nutrition, The University of Queensland

Many women experience reproductive health problems, which have social and economic implications. While research has shown that overweight and obesity are linked to reproductive health issues such as menstrual problems and/or infertility, little is known about the effects of physical activity (PA) on indicators of reproductive health. Therefore, the overall aim of this thesis was to improve understanding of the relationships between PA and reproductive health in young adult women.

This project involved a systematic review and meta-analysis and two epidemiological studies. The systematic review and meta-analysis found that compared with no intervention controls or with other treatments such as diet, rates of clinical pregnancies and live births were higher in PA intervention groups. However, when PA was compared with standard fertility treatments, there were no significant differences in a range of outcomes. These preliminary findings suggested that PA may be an affordable and feasible alternative or complementary therapy to fertility treatments. This work was published in [Human Reproduction Update](#) in 2019.

The epidemiological studies involved analysis of data from the Australian Longitudinal Study on Women's Health (ALSWH). In the first of these studies, prospective associations between PA, sitting time and body mass index (BMI), with problems with fertility over 15 years were explored in a cohort of >6,000 ALSWH participants. The cumulative incidence of fertility problems was 15.4% (95% CI: 14.5–16.4). High levels of PA were associated with an 18% reduction in the risk of problems with fertility, and higher BMI was positively associated with fertility problems (overweight: 18% higher risk; obesity: 36% higher risk). Overall, sitting time was not associated with fertility problems. When PA and BMI were combined, high levels of PA attenuated the risk of fertility problems by 36%, in women who were in the normal BMI category. This work was published in [Human Reproduction](#) in 2020.

In the second ALSWH study, prospective associations between PA and BMI with irregular periods and heavy menstrual periods (HMB) were examined in >10,500 women. The prevalence of HMB was 15.9% at baseline and doubled after 15 years. Women who were overweight and obese had higher odds of both irregular periods and HMB than women who were underweight/normal weight. When the joint associations between PA and BMI were explored, high levels of PA were associated with a 19% reduction in the odds of HMB in women who were obese. This study was published in [Human Reproduction](#) in 2021.

The second part of this project involved the development of a survey to explore preferences for PA context in women with fertility problems, and the development, implementation, and evaluation of the feasibility of a preconception PA support program. Survey respondents reported high psychological distress, and more than 40% were overweight or obese and had irregular periods. Most said they preferred to exercise close to home, outdoors and on weekdays and that they were willing to participate in a PA program. These findings support efforts to develop and implement PA programs that are targeted to women who want to conceive.

In light of the COVID-19 pandemic, the intervention study was delivered remotely, using a printed booklet and on-line education sessions, supported by a smartwatch with built in Personal Activity Intelligence (PAI) technology (designed as a motivator). In this feasibility trial, all except one participant reached the goal of 100 PAI. There was a significant reduction in psychological distress post-intervention and the participants reported that they liked using PAI and that they would recommend it to others.

Significance and Conclusion: Each study in this thesis contributes to our understanding of the relationships between PA and women's reproductive health. Different research techniques were used to conduct a series of innovative studies, including the first systematic review and

meta-analysis of associations between PA and indicators of reproductive health in women, and analyses of prospective data on PA, BMI and fertility and menstrual problems in Australian women. The intervention study was the first to investigate the use of PAI as a motivator for increasing PA in women of reproductive age. There is potential to develop this program into a mobile app, to encourage more physical activity in women in the preconception period. Overall, this PhD research contributes to the limited available evidence on relationships between physical activity and reproductive health in women. Ultimately, these findings can be used to promote PA as an affordable and a feasible strategy for reducing the social and economic implications of reproductive health problems in young women.

Maternal diet before pregnancy and its effect on birth outcomes and child health and wellbeing

PhD candidate: Dereje Gete

Supervisors: Prof Gita Mishra and Dr Michael Waller

Institution: School of Public Health, The University of Queensland

Background and aims: Adverse birth outcomes, childhood behavioural disorders, and adverse weight outcomes, including underweight, overweight, and obesity are increasingly widespread, and have a substantial impact on adulthood health and quality of life.

The maternal diet plays a key role in epigenetic changes in the fetus, which has been linked with birth outcomes, offspring behaviours, and weight outcomes. However, evidence on the association between pre-pregnancy dietary patterns and adverse birth outcomes has been limited and inconsistent. Also, no studies, to our knowledge, have examined the role of pre-pregnancy dietary patterns on offspring behavioural problems and body mass index (BMI). This project examined the role of pre-pregnancy dietary patterns on adverse birth outcomes, offspring behavioural problems, and BMI outcomes.

Methods: This project utilized several data sources and analytical methods. Initially, a systematic review was conducted to summarize current evidence on associations between maternal diets before and during pregnancy and risk of preterm birth, low birth weight (LBW), and small for gestational age (SGA) from observational and interventional studies, and to identify gaps from existing evidence for future research. Secondly, data from the Australian Longitudinal Study on Women's Health (ALSWH) were used to examine:

- (1) prospective association between pre-pregnancy dietary patterns and risk of preterm birth (n= 3422) and LBW (n= 3508), and
- (2) changes in dietary patterns from preconception to during pregnancy and their associations with socio-demographic and lifestyle factors (n= 621).

Third, data from the 1973-78 cohort of the ALSWH and the Mothers and their Children's Health (MatCH) sub-study were used to examine:

- (1) the role of pre-pregnancy dietary patterns on offspring behavioral problems (n= 1554) and BMI outcomes (n= 3391), and
- (2) the mediating role of child diets in the association between pre-pregnancy diets and offspring behavioral problems (n= 1448).

A validated 101-items food-frequency questionnaire (FFQ) was used to assess maternal dietary consumption. Factor analyses and the Healthy Eating Index-2015 (HEI-2015) score were used to explore maternal dietary patterns prior to pregnancy. A validated self-report of preterm birth and LBW were reported for each live birth using three-yearly surveys. Childhood behavioural problems were assessed using the Strengths and Difficulties Questionnaire (SDQ). Multivariable logistic and linear regression, multinomial logistic regression with cluster-robust standard errors, repeated measures mixed-effect models, and a counterfactual approach mediation analysis were used for analyses.

Results: Evidence from our systematic review (n= 40 articles) comprising mostly prospective cohort studies with five randomized controlled trials suggests that better maternal diet quality during pregnancy – characterized by a high intake of vegetables, fruits, whole grains, dairy, and protein diets, may lower risk of preterm birth and SGA. The evidence was infrequent and inconsistent for the associations between pre-pregnancy dietary patterns and risk of preterm birth and LBW. Using ALSWH data, we found that higher consumption of "traditional vegetable pattern" before pregnancy was associated with a 28% lower risk of preterm birth (AOR= 0.72, 95% CI: 0.53, 0.99) and a 38% of lower risk of spontaneous preterm birth (RRR= 0.62, 95% CI: 0.39, 1.00), highest compared with the lowest dietary score. No significant associations were observed between pre-pregnancy dietary patterns and LBW risk. Greater adherence to maternal diet quality prior to pregnancy was also associated with reduced risk of childhood total behavioural problems, obesity, and underweight, (AOR = 0.52, 95% CI 0.32, 0.85), (RRR = 0.49, 95% CI: 0.24, 0.98), and (RRR = 0.68, 95%CI: 0.49, 0.96), respectively.

This project further demonstrated that the association between pre-pregnancy diets and offspring behavioral problems was partly mediated through childhood diet – comprised of high fat and sugar consumption - that explained 20% of the poor preconception diets on the risk of

offspring behavioural problems. There was a dietary change from preconception to during pregnancy. The transition in dietary patterns from preconception to during pregnancy might be influenced by education, income, and marital status.

Conclusions: The current body of evidence suggests that a certain maternal dietary pattern during pregnancy - characterized by a high intake of vegetables, fruits, whole grains, dairy, and protein diets, may be associated with a lower preterm birth and SGA risk. Evidence from our population-based prospective cohort study demonstrated that better maternal diet quality before pregnancy may have a substantial role in reducing preterm birth, offspring behavioural problems, obesity, and underweight risk. Childhood diet, specifically high fat and sugar consumption explained 20% of the association between pre-pregnancy diets and offspring behavioural problems. This dissertation suggests that maternal and child diet quality may be important modifiable factors to improve birth outcomes, child health and quality of life. These findings, if confirmed in other populations with well-powered longitudinal studies/randomized controlled trials, will have important implications for healthcare providers and policymakers to provide better-targeted intervention strategies, with the potential to strengthen childhood health and wellbeing.

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Publications

Summary

During 2022, 52 papers, books and book chapters were published or accepted for publication in peer reviewed academic journals and by academic publishers. These publications covered a wide range of research themes, including:

- Chronic conditions
- Reproductive health
- Weight, nutrition and physical activity
- Health service use
- Mental health
- Abuse
- Ageing
- Methodology
- Tobacco, alcohol and other drugs
- Medications
- Caring
- Social factors in health and wellbeing
- Health in rural and remote areas
- Roles and relationships
- Intergenerational issues
- Formal and informal work patterns and work-family balance

Published Papers

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Book

Campbell A. (2022). **Sexual fluidity among Millennial women: Journeys across a shifting sexual landscape.** <https://doi.org/10.1007/978-3-031-13650-4>

Accepted Book chapter

Byles J, Tavener M & Princehorn E. (2022). Healthy Ageing at very old ages - perspectives from women in the oldest cohort of the Australian Longitudinal Study on Women's Health. *International Handbook on Contemporary Ageing Issues: Various Narratives*.

Reports

[Health and wellbeing of women in midlife: Findings from the Australian Longitudinal Study on Women's Health.](#) Mishra G, Barnes I, Byrnes E, Cavenagh D, Dobson A, Forder P, Hockey R, Loxton D, Townsend N & Byles J. Report prepared for the Australian Government Department of Health, May 2022.

Townsend N, Loxton D, Egan N, Barnes I, Byrnes E & Forder P. Research report 14/2022, ANROWS. ISBN: 978-1-922645-45-6 (paperback) | 978-1-922645-46-3 (PDF) 95pp.

Conference Presentations

In 2022, ALSWH data were used in 43 conference presentations.

Baldwin J, Clarke E & Collins C. **Diet quality and 21-year cumulative healthcare claims and charges associations among Australian women** (Poster presentation). *International Congress on Obesity 2022*, Melbourne, VIC, 18-22 October 2022.

Baneshi MR, McElwee P & Dobson A. **Exploring the association between causes of death listed in Part II of death certificates by comparison of the observed and expected frequency of pairs and triads of diseases: A Bayesian approach**. *5th Meeting of the MultiCause Network*, Bonn Germany, 19-20 May 2022.

Baneshi, MR, McElwee P & Dobson A. **Exploring the underlying patterns among causes of death listed in Part II of death certificates using Social Network Analysis**. *5th Meeting of the MultiCause Network*, Bonn, Germany, 19-20 May 2022.

Byles J. **100 and not out: Health and healthy ageing for women approaching 100 years of age**. *IAGG 2022: 22nd World Congress of Gerontology and Geriatrics*, Virtual, 12-16 June 2022.

Campbell A & Baxter J. **The road to unfreedom: How violence and disadvantage accumulate in young women's lives**. *Society for Longitudinal and Life Course Studies Annual International Conference*, Cleveland, USA, 23-25 October 2022.

Chung HF. **Age at menopause and risk of lung cancer among postmenopausal women: A systematic review and meta-analysis**. *QLD Women's Health Forum*, Toowoomba, QLD, 12-13 September 2022.

Francis L & Stulz V. **Finding a life without domestic violence: Analysing free text data from the ALSWH.** *Stop Domestic Violence Conference 2022*, Gold Coast, QLD, 30 November - 2 December 2022.

Gete D. **The role of child diets in the association between pre-pregnancy diets and childhood behavioral problems: A mediation analysis** (Poster presentation). *Nutrition 2022*, Online, 14-16 June 2022.

Hambisa M. **Application of Andersen-Newman model to assess cataract surgery uptake among older Australian women: Findings from the Australian Longitudinal Study on Women's Health (ALSWH).** *Australian Society for Medical Research (ASMR) Hunter Region Annual Scientific Meeting*, Newcastle, NSW, 6 June 2022.

Koller-Smith L. **Estimating the prevalence of rheumatoid arthritis in Australia** (Poster presentation). *Australian Rheumatology Conference ASM 2022*, Perth, WA, 6-9 May 2022.

Kwok W, Dolja-Gore X, Byles J, Pinheiro M, Oliveira J, Khalatbari-Soltani S, Sherrington C. **Falls and physical activity in older Australian women from two different generations.** *Safety 2022: 14th World Conference on Injury Prevention & Safety Promotion*, Adelaide, SA, 27-30 November 2022.

Kwok W, Dolja-Gore X, Khalatbari-Soltani S, Byles J, Oliveira J, Pinheiro M, Sherrington C. **Exploring the relationship between physical activity and falls in Australian women.** *9th International Society for Physical Activity and Health (ISPAH) Congress*, Abu, Dhabi, 23-26 October 2022.

Kwok W, Dolja-Gore X, Khalatbari-Soltani S, Byles J, Pinheiro M, Oliveira J, Naganthan V, Sherrington C. **Associations between different amounts and types of physical activity (PA) and injurious falls in older Australian women** (Poster presentation). *IAGG 2022: 22nd World Congress of Gerontology and Geriatrics*, Virtual, 12-16 June 2022.

Kwok W, Dolja-Gore X, Byles J, Pinheiro M, Oliveira J, Khalatbari-Soltani S, Sherrington C. **Are there any differences in falls, physical activity (PA) and the associations between PA and falls in older women from two different generations?** *IAGG 2022: 22nd World Congress of Gerontology and Geriatrics*, Virtual, 12-16 June 2022.

Kwok W, Dolja-Gore X, Byles J, Pinheiro M, Oliveira J, Khalatbari-Soltani S, Sherrington C. **Understanding physical activity and falls in Australian women.** *NSW Fall Prevention and Healthy Ageing Network Annual Forum, Sydney, NSW, 27-May 2022.*

Lithgow S. **The terminology of abuse among older Australian women from the Australian Longitudinal Study on Women's Health.** *National Elder Abuse Conference, Hobart, TAS, 14-15 February 2022.*

Loxton D, Townsend N, Byrnes E, Barnes I & Anderson A. **Women's mental health during the pandemic: Analysing free-text data to inform national policy.** *Qualitative research in quantitative environments: Giving voice to cohort members symposium. Timescapes 10 Festival, University of Leeds, UK, 6 September 2022.*

Loxton D. **What has happened to women during the pandemic? Using a national resource to find answers for policy.** *Women's Health Forum, Cairns Base Hospital, Cairns, QLD, 20 July 2022.*

McElwee P, Baneshi MR, Nguyen K-H & Dobson A. **A new data driven weighting method for Multiple Cause of Death analysis.** *5th Meeting of the MultiCause network, Bonn, Germany, 19-20 May 2022.*

McElwee P, Baneshi MR, Nguyen K-H & Dobson A. **Development of an Australian categorisation for Multiple Cause of Death analysis.** *5th Meeting of the MultiCause Network, Bonn, Germany, 19-20 May 2022.*

Mena G. **The role of physical activity in fertility.** *FACTS Conference 2022 For the Future of Women's Health, Virtual, 23 July 2022.*

Mielke G. **Magic mirror on the wall - who is the most inactive of them all?** *9th International Society for Physical Activity and Health (ISPAH) Congress, Abu, Dhabi, 23-26 October 2022.*

Mielke G. **Physical activity during pregnancy: Guidelines, patterns and interventions.** *9th International Society for Physical Activity and Health (ISPAH) Congress, Abu, Dhabi, 23-26 October 2022.*

Mishra G, Loos C & Tooth L. **Australian Longitudinal Study on Women's Health: A data linkage journey 1997-2022** (Keynote presentation). *Public Health Research Network Client Services Forum*, Virtual, 10 May 2022.

Mishra G. **Global issues in women's cardiovascular health: Results from InterLACE consortium**. *Annual Scientific meeting of the Cardiac Society of Australia and New Zealand (CZANZ)*, Gold Coast, QLD, 12 August 2022.

Mishra G. **The health of women in QLD across the lifespan**. *QLD Women's Health Forum*, Toowoomba, QLD, 12-13 September 2022.

Mishra G. **Leveraging life course epidemiologic studies to inform best practice into mother, infant, and family care**. *NHMRC symposium: An equitable start to life: getting best practice to mother, infant and Family*, Virtual, 17 November 2022.

Moss K. **What is the best fertility treatment for women with Endometriosis - IUI or IVF?** *Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) Annual Scientific Meeting 2022*, Gold Coast, QLD, 10-12 October 2022.

Moss K. **Environmental events**. *QLD Women's Health Forum*, Toowoomba, QLD, 12-13 September 2022.

Moss K. **Making a difference after natural disasters – reducing the influence of prenatal flood-related stress on pregnancy and childhood outcomes**. *2022 SOMANZ Annual Scientific Meeting*, Hobart, TAS, 14-16 October 2022.

Moss K. **Perinatal Health: Insights from the Australian Longitudinal Study on Women's Health**. *Queensland Perinatal Consortium Conference 2022 (QPACT)*, St Lucia, QLD, 15 December 2022.

Pan K, Charlton BM, Chavarro JE, Gunderson EP, Hart J, Jukic AM, Ley S, Mishra GD, Mumford SL, Shaffer JG, Wise LA & Harville EW. **Preconception cannabis use and gestational diabetes mellitus (GDM): The PrePARED consortium**. *2022 Society for Pediatric and Perinatal Epidemiologic Research (SPER)*, Chicago, USA, 13-14 June 2022.

Pan K, Charlton BM, Chavarro JE, Gunderson EP, Hart J, Jukic AM, Ley S, Mishra GD, Mumford SL, Shaffer JG, Wise LA & Harville EW. **Preconception cannabis use, gestational hypertension, and pre-eclampsia: the PrePARED consortium.** *2022 Society for Pediatric and Perinatal Epidemiologic Research (SPER)*, Chicago, USA, 13-14 June 2022.

Parkinson B, William J, Loong B, Hanna D & Loxton D. **The lifetime health costs of intimate partner violence: A prospective longitudinal cohort study with linked data for out-of-hospital and pharmaceutical costs.** *43rd Annual AHES Conference*, Brisbane, QLD, 20-21 September 2022.

Parkinson B, William J, Loong B, Hanna D & Loxton D. **The lifetime health costs of intimate partner violence: A prospective longitudinal cohort study with linked data for out-of-hospital and pharmaceutical costs.** *12th Health Services Research Conference*, Sydney, NSW, 30 November - 02 December 2022.

Paudel S, Mishra G, Veitch J & Hesketh K. **Does the prevalence of overweight/obesity, physical activity and sitting time differ by CALD background? A secondary analysis of the Australian Longitudinal Study on Women's Health.** *International Congress on Obesity (ICO) 2022*, Melbourne, VIC, 18-22 October 2022.

Paudel S, Mishra G, Veitch J, Mielke G, Hesketh K. **Physical activity, organised sports and sitting time among mothers of culturally and linguistically diverse background.** *Asia-Pacific Society for Physical Activity (ASPA) 2022*, VIC, 28-29 November 2022.

Poon E. **Prevalence and patterns of long-term antidepressant use in older female Australians.** *Medicines Management 2022, The 46th SHPA National Conference*, Brisbane, QLD, 1-3 December 2022.

Tooth L. **Delayed health care access during the pandemic.** *QLD Women's Health Forum*, Toowoomba, QLD, 12-13 September 2022.

Tooth L, Moss K, Hockey R, Mishra G. **Are screen time guidelines actually working for Australian families?** *Population Health Congress*, Adelaide, SA, 21-23 September 2022.

William J, Loong B, Hanna D, Parkinson B & Loxton D. **The lifetime health costs of intimate partner violence: a prospective longitudinal cohort study with linked data.** *Australian Gender Economics Workshop 2022, Virtual, 10-11 February 2022.*

Wilson L, Doust J, Dobson A, Mishra G. **The associations between sociodemographic factors and symptom patterns in young Australian women.** *Population Health Congress, Adelaide, SA, 21-23 September 2022.*

Xu Z, McElwee P, Hockey R & Dobson A. **Accuracy of death certifications of diabetes, dementia, and cancer in Australia.** *5th meeting of the MultiCause Network, Bonn, Germany, 19-20 May 2022.*

Seminars and Workshops

ALSWH data were used in 23 seminars and workshops during 2022.

Byles J. **Getting to 100 – an overview of the cohort born 1921-26.** *The Australian Longitudinal Study on Women's Health (ALSWH) 2021 Symposium*, Virtual Event, 3 December 2021.

Chan H-W, Forder P & Townsend N. **COVID and the effects on health care use by Australian women (2023 Major Report).** *Australian Longitudinal Study on Women's Health (ALSWH) 2022 Symposium*, Canberra, ACT, 5 December 2022.

Chan H-W. **The Menarche-to-PreMenopause (M-PreM) substudy: Investigating the relationship between reproductive history and chronic disease risk factors.** *UQ School of Public Health Inaugural Research Showcase 2022*, Herston, QLD, 24 November 2022.

De Munck I. **Resilience after surgery in older women.** *Radboud University Medical Centre, Department of Geriatric Medicine, Research Seminar*, Nijmegen, The Netherlands, 12 July 2022.

Hambisa M. **Cataract surgery uptake among older Australian women: Findings from the Australian Longitudinal Study on Women's Health (ALSWH).** *The University of Newcastle Higher Degree Student Research Annual Festival*, Newcastle, NSW, 27 June 2022.

Hlaing-Hlaing H. **Diet quality and non-communicable disease in the 1946–1951 cohort of the Australian Longitudinal Study on Women's Health.** *The University of Newcastle Higher degree Student Research Annual Festival*, Newcastle, NSW, 30 June 2022.

Liang C. **Female specific risk factors in reproductive stage for non-communicable disease.** *UQ School of Public Health Seminar Series*, Herston, QLD, 5 July 2022.

Loos C. **Sharing survey and linked data in the Australian Longitudinal Study on Women's Health.** *UQ School of Public Health Inaugural Research Showcase 2022*, Herston, QLD, 24 November 2022.

Loos C. **Twenty years of data linkage in the Australian Longitudinal Study on Women's Health** (poster). **UQ School of Public Health Inaugural Research Showcase 2022**, Herston, QLD, 24 November 2022.

Loxton D & Forder P. **Mental health.** *Australian Longitudinal Study on Women's Health (ALSWH) 2022 Symposium*, Canberra, ACT, 5 December 2022.

Loxton D. **Violence against women.** *Australian Longitudinal Study on Women's Health (ALSWH) 2022 Symposium*, Canberra, ACT, 5 December 2022.

Mishra G. **Women's & children's health and well-being: Impact of the environment and Non-communicable Diseases (NCDs).** *UN 66th Commission on the Status of Women (CSW) event co-hosted by the International Council of Women and the Communications Coordination Committee for the United Nations*, UN Headquarters, New York, USA, 16 March 2022.

Mishra G & Loxton D. **Australian Longitudinal Study on Women's Health overview.** *Australian Longitudinal Study on Women's Health (ALSWH) 2022 Symposium*, Canberra, ACT, 5 December 2022.

Mishra G. **Aged care, healthy ageing.** *Australian Longitudinal Study on Women's Health (ALSWH) 2022 Symposium*. Canberra, ACT, 5 December 2022.

Mishra G. **Cardiovascular health in women.** *Queensland Cardiovascular Research Network (QCVRN) and the National Heart Foundation end-of-year Research Showcase*, Brisbane, QLD, 8 December 2022.

Moss K. **Delayed diagnosis of endometriosis disadvantages women in Assisted Reproductive Technology (ART).** *University of Queensland Centre for Clinical Research (UQCCR) Seminar Series*, Brisbane, QLD, 1 June 2022.

Moss K. **Delayed diagnosis of endometriosis disadvantages women in Assisted Reproductive Technology (ART).** *Queensland Fertility Group Journal Club*, Brisbane, QLD, 16 July 2022.

Rowlands I. **Early life risk factors for endometriosis.** *UQ School of Public Health Inaugural Research Showcase 2022*, Herston, QLD, 24 November 2022.

Tooth L. **The Australian Women and Girl's Health Research Centre.** *UQ School of Public Health Inaugural Research Showcase 2022*, Herston, QLD, 24 November 2022.

Tooth L. **Intergenerational health (mothers' and their children's health).** *Australian Longitudinal Study on Women's Health (ALSWH) 2022 Symposium*, Canberra, ACT, 5 December 2022.

Tooth L & Mishra G. **Australian Women and Girls' Health Research Centre.** *Health and Wellbeing Queensland*, Brisbane, QLD, 17 December 2022.

Townsend N & Mishra G. **Reproductive health services, endometriosis.** *Australian Longitudinal Study on Women's Health (ALSWH) 2022 Symposium*, Canberra, ACT, 5 December 2022.

Wessel E. **The Mothers and their Children's Healthcare Experience Study.** *UQ School of Public Health Inaugural Research Showcase 2022*, Herston, QLD, 24 November 2022.

Submissions to Government

Productivity Commission Inquiry into Carer's Leave

This inquiry examined the economic and social impacts of allowing informal carers to take extended unpaid leave from their work to care for older people who are frail and living at home. The ALSWH surveys have tracked carers' experiences in the 1921-26, 1946-51, and 1973-78 cohorts since 1996. ALSWH has reported on the impact of caregiving on carers' health and wellbeing for over 15 years and has made numerous policy recommendations.

The submission provides evidence on:

- The circumstances in which women become informal carers
- How formal and informal care interact in the aged care sector
- How informal carers are affected by their caring responsibilities
- The factors women took into account when considering whether to take on a caring role
- Income supports and services used by and needed by carers
- Whether supports should extend to carers of people other than elderly adults

Full details of the submission are available on the Study [website](#).

Data Archiving

ALSWH data are annually archived at the Australian Data Archive at the Australian National University. To date, data have been archived for:

- Surveys 1 to 5 of the 1989-1995 cohort
- Surveys 1 to 8 of the 1973-1978 cohort
- Surveys 1 to 9 of the 1946-1951 cohort
- Surveys 1 to 6 of the 1921-1926 cohort, along with the incomplete data from the six-month follow up survey of the 1921-1926 cohort.

In 2022, recent data from the six-month follow up survey of the 1921-1926 cohort were archived.

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This list includes collaborators (excluding students) from all currently active projects using ALSWH data. For further information, please [visit the ALSWH website](#).

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Australian Longitudinal Study
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A detailed description of the background, aims, themes, methods, and representativeness of the sample and progress of the study is given on the Study website. Copies of surveys are also available on the website, along with contact details for the research team, abstracts of all papers published, papers accepted for publication, and conference presentations.