

women's  
health  
AUSTRALIA

Australian Longitudinal Study  
on Women's Health

# ANNUAL REPORT 2020



THE UNIVERSITY  
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THE UNIVERSITY OF  
NEWCASTLE  
AUSTRALIA

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# Introduction

Funded by the Australian Government Department of Health since 1995, 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. The Study is a national research resource, and since its inception 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:

- Young women born 1989-95 (aged 25-31 in 2020)
- Women born 1973-78 (aged 42-47)
- Women born 1946-51 (aged 69-74)
- Women born 1921-26 (aged 94-99)

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. Study data can be currently linked with data from national administrative datasets (e.g., Medicare Benefits Schedule, Pharmaceutical Benefits Scheme, National Death Index, and Aged Care) as well as state/territory datasets (e.g., hospital admissions, perinatal data, and cancer registries).

This report outlines the Study's progress and achievements during 2020.

# Directors Report

2020 has been a very different year for everyone. At ALSWH we were looking forward to another year of the study, with a chance to accumulate knowledge on women's health and prepare for the next rounds of surveys. During 2020, the sixth survey of the 1989-95 cohort and the ninth survey of the 1946-51 cohort both closed, and we began preparations for Survey 9 of the 1973-78 cohort. Women in the oldest cohort, born 1921-26 and now aged 94 to 99 years, continued to be surveyed at six-monthly intervals, with surveys sent in May and November.

And then we had COVID-19. Staff in all our offices elected to work from home to reduce the COVID-19 infection risk, and for some, to deal with the added demand of home schooling or caring for older parents who could no longer receive their normal care and supports. However, we were also mindful that women all over the country were like us, and facing significant change from their normal lives. Given women's commitment to the ALSWH surveys, we knew that they would want their voices heard during these rapidly changing and challenging times. And so we introduced fortnightly COVID-19 surveys to provide a channel for women to tell us how COVID-19 was affecting them and their lives. We know this was important because so many women took the chances to complete the surveys and to write many comments which told of their unique experiences, stresses and concerns. They also wrote of their strengths, their kindness, and the kindness of others. We have summarised the surveys into 13 reports which are available on the ALSWH website, and with a snapshot available in this annual report. Over the course of 2021 we will be applying further analyses to gain a deeper insight into the effects of COVID-19 on women's lives and on their current and future health.

Meanwhile, we also kept going with our main workplan. This plan included a major report on multimorbidity (two or more chronic conditions) which was prepared for the Australian Government Department of Health. The report, 'The impact of multiple chronic conditions' is available on the Study [website](#) and a summary is included in this report. The data were also used to provide information to support government policy through submissions to the House Standing Committee on Social Policy and Legal Affairs Inquiry into family, domestic and sexual violence, and the Department of Health review of Pregnancy Care Guidelines. The ALSWH symposium, 'Linking Data to Inform Policy' was held virtually this year, and showcased our

latest research, on topics including the health impacts of COVID-19, use of contraception and assisted reproduction techniques, menopause, and healthy ageing.

In addition, 55 new projects using anonymised ALSWH data, including some with linked administrative data, involving national and international collaborators began during the year. 77 peer-reviewed scientific papers, on all aspects of women's health, were published or accepted for publication, and more than 30 presentations, (most presented virtually) were made at national and international conferences.



We would like to thank the Department of Health for their ongoing support of the Study, our colleagues for all their hard work, and the women who have continued their participation in the research over the last 25 years.

Professor Gita Mishra

Professor Julie Byles

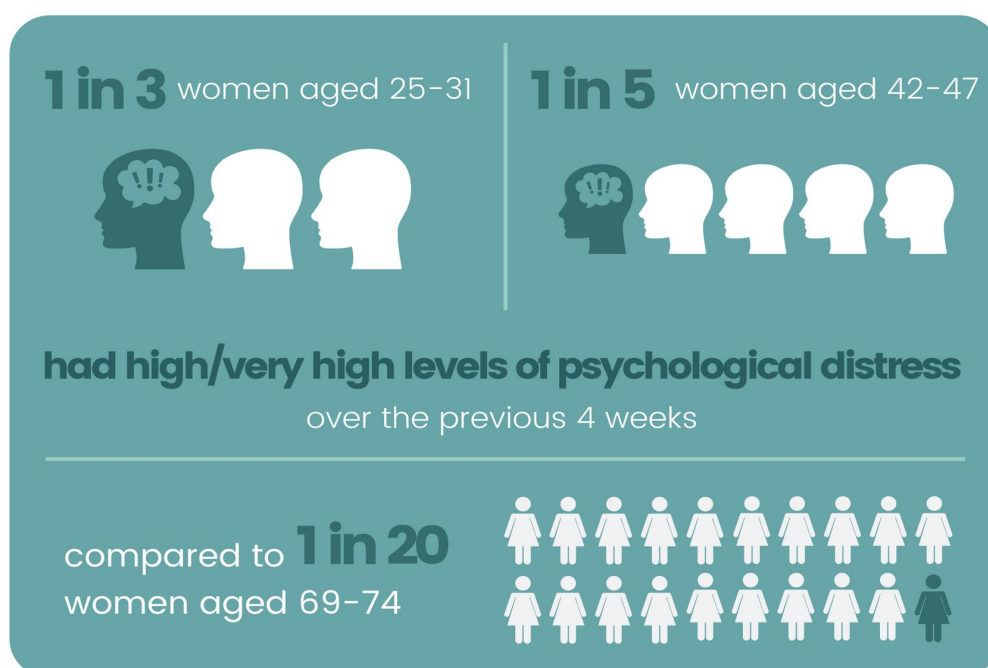
# Feature: Women's health during the COVID-19 crisis

## ALSWH COVID-19 Surveys

The COVID-19 crisis defined 2020. To capture this moment in time, beginning in April, ALSWH participants aged between 25 and 79 (i.e., women from the cohorts born 1989-95, 1973-78, and 1946-51) were surveyed every fortnight to ascertain their experiences with COVID-19 testing, their overall wellbeing, and how various aspects of their lives, health and health service access were changing during the pandemic. A series of reports were prepared for the Department of Health and selected findings are summarised here - full details of all 13 reports are available on the Study website.

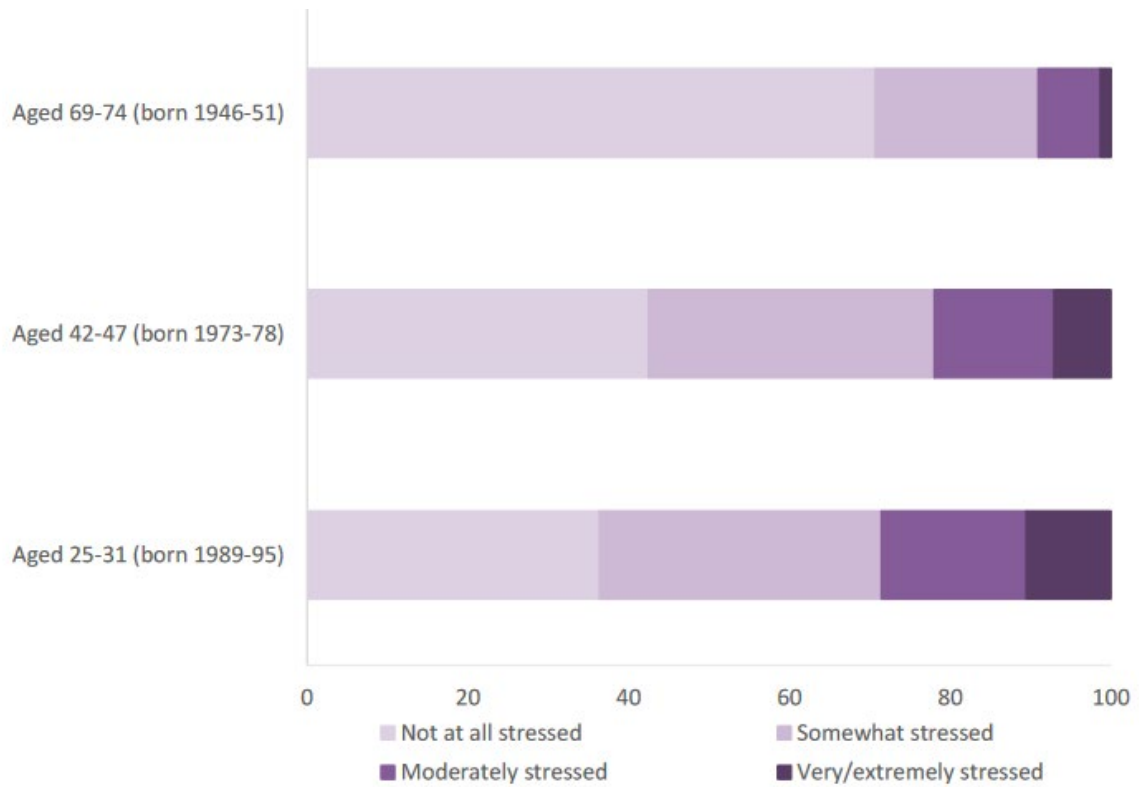
### Psychological distress

The fifth COVID-19 survey assessed women's psychological distress, as measured by the Kessler Psychological Distress Scale (K10). Younger women were more likely to have high levels of psychological distress than older women. (Reproduced from Report 5).



## Financial stress

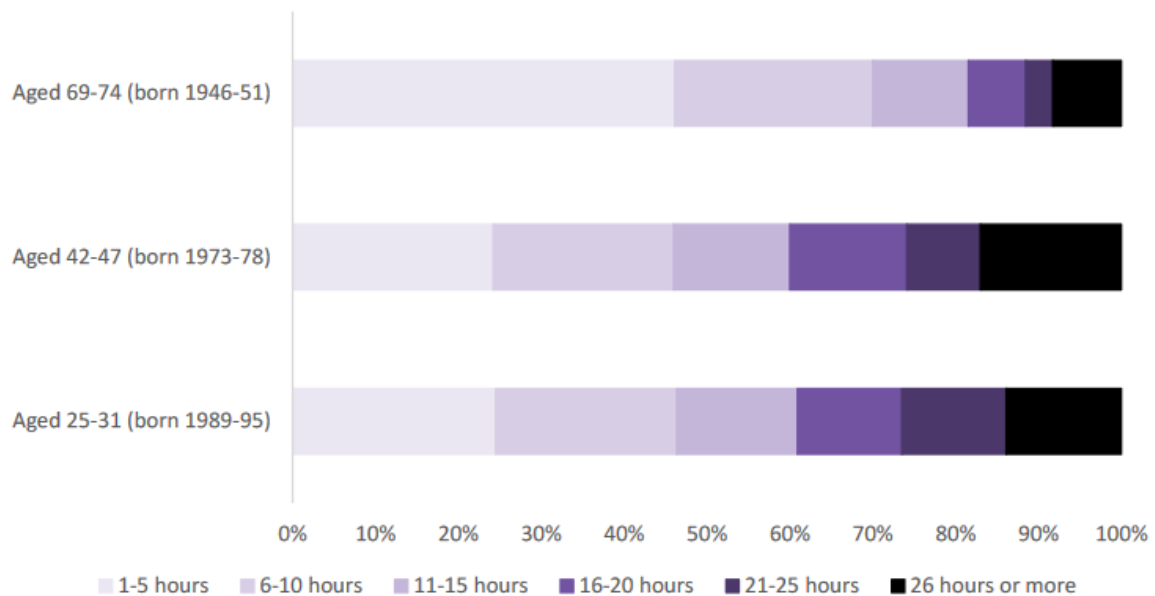
Younger women reported higher levels of financial stress, with almost two thirds of women aged 25-31 and over half of women aged 42-47 reporting some financial stress. In contrast, less than one third of women aged 69-74 reported financial stress.



**Figure 1. Monetary stress during the COVID-19 crisis of women aged 25-31 (n = 1,795), 42-47 (n = 2,205) and 69-74 (n = 2,597) in October 2020. (Reproduced from [Report 13](#)).**

## Home schooling

Many women were required to home school during the pandemic, with over 55% of the 2,578 women aged 42-47 who completed COVID-19 Survey 2 (in mid-May) reporting home schooling children.



**Figure 2: Number of hours spent schooling in the last 7 days for women aged 25-31 (n = 151), 42-47 (n=1,481) and 69-74 (n = 217).** (Reproduced from Report 2).

Combining home schooling with paid work increased stress for many women, with one woman commenting:

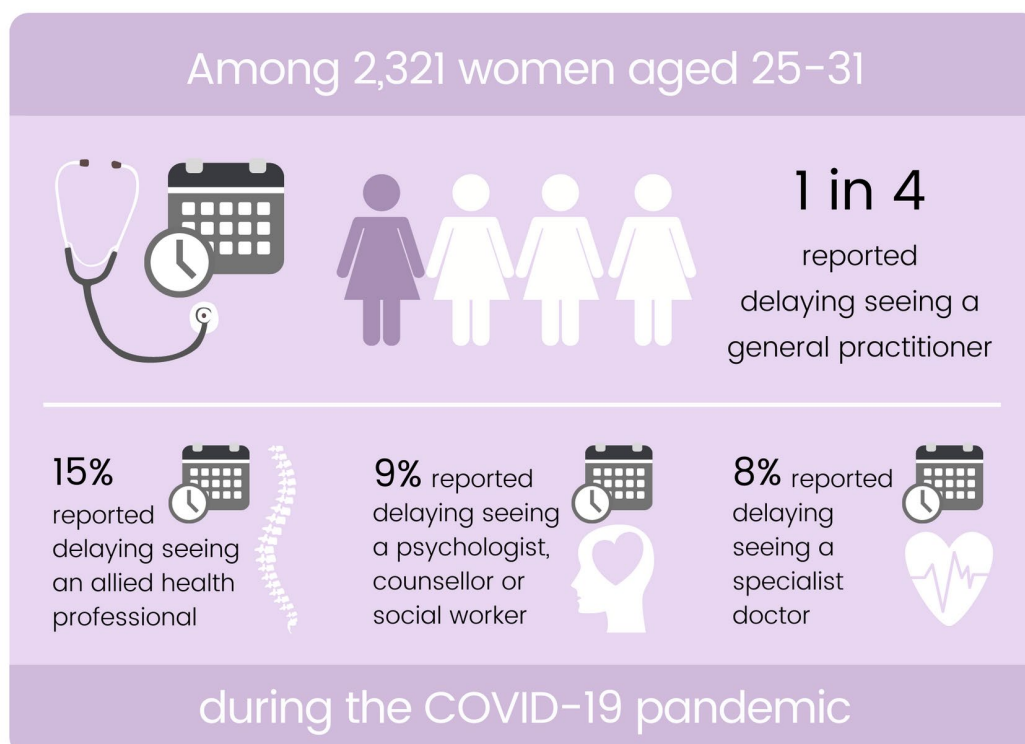
I've been working late nights, and early mornings to attempt to get all my work done. I have given up on getting my own work done during "school" hours. In conjunction with running a household as a single parent, I feel stretched pretty thin. (1973-78 cohort).



## Health service use

Access to, and use of, health services were affected by the pandemic, with almost half of the women surveyed reporting that they had delayed access to at least one health service.

(Reproduced from Report 4).



Telehealth consultations increased (Table 2) and the majority of women (80%) were satisfied with this mode of delivery.

**Table 2: Telehealth consultations during COVID-19 crisis among 6,756 ALSWH women.** (Reproduced from [Report 12](#))

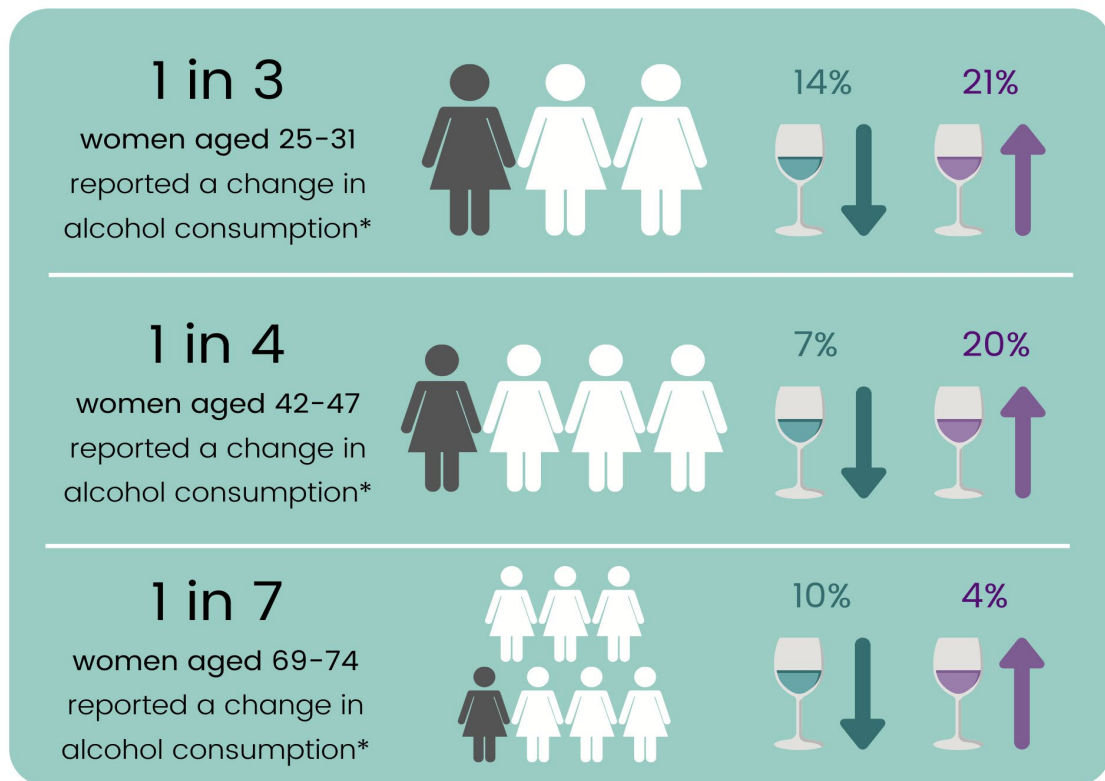
	1989-95 cohort N=1,843		1973-78 cohort N=2,267		1946-51 cohort N=2,646	
	n	%	n	%	n	%
<b>General practitioner or doctor</b>	1,004	54.5	963	42.5	1,280	48.4
<b>Psychologist or counsellor</b>	393	21.3	246	10.9	46	1.7
<b>Specialist doctor</b>	221	12.0	292	12.9	463	17.5
<b>Allied health practitioner</b>	117	6.4	119	5.3	168	6.4
<b>At least one Telehealth consultation</b>	1,196	64.9	1,176	51.9	1,458	55.1

Missing observations were included in the denominators.

Missing data for Telehealth consultations: 1989-95 cohort n=27; 1973-78 cohort n=27; 1946-51 cohort n=32.

## Alcohol consumption

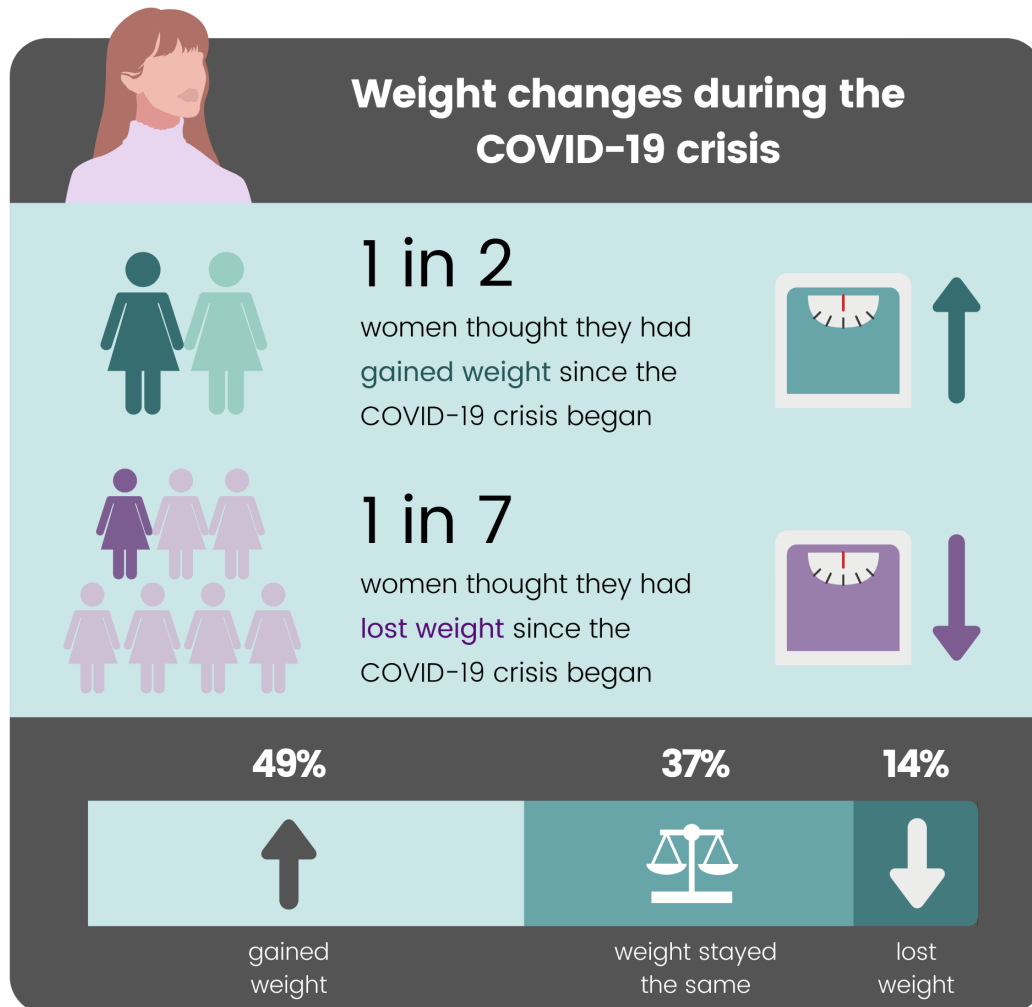
Overall, one in ten women reported drinking less, while around one in seven (15%) reported drinking more alcohol since the pandemic began. A quarter of women reported that they were still non-drinkers, and half reported no change in their alcohol consumption. Younger women were more likely than older women to report a change in alcohol consumption. (Reproduced from Report 6).



\*since the COVID-19 crisis began

## Weight and nutrition

Women were asked about changes in their weight, appetite and food consumption in mid-July, approximately four months after pandemic related lockdown restrictions began. (Reproduced from [Report 7](#)).



Nearly three quarters of women reported eating more or less of certain foods. Changes in food consumption were more common among younger women aged 25-31 than among the older women (aged 42-47 and 69-74).

**Table 3: Perceived change in discretionary food and drink consumption since the COVID-19 pandemic began among 7,341 ALSWH women.** (Reproduced from [Report 7](#))

	1989-95 cohort N=2,034 %	1973-78 cohort N=2,506 %	1946-51 cohort N=2,774 %
<b>Pastries, chips, biscuits, ice-cream, cakes or confectionary</b>			
Less than before	9.5	9.0	12.8
Same as before	37.7	47.3	58.3
More than before	49.6	40.3	24.1
<b>Fast food or takeaway</b>			
Less than before	20.2	22.8	21.4
Same as before	35.6	53.4	70.4
More than before	40.9	20.4	3.4
<b>Sugary drinks</b>			
Less than before	12.8	10.2	14.1
Same as before	62.9	75.4	78.5
More than before	21.3	11.2	2.9

Missing observations were included in the denominators.

Missing data for pastries, chips, biscuits, ice-cream, cakes or confectionary: 1989-95 cohort n=66; 1973-78 cohort n=83; 1946-51 cohort n=132.

Missing data for fast food or takeaway: 1989-95 cohort n=66; 1973-78 cohort n=84; 1946-51 cohort n=133.

Missing data for sugary drinks: 1989-95 cohort n=61; 1973-78 cohort n=81; 1946-51 cohort n=126.

These few pages provide a sample of some of the many impacts of COVID-19 on women's lives, with potential effects on their physical and mental health. A full set of 13 reports are available at <https://www.alswh.org.au/>.

The research on which the COVID-19 reports are based was conducted as part of ALSWH at the University of Newcastle and the University of Queensland. We are grateful to the Australian Government Department of Health for funding ALSWH, and to the women who provided the survey data. We thank the University of Newcastle and the Hunter Medical Research Institute for providing funding for the COVID-19 surveys.

# Feature: 2020 Major Report – The impact of multiple conditions: Findings from the Australian Longitudinal Study on Women's Health

The Study's 2020 Major Report to the Department of Health examined the development of multimorbidity (2 or more chronic conditions) across the four ALSWH cohorts, as well as the impact of multimorbidity on women's quality of life, and the use of health services. Qualitative data available from the women's comments on their surveys were also examined to give voice to the experience of women with multimorbidity. A summary of the report is provided here, the [full report](#) is available on the ALSWH website.

In order to examine multimorbidity, we focussed on identifying eight groups of common conditions affecting different body systems. These are:

- Musculoskeletal conditions – including osteoarthritis, rheumatoid arthritis, back pain, osteoporosis and joint replacements
- Mental health conditions – mostly anxiety and depression
- Coronary heart disease – including heart failure
- Respiratory disease – asthma and chronic obstructive pulmonary disease
- Cancers – all types except non-melanotic skin cancer
- Diabetes – types 1 and 2
- Dementia – all types
- Stroke – excluding transient ischaemic attack

Women who had conditions in two or more of these groups were considered to have multimorbidity, with morbidity counts representing the number of groups involved. Consequently, a woman with arthritis and asthma would be counted as having conditions in two groups (musculoskeletal and respiratory), whereas a woman with arthritis and back pain would be considered to have morbidity in only one group (musculoskeletal). It should also be noted that we did not identify all conditions that may affect women, but instead concentrated on conditions that are common and which are known to contribute strongly to women's morbidity and mortality burden.

In ascertaining the conditions, we used all available sources of data including women's self-reported data from ALSWH surveys, linked hospital, Medicare Benefits Schedule (MBS), Pharmaceutical Benefits Scheme (PBS), Cancer Registry, Aged Care, and National Death Index data. Data from some of these sources were not available for the whole of the study period; for example, hospital and pharmaceutical data were not available until several years after the Study began, some cancer data were not available after 2014 due to lags in cancer registration in some States/Territories, and aged care assessment data were not available after 2014 due to technical aspects of the My Aged Care website.

For each group of conditions, we compared the prevalence estimates obtained from self-reported survey data only, and the estimates from multiple sources using record linkage. Most conditions were identified in more than one data source. From the time a woman first had a record of a condition – whether reported in an ALSWH survey or identified from a linked record – she was assumed to continue to have the condition.

At any time point the prevalence of a group of conditions was the number of women with the conditions who remained in the study as a proportion of all women remaining in the study (e.g., excluding those who had died, withdrawn consent to linkage, or left Australia). Using this definition, prevalence will increase (or possibly remain stable) for the same women over time. For simplicity, we use the term 'condition' rather than 'group of conditions'.

The prevalence of most conditions increased with age, and across the cohorts. Consequently, most conditions were most common in the 1921-26 cohort, increasing from when these women were in their 70s until surviving women were in their 90s. However, the prevalence of many conditions was higher among the 1946-51 cohort when they were in their 70s, compared to when the 1921-26 cohort were the same age. This disconnect may represent an increased prevalence of chronic conditions across the different cohorts. Alternatively, there may be a healthy survivor effect whereby women who joined the 1921-26 cohort at the start of the Study had less chronic conditions than those who did not join the Study. Another possible explanation is that there are better methods for diagnosis, and more treatments for women in the younger cohorts and so we are more aware of their conditions. Earlier diagnosis and survival with chronic disease will also affect prevalence. Another factor is availability of data; for example, where the identification of cases relied heavily on Medicare items such as the Better Access Scheme, prevalence would be underestimated before the items were introduced. On the other hand, there are potentially more opportunities to identify chronic conditions in the oldest cohort as more have been admitted to hospital and many have records from aged care and cause of death data.

- The prevalence of musculoskeletal conditions increases with age, but is higher in the 1946-51 cohort in their 70s than in the 1921-26 cohort when in their 80s; and higher in the 1989-95 cohort than in the 1973-78 cohort when they were of comparable ages. These data suggest musculoskeletal diseases are increasing with successive cohorts, though they could also be affected by data availability.
- Mental health conditions are markedly more common among women in the younger cohorts than in the older cohorts.
- Heart disease shows a steady increase across the cohorts, with a marked increase in prevalence from age 55 in the 1946-51 cohort to age 90 in the 1921-26 cohort.
- Respiratory conditions increase with age in all cohorts but the type of condition differs. Asthma is more common among the younger cohorts and chronic obstructive pulmonary disease is more common among the older cohorts. Some of the increase may be due to temporal changes in health services or prescribing for women with asthma, and with most of the cases identified from prescription medicines.
- Cancer increases with age in all cohorts, but is much more common among women in the 1946-51 cohort when aged 70 than in the 1921-26 cohort when they were aged 70. This may reflect earlier detection, better diagnosis, better survival, or increased incidence.
- Diabetes increases with age in all cohorts, but is much more common among women in the 1946-51 cohort when aged 70 than in the 1921-26 cohort when they were aged 70. This may reflect earlier and better diagnosis, better survival, or increased incidence.
- Dementia was only ascertained for the 1921-26 cohort. There is a rapid increase with age, partially representing onset of these conditions at older ages, and also partially representing the greater use of hospital and aged care services which were a major source of information on dementia.
- Stroke also increases rapidly with age. There is no evidence that women in the 1946-51 cohort have more stroke than women in the 1921-26 cohort, and some suggestion of lower prevalence of stroke among the younger cohort (which is consistent with national trends).

Multimorbidity was assessed by counting whether women had conditions across two or more of these disease groups. Taking a snap shot at the time of the most recent full survey for each cohort, the most common pairs of condition groups were:

<b>1989-95 cohort</b> (at 2018)	Musculoskeletal and mental health conditions
	Mental health and respiratory conditions
	Musculoskeletal and respiratory conditions
<b>1973-78 cohort</b> (at 2016)	Musculoskeletal and mental health conditions
	Mental health and respiratory conditions
	Musculoskeletal and respiratory conditions
<b>1946-51 cohort</b> (at 2017)	Musculoskeletal and mental health conditions
	Musculoskeletal conditions and heart disease
	Musculoskeletal conditions and diabetes
<b>1921-26 cohort</b> (at 2015)	Musculoskeletal conditions and heart disease
	Musculoskeletal and mental health conditions
	Mental health conditions and heart disease

The progression of multimorbidity was reviewed over time for each cohort. Most of the women in the 1921-26 cohort had conditions from two or more of the groups of conditions, with more than 75% having two or more, and 50% having three or more by the time women were in their mid 80s. For the 1946-51 cohort, 25% of the women had two or more groups of conditions when they were in their 50s, and 50% had two or more when they were in their 60s. In the 1973-78 cohort, 20% had two or more groups of conditions when they were in their 40s. In comparison, in the 1989-95 cohort, 20% of the women had two or more groups of conditions when they were in their mid 20s. The higher incidence of multimorbidity at earlier ages in the 1989-95 cohort, compared to the 1973-78 cohort is largely due to mental health conditions.

The more multimorbidity a woman has the greater the impact on her physical and mental health related quality of life. In the 1921-26 cohort, women in their 90s with none of the conditions considered in this report had median physical functioning scores indicating they have few difficulties with most of the physical activities assessed by this scale. However, there was great variation in the range of scores even for women with none of the conditions. Women



with more conditions had markedly lower mean scores, and while there was still great variability across the range of scores, most women with conditions in two or more of the groups had scores that suggest they would have difficulty on most of the physical activities assessed by the SF-36 physical functioning scale.

While the median scores tended to be higher overall, the relationship between multimorbidity and physical functioning was also strongly apparent in the 1946-51 cohort. The effect was less strong for the younger cohorts, however women with conditions in two or more groups had lower median scores than women with no conditions or a condition(s) in only one group.

The association between more multimorbidity and worse mental health was apparent in all cohorts. Higher levels of multimorbidity are also associated with much higher levels of health service and aged care use in the most recent periods considered in this report.

For the 1921-26 cohort (from ages 86-91 to 89-94):

- The one-year prevalence of admission to hospital increased from 40% for women with no conditions, to 80% or higher for those with conditions across four or more of the groups.
- The median number of general practitioner visits increased from 6 per year for women with no chronic conditions to 17 per year for women with conditions across seven or more of the condition groups.
- The median number of specialist visits increased from just over 1 per year for women with no chronic conditions to 3 or 4 per year for women with conditions across seven or more of the condition groups.
- The median number of prescriptions increased from 22 per year for women who had none of the groups of conditions assessed in this report, to over 70 per year if they had conditions across four or more groups.
- The percentage of women in permanent residential aged care was close to zero for women with none of the conditions assessed in this report, and increased to over 20% for women with conditions across four or more of the condition groups.
- The percentage of women using home and community care nursing and allied health services almost doubled from around 10% for women with no conditions, to over 20% for women with one or more of the conditions. However, the increase in the percentage was not consistent across the range of multimorbidities, potentially due to higher percentages in permanent residential aged care in the group with multiple morbidities. Likewise, the use of other home and community care services increased from no

conditions up to conditions across two or three groups, but did not increase further with more complex multimorbidity.

For the 1946-51 cohort (from ages 62-67 to 65-70):

- The one-year prevalence of admission to hospital increased from less than 30% for women who had none of the conditions considered in this report, to over 70% for women who had conditions across four or more of the groups.
- The median number of general practitioner visits increased from 4 per year for women with no chronic conditions to 12 per year for women who had conditions across five or more of the groups.
- The median number of specialist visits increased from just over 1 per year for women with no chronic conditions to 3 or 4 per year for women who had conditions across five or more of the groups.
- The median number of prescriptions increased from 6 per year for women who had no conditions assessed in this report, to over 50 per year if they had conditions across four or more of the groups.

For the 1973-78 cohort (from ages 35-40 to 38-43):

- The one-year prevalence of admission to hospital increased from around 30% for women who had none of the conditions, to around 70% for women who had conditions across three or more of the groups (noting that some of these women may have been admitted for obstetrics care).
- The median number of general practitioner visits increased from 4 per year for women with no chronic conditions to 6 per year for women who had conditions across three or more of the groups.
- The median number of specialist visits increased from 0 per year for women with no chronic conditions to 1-2 per year for women who had conditions across three or more groups.
- The median number of prescriptions increased from 2 per year for women who had none of the conditions assessed in this report, to around 11 per year for women who had conditions across three or more of the groups.

For the 1989-95 cohort (from ages 18-24 to 21-27):

- The one-year prevalence of admission to hospital increased from less than 30% for women who had none of the conditions considered, to over 60% for women who had conditions across three or more of the groups.
- The median number of general practitioner visits increased from 4 per year for women with none of the chronic conditions to 8 per year for women who had conditions across three or more of the groups.
- The median number of specialist visits increased from 0 per year for women with none of the chronic conditions to 1-2 per year for women who had conditions across four or more of the groups.
- The median number of prescriptions increased from 2 per year for women who had none of the conditions assessed in this report, to around 12 per year if they had conditions across four or more of the groups.

The women's comments on the ALSWH surveys illustrate the effects of multiple conditions on their lives. They underscore the importance of having access to good health professionals they can trust, a lack of financial barriers to accessing health care, the importance of self-management, and the need for strong social support systems.

Overall, this report shows that multimorbidity is common with most women having more than one chronic condition across more than one group. Moreover, many women had conditions across three or more groups, representing complex multimorbidity. While levels of morbidity increase with age, multimorbidity is also common among younger women, and may increase across successive cohorts. Regardless of whether this increase is due to better diagnosis, better survival, or increased disease risk, the presence and prevalence of multimorbidity poses particular challenges to the health system. The first challenge is meeting the demand for health care, with associated costs, infrastructure and skilled personnel in the health care system. The second challenge is the complexity of effectively managing multiple conditions where treatments may interact, and where the progress of one condition may affect the onset or progress of another. However, this challenge must also be considered from the perspective of the individual woman, and in the context of her life. A person-centred approach to health and wellbeing is needed to enable women to access health services in a timely and cost-efficient way. The system needs to provide consistent and coordinated care across the range of physical and mental health needs. Additionally, there is a need for instrumental and social supports for people with chronic conditions and ongoing needs for care.

# ALSWH Policy Symposium: Linking Data to Inform Policy

The ALSWH symposium for the Department of Health was conducted digitally this year, during lunchtime sessions scheduled across the week 23-27 November 2020. The symposium provided an opportunity for researchers to present their research findings to a range of stakeholders from the Department, other Government sectors and related agencies.

Topics covered were:

## *Chronic conditions and preventive health*

- **Inclusion of the CSIRO Healthy Diet Score in Survey 9 of the 1946-51 cohort, adherence to diet and physical activity guidelines** (Professor Gita Mishra)
- **Multimorbidity** (Professor Annette Dobson)
- **Diabetes** (Professor Julie Byles)

## *Healthy ageing*

- **Wide window of opportunity, and long tail of prevention** (Professor Julie Byles)
- **Reproductive health (menopause) and cardiovascular disease** (Professor Gita Mishra)

## *Health impacts of violence against women and girls, and impacts on the health system*

- **Prevalence of interpersonal violence during COVID-19** (Professor Deborah Loxton)
- **Health care costs of domestic and family violence** (Dr Jananie William)

## *Maternal, sexual and reproductive health*

- **Contraceptive use**
  - **Prevalence and sociodemographic variations in use** (A/Professor Leigh Tooth)
  - **A data linkage perspective of contraceptive use** (Dr Melissa Harris)
- **Pregnancy and Assisted Reproductive Therapy** (Dr Katrina Moss)

## COVID-19

- **Mental health and COVID-19** (Professor Deborah Loxton and Peta Forder)
- **Access to health services** (Professor Julie Byles)

Videos of the symposium presentations are available on the ALSWH YouTube channel:  
<https://www.youtube.com/user/ALSWHinfo>

The slide displays the following information:

Cohort	Original Age Range	Current Age Range	Recruitment Method
1989-95	18-23	Now 25-30	Recruited through social media in 2012/13
1973-78	18-23	Now 42-47	Recruited through Medicare in 1996
1946-51	45-50	Now 69-74	
1921-26	70-75	Now 94-99	

Geographic Distribution:

- 41% Major Cities
- 39% Inner Regional
- 18% Outer Regional
- 2% V/Remote

The slide also features a map of Australia with colored dots indicating the locations of participants across the country.

# New projects in 2020

ALSWH data is available for use by approved researchers. Fifty-five collaborative projects using ALSWH data were approved in 2020 – the titles, lead collaborators, and synopses of the new projects are listed here.

## **A237B: The long term implications of intimate partner violence for health and social support among mid-older Australian women.**

- Prof Deborah Loxton, The University of Newcastle

Experiences of intimate partner violence (IPV) have a significant impact on women's physical, mental and emotional health. These poorer health outcomes have been shown to continue long after the violence has ceased. Therefore, the cessation of violence alone may not rectify the health impact of experiences of violence. It is unknown whether time alone can heal the physical, psychological and emotional impact of IPV, or if increased social support or other demographic factors may assist in reducing poor health outcomes after IPV. This project will examine health outcomes of the 1946-51 and 1973-78 cohorts of women after the cessation of IPV, factors associated with these outcomes over time and whether social support plays a significant role in reducing the ongoing adverse health outcomes after the cessation of IPV.

## **A414A: InterLACE: International collaboration for a life course approach to reproductive health and chronic disease events.**

- Prof Gita Mishra, The University of Queensland

InterLACE provides a unique opportunity to conduct world-leading research in collaboration with key national and international investigators on women's health studies from 11 nations. The project combines data at the individual level from more than 800,000 participants in 26 existing longitudinal studies (including ALSWH young & mid-age cohorts) to investigate the role of reproductive health across life on subsequent chronic diseases, especially cardiovascular disease (CVD) events and Type 2 Diabetes Mellitus (T2DM). While this poses cross-cohort and cross-cultural research challenges, InterLACE has the capability to address research questions and generate robust evidence that is not possible from any single cohort study.

## **A475B: The role of socio-demographic factors in explaining heterogeneity in the timing of first and subsequent childbirths and birth outcomes: Are antenatal depression and anxiety risk factors for low birth weight?**

- Prof Gita Mishra, The University of Queensland

This project aims to explore the relationship between a) socio-demographic factors (education level, employment status, income, marital status/living arrangements, area of residence, and age) and the timing of first and subsequent childbirths; b) how these relationships are modified by sexually transmitted infections (STIs), health behaviours (smoking, alcohol and illicit drug use, BMI), and the experience of previous problems with childbirths. It will also investigate the timing of childbirths with perinatal outcomes. This project will use a sophisticated repeated time-to-event model for recurrent events and will focus on women who have given birth during the study period (Survey 1- Survey 8).

## **A675A: Patterns of health service use by older women in their last year of life.**

- Chris Harrington, The University of Newcastle

The aim is to identify health service and opioid use in the year prior to death, for women aged over 65, using cause of death data from the National Death Index for women who died during years 2002 - 2017 nationally, and to the most recent date for which there is hospital data for NSW. The intention is to identify whether there are different patterns of service use by women with cancer, women with heart failure and whether women in the community with advanced illness are prescribed opioids. Service and medication use will be described according to time in relation to death. Factors potentially affecting use include age at death, cause of death, place of death (hospital, (public/private) home), hospital admission and specialist procedures, comorbid conditions, living arrangement and other sociodemographic variables.

## **A717A: The impact of historical partner violence on mental health outcomes and elder abuse in older women.**

- Dr Monica Cations, Flinders University

IPV negatively affects the physical and mental wellbeing of victims even many years after the abuse has ended. However, it is not known whether the impacts of IPV at any time over the life course continue into older age, and put older women at risk for psychological illness or

elder abuse. This analysis will explore the effect of historical IPV on risk for psychological illness and elder abuse over 15 years in older women.

## **A722A: Prevention and early intervention for maternal mental illness: A research program that will inform policy and clinical practice.**

- Dr Nicole Reilly, The University of Newcastle

In Australia, local, state and national initiatives for maternal mental health, such as the NSW Safe Start initiative and National Perinatal Depression Initiative, have focused on prevention and early intervention for nearly two decades. The aims of this research are to 1) examine changes in mental health service use and psychological wellbeing among women who gave birth in Australia over the previous 20 years, 2) evaluate the impact of key perinatal-specific mental health initiatives on these outcomes, and 3) examine adherence to best practice guidance for the prevention and management of maternal mental health, and to identify barriers and facilitators to adherence.

## **A800A: Women's health services use across life.**

- Prof Annette Dobson, The University of Queensland

Evidence that is more detailed is needed regarding the pattern of women's health service use across life, and how these patterns may vary by sociodemographic and behavioural factors and reproductive events. This research will conduct a comprehensive assessment of Australian women's use of health services across life stages and identify key factors influencing distinct patterns of health service use.

## **A810: Incidence and predictors of Neonatal Near Miss, and its impact on parenting and child health outcomes in Australia.**

- Prof Deborah Loxton, The University of Newcastle

The concept of neonatal near miss (NNM), a condition where a newborn has nearly died but survived, has been proposed as a tool for assessment of quality of care in neonates who suffered any life-threatening condition. Research from other settings indicates that different factors contribute to the incidence of NNM and children with NNM history are at risk of encountering various health and health related problems during their course of life. Research also has indicated that having a high risk infant poses significant family, societal and economic



impacts; although this relationship is yet to be investigated with NNM. This project will align these areas of research by investigating the incidence and predictors of NNM, and its impact on parenting and child health outcomes.

## **A811: Reproductive factors and non-communicable diseases in women.**

- Prof Gita Mishra, The University of Queensland

Current knowledge on links between risk factors and reproductive characteristics and increased risk of non-communicable diseases (NCDs) in women is impeded by the varying quality of existing data and gaps in evidence. This research will investigate associations of established and emerging risk factors at each stage of women's lives (early life, young adult, main reproductive stage, menopausal transition, and later life) with the incidence of NCDs.

## **A813A: Dietary macronutrient intake and risk of cardiovascular disease in women.**

- A/Prof Sarah Zaman, Monash University/Monash Health

Heart disease is the number one killer of Australian women, claiming more than 10,000 lives per year. One way to reduce heart disease is through dietary interventions. Historically, a low-fat diet has been recommended, however, recent evidence has not linked this with higher survival. Diets modifying the amount/type of carbohydrates have become increasingly popular for weight loss and control of diabetes. However, the effects of changing carbohydrate and fat intake on the risk of heart disease in Australian women is not well known. This study aims to investigate if amount, proportion and types of carbohydrate and fat intake in the diet influences the chance of developing heart disease later in life.

## **A814: Menstrual irregularity as a predictor of metabolic disease and adverse reproductive health outcomes.**

- Dr Anju Joham

Given that menstrual irregularity underpins polycystic ovary syndrome (PCOS) and its diagnosis, it may be an early indicator for not only PCOS, but also metabolic syndrome, infertility, adverse pregnancy outcomes and early menopause. However, the link between menstrual irregularities and metabolic or adverse reproductive health outcomes remains unclear especially in the Australian population.

## **A815: The interface between Residential Aged Care Facilities (RACF) and Acute Hospital Care for Australian women living in RACF, and possible variables that influence the interface.**

- Prof Julie Byles

The aim of this research is to investigate the interface between RACF and acute health care facilities (including emergency transfer), and the outcomes of the transfer upon Australian women living in RACF. The study also aims to identify factors that may influence any possible reduction of unnecessary transfers. The study will examine longitudinal data from ALSWH which is linked to external data. This research will provide important evidence that will assist in quality improvement activities, planning and policy development. It will identify opportunities to reduce unnecessary transfer which may consequently reduce potential adverse impacts of transfer that may influence health care service related costs such as transfer, hospitalisation, treatment and medication costs.

## **A816: Menopausal hormone therapy use and the risk of melanoma.**

- Dr Edoardo Botteri, Cancer Registry Norway

The association between use of menopausal hormone therapy and risk of cutaneous melanoma is highly debated. We investigated the association in different European cohorts, showing a detrimental effect of estrogens on melanoma risk. Moreover, our findings suggest a possible protective effect of progestins.

We would like to evaluate this association in the ALSWH. The present study will focus on the 1946–1951 cohort, because in that cohort we have the information on hormone replacement therapy use from both the questionnaires and the Pharmaceutical Benefits Scheme. Information on hysterectomy and menopausal status will be used, together with other possible confounders.

## **A817: Osteoporosis in Australian women: Exploring differences related to age at menopause and location.**

- A/Prof Amanda Vincent, Monash University

Osteoporosis is a significant health concern, leading to fractures, loss of mobility and independence. Over 60% of women over the age of 50 have reduced bone density. Younger

women with early menopause, breast cancer or other risk factors may also have reduced bone density. Evidence shows higher rates of hip fractures in rural areas of Australia, and lower osteoporosis knowledge among women with early menopause in rural areas. This study aims to assess differences between investigation and treatment of osteoporosis in (i) early menopause compared to women with expected of age menopause and (ii) rural compared to metropolitan areas of Australia.

### **A818: An examination of low social support during pregnancy and its effect on mental health, quality of life and healthy lifestyle behaviours of pregnant women.**

- Asres Bedaso, University Technology Sydney

Pregnancy is one of the important natural processes in women in which many biological, physiological and psychosocial changes are experienced. It is accompanied by hormonal changes and can represent a time of increased risk for the occurrence of behavioural and mental health problems. Several studies have shown that depressive symptoms, anxiety, and stress during pregnancy are risk factors for adverse outcomes for women and infants. One major risk factor affecting maternal well-being and reason for the occurrence of negative birth outcomes is lack of social support during pregnancy (LSS). LSS during pregnancy worsens the psychological health of the pregnant woman and negatively affects her healthy lifestyle behaviours. It has been suggested that effective social support, mainly providing emotional and instrumental support, is protective by minimizing the impact of stress on the emotional well-being of the mother. This prospective cohort study will examine risk factors for low social support during pregnancy and its effect on mental health, quality of life and healthy lifestyle behaviours of pregnant women.

### **A819A: Lifetime reproduction outcomes in women with polycystic ovary syndrome.**

- Dr Anju Joham, Monash University

PCOS is a complex hormonal disorder affecting one in five women and one in four Australian Indigenous women. It is one of the most common cause of infertility and more than two-thirds of women with PCOS require fertility treatment to conceive. Family planning in women with PCOS are 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 delivery, use of fertility treatment, and final family size.

## **A820: Utilisation of physiotherapy services by Australian women.**

- Dr Michael Lee, University Technology Sydney

Physiotherapists work across a diverse range of health settings and have been shown to be beneficial in the management of complex medical conditions specifically affecting women, including pregnancy related pelvic and back pain, gestational carpal tunnel syndrome, incontinence, post caesarean scarring and pain etc. However, there is no existing study that examines the characteristics and demographic of women who sought physiotherapy services in Australia. This study will be the first to capture the characteristics of Australian women who sought physiotherapy services and this data will inform the development of evidence-based physiotherapy in women's health.

## **A821: Modifiable risk factors for cardiovascular disease among women with and without a history of hypertensive disorders of pregnancy.**

- Dr Melinda Hutchesson, The University of Newcastle

Women with a history of hypertensive disorders of pregnancy (HDP) (i.e., pre-eclampsia, gestational hypertension and chronic hypertension) are at higher risk of CVD. Little is known about the rates of modifiable risk factors for CVD (i.e., unhealthy diet, physical inactivity/sedentary behaviour, smoking, excessive alcohol intake, excess body weight and poor mental health) following HDP. Our aim is to: a) describe the rates of individual and multiple modifiable risk factors for CVD among women following a HDP, and b) compare the odds of individual and multiple modifiable risk factors for CVD between women with and without a history of HDP.

## **A822A: The association between maternal and childhood NO<sub>2</sub> and PM<sub>2.5</sub> exposure and health and development of Australian children.**

- Salma Mohamed Ahmed, The University of Queensland

In 2016/2017, mothers from the 1973-78 ALSWH cohort were invited to participate in the Mothers and their Children's Health (MatCH) Study to complete a survey about their children (aged under 13 years). Recently, air pollution exposure estimates (nitrogen dioxide and fine particulate matter) have been linked to geocoded residential addresses of ALSWH

participants. Therefore, the purpose of this project is to understand the health impact of decade long air pollution exposures experienced first-hand by mothers on the generation that follows as well as how environment contributes to disease risk in their children.

### **A823: Impact of residential greenspace on the mental health of the Australian women.**

- Dr Tafzila Akter Mouly, The University of Queensland

This project will examine the effects of neighbourhood greenspace on the mental health of Australian women. Research on greenspace and mental health has been driven by an emerging interest in the last decade. However, most of the evidence came from cross-sectional studies. Moreover, several studies used historical environmental exposure data, which are not always spatially and temporally well-aligned with a participant's residential address(es). ALSWH has mental health data collected by regular surveys as well as geocoded residential addresses. These data will allow investigation of the longitudinal association between spatially and temporally aligned residential greenspace and mental health in a large, national cohort of Australian women.

### **A824: Women as producers in health.**

- Dr Marcin Sowa, The University of Queensland

This project uses econometric analysis based on a health production function approach to study the roles of lifestyles and health practices of women. This approach deems health practices as inputs into the production of good health. The project aims to investigate if such inputs have been changing over the past decades, making women in the recent cohort more efficient producers of health.

### **A826: Changes in body-mass index and smoking status between pregnancies and risk of miscarriage: The Australian Longitudinal Study on Women's Health.**

- Dr Maria Christine Magnus, Norwegian Institute of Public Health

In this project, we will examine whether women who smoke or are obese before pregnancy have an increased risk of miscarriage. We will also look at whether changes in smoking habits or weight between pregnancies might influence the risk of miscarriage in the later pregnancy. The information from this project will therefore help clinicians in providing women with recommendations regarding their lifestyle to reduce their risk of miscarriage.

## **A827: The influence of geographic location on Australian women's reproductive health.**

- Dr Leesa Hooker, La Trobe University

This project examines prevalence, rurality and other factors associated longitudinally with women's reports of abortion (termination of pregnancy). It will look specifically at the predictors of abortion and how these change over time and geographic location. We propose to examine this among all women who have reported one or more abortions in the last five surveys of the 1973-78 and 1989-95 cohorts. Predicting factors may include geographic location (ARIA), socio-economic status, long-acting reversible contraception (LARC)/contraceptive practice, health service use, extent of adverse childhood experiences, mental health, self-harm and abuse status. Associated qualitative data may also be examined.

## **A828: Predictive ability of different diet quality indices on subsequent risk of Non-communicable Disease mortality and multimorbidity (Study 1).**

- Dr Alexis Hure, The University of Newcastle

Since a single nutrient approach was considered to be insufficient for detecting diet-disease associations, overall diet quality and pattern analysis, measuring a range of foods, food groups, and/or nutrients has emerged. Diet quality has received much attention as a predictor of NCD mortality. However, inadequate work currently exists regarding the investigation of unhealthy diet and multimorbidity, defined as the presence of two or more chronic medical conditions. This project aims to investigate the predictive ability of diet quality on NCD mortality and morbidity among representative sample of women from the ALSWH who born between 1973-78 and 1946-51.

## **A829: Comparison of the predictive association between different diet quality indices and NCD mortality and multimorbidity (Study 2).**

- Dr Alexis Hure, The University of Newcastle

Unhealthy diet has been identified as a major modifiable risk factor for prevention of NCDs. Diet quality, measuring a range of foods, food groups, and/or nutrients, has been widely applied in studies relating NCD mortality. Limited work currently exists regarding the investigation of unhealthy diet and multimorbidity, defined as the presence of two or more

chronic medical conditions. Given that NCD mortality and multimorbidity increase with age, especially among women, this program of work aims to understand the association between diet quality and NCD mortality and morbidity among ALSWH cohorts.

### **A830: Association between change in diet quality scores and NCD mortality and multimorbidity.**

- Dr Alexis Hure, The University of Newcastle

For investigating diet-disease associations, overall diet quality, measuring a range of foods, food groups, and/or nutrients has been adopted and widely applied in measuring NCD mortality risk. Exploration of the relationship between diet quality and NCD multimorbidity (which is simultaneous presence of two or more chronic medical conditions) is scarce. Since NCD mortality and multimorbidity are more prevalent in older people and women, this work aims to recognize how improved diet quality is associated with NCD mortality and morbidity among the 1973-78 and 1946-51 cohorts of the ALSWH.

### **A831: The effects of substance use in Australian women (born 1989-1995; and 1973-1978) on health, wellbeing and mental health.**

- Dr Kylie Bailey, The University of Newcastle

Understanding the prevalence of substance use in women as well as changes in use across the generations, will assist health workers and policy makers to provide substance use treatments that are more appropriate for women. This project has three studies that explore self-reported substance use in Australian women in the 1973-1978 and 1989-1995 cohorts. The first study is a longitudinal study and will investigate substance use. The second study will compare substance use between the 73-78 and the 89-95 cohorts. The third study will explore the impacts of substance use on women's health, wellbeing and mental health.

### **A832: The projected impact of pre-existing mental illness on perinatal mental health, pregnancy and birth among young Australian women (born 1989-95).**

- Prof Deborah Loxton, The University of Newcastle

Previous mental health is a strong predictor of perinatal mental health, such that women with poor mental health before they are pregnant are much more likely to experience mental health issues during and after pregnancy. Analysis of ALSWH data has previously shown the robust

link between past mental health and antenatal and postnatal mental health problems among women born 1973-78. A very high proportion of the ALSWH cohort born 1989-95 have reported psychological distress and diagnosed mental health disorders, much higher than the number of women reporting these issues in the cohort born 1973-78. As the 1989-95 cohort enter the childbearing years, it is important to understand the scope of mental health issues that might be experienced by women in this age group, given the high proportion who have a history of mental health problems.

### **A833: Use of external administrative data that may be linked with ALSWH survey data to develop and illustrate methodological issues.**

- Prof Gita Mishra, The University of Queensland

This project will facilitate research planning, in particular, the judicious use of linked data, by enabling key ALSWH researchers at The Universities of Queensland and Newcastle, who have extensive experience with linked data, to conduct exploratory analyses and preparatory work for government deliverables. The results of these analyses will only be used to inform research planning. Where analyses are considered worth pursuing, a new Expression of Interest will be developed and submitted to the Data Access Committee.

### **A834: Substance use in the perinatal period: The impact upon perinatal care, physical health, mental health, pregnancy and birth outcomes and how risk factors moderate any effects.**

- Dr Kylie Bailey, The University of Newcastle

Understanding the reasons why women of childbearing age use illicit substances is essential in planning what care this patient population needs. This project will explore three areas in the 1973-1978 and 1989-1995 cohorts in women who report pregnancy/birth. Initially the rates of reported substance use in the last year, among women in the perinatal period (defined as pregnant or in the first postnatal year will be determined). Associations between recent substance use and physical health, mental health and perinatal outcomes will be established. The contribution that various risk factors provide to any association will be analysed.



## **A835: Are calcium channel blockers associated with breast cancer? Assessing the impact of long-term use in large longitudinal cohorts.**

- A/Prof Rachel Moorin, Curtin University

Breast cancer is the most common cancer in women. Calcium channel blockers (CCBs) are frequently used worldwide to treat high blood pressure. A link between use of CCBs and breast cancer has been proposed with mixed findings in North American, European and Asian women. No data exist for Australian women. Since 1 in 8 Australian women will be diagnosed with breast cancer by age 85 years, it is important to determine whether this risk is increased by the use of CCBs.

CCBs are widely used in Australia as first-line therapy for hypertension and are also prescribed for other indications. The use of CCBs may increase the risk of cancer via their action in changing intracellular calcium levels, thereby affecting the process of programmed cell death (apoptosis), which is crucial to prevent damaged/mutated cells from replicating and causing cancer. Due to its secretory nature, breast tissue may be particularly susceptible to changing intracellular calcium, leading to complex hormone-related relationships between cell-death and the induction of breast cancer. Our meta-analysis of available data published in 2017 showed there is still uncertainty regarding whether the long-term use of CCBs increases the risk of incident breast cancer. While there are analyses from North America, the United Kingdom and Europe, any association in Australian women is unknown. Evidence suggests that social and biological factors and differences in prescribing patterns may contribute to the mixed results. These differences must be carefully adjusted for in order to isolate CCB use from other reasons women in one group might be different to another. Breast cancer and hypertension are common in both Australian and Dutch women and their use of CCBs is vastly different. This provides a rich setting to compare how biological, social and prescribing patterns intersect and affect the relationship. Simple extrapolation from other populations is not appropriate due to differences in prescribing practices that may significantly affect the profile of women exposed to CCBs. Long-term evaluation of medication safety is best monitored via cohort studies, as randomised trials with sufficient follow-up are not feasible. We will undertake a longitudinal cohort study using state-of-the-art analytical techniques to assess, for the first time, the association between CCB use and the risk of breast cancer using a combination of linked Australian and Dutch data.

## **A836: Perception and lived experience of older women about the effect poor eyesight on driving.**

- Prof Deborah Loxton, The University of Newcastle

This research is seeking to understand the perceptions and experience of older women in Australia regarding transportation challenges. We are particularly interested in the experiences of women who have poor vision (due to cataract, macular degeneration or other causes) and stopped driving and comparing these experiences with those of women who continued driving. We will examine themes identified from older women's free-text comments provided over 8 years (from 2002-2019), contrasting those who drive themselves and those who do not. Qualitative descriptive analysis will be used.

## **A837: Associations between eating disorders in mothers and children's diet and weight.**

- A/Prof Leigh Tooth, The University of Queensland

Eating disorders (for example, binge-eating disorder, anorexia nervosa and bulimia nervosa) are mental health disorders characterised by disturbances in eating behaviours. Eating disorders can significantly impact a women's emotional, psychosocial and physical well-being. Recent research has found children of mothers with eating disorders to be at increased risk of difficulties in feeding (for e.g., breastfeeding initiation and cessation) and eating behaviours, cognitive and motor developmental difficulties, display more emotional and behavioural difficulties, and to be more likely described as having a difficult temperament. The long-term impacts of a history of disordered eating and the impact this may have on the subsequent health of both the women with the history of disordered eating and her child/ren is less well known, particularly in older children (over 3 years). Of particular interest is the potential impact on a child's diet, body weight, general development and psychosocial health and whether effects are similar for siblings. This study aims to examine these associations.

## **A838: Rheumatoid arthritis in Australian women.**

- Prof Ranjeny Thomas, The University of Queensland

The inflammatory autoimmune disease, rheumatoid arthritis (RA) is currently incurable and affects 23 million people worldwide. An effective intervention would minimise the need for ongoing treatment beyond the first transient symptoms in people at risk, preventing their progress to full-blown disease. To do this, we need to estimate the size of the at-risk population

and the RA risk profile in Australia. Currently all estimates are self-reported, which over-estimates verified RA. This project will estimate the prevalence, incidence and risk factors for RA in Australian women in the ALSWH.

### **A839: Preconception Period Analysis of Risks and Exposures influencing health and Development (PrePARED) consortium: PrePARED-Australia consortium.**

- Prof Gita Mishra, The University of Queensland

The conventional focus of intervening during pregnancy to reduce the risk of adverse health outcomes is “too little too late.” More than half of Australian women enter pregnancy overweight or obese. Maternal obesity is associated with increased risk of pregnancy complications (e.g., preeclampsia and gestational diabetes) and adverse birth outcomes (e.g., stillbirth and low birthweight, macrosomia). Antenatal intervention studies on the effect of diet and exercise among obese and overweight women show only modest reductions in gestational weight gain, and no significant reduction in the risk of adverse outcomes. In the 2018 Lancet series on preconception health, Stevenson et al. highlighted the critical need to refocus the timing of changes in exposure levels before conception to comprehensively understand the risk of adverse outcomes. PrePARED Australia aims to assemble and analyse data from existing cohort studies and establish the evidence base on the timing of preconception exposures associated with adverse pregnancy, birth, child outcomes and post-pregnancy maternal health. The knowledge gained will inform more effective preconception health care strategies.

### **A840: Tracking the short-term impacts of COVID-19 on the health and wellbeing of Australian women.**

- Prof Deborah Loxton, The University of Newcastle

The impact of COVID-19 on the individual and how this will evolve over the course of 2020 is unknown, while the long term impact of COVID-19 and resultant life changes is also uncharted territory. ALSWH responded by offering an ongoing brief COVID-19 survey to women in the three youngest cohorts, deployed fortnightly throughout the pandemic. The purpose of the survey was to ascertain who had experienced COVID-19, who had been tested for COVID-19 (or not), their general health and stress levels, and the impact of COVID-19 on their lives. This project combines the COVID-19 survey data with main survey data to evaluate the short-term impacts of COVID-19 on health and wellbeing (such as physical health, mental

health, health service use, etc), while accounting for factors such as socio-economic status, residential area, history of trauma, etc. that also influence health and wellbeing.

## **A840A: Women's experience of health care access during COVID-19.**

- Prof Julie Byles, The University of Newcastle

The widespread outbreak of COVID-19 is a challenge for public health and medical care service provision. As a result, countries have had to make tough decisions in order to safeguard their people. These decisions include lockdowns and restrictions on people's movement and engagement with society, and limited access to health care. Such restrictions have had an impact on use of health care including assessment and diagnosis, follow-up and monitoring, and prescription refills since access to health facilities and their attending physicians and other health professionals may have been restricted or denied. In response to the restructuring of hospital and community services to reduce the spread of the coronavirus, anecdotal reports suggest that the management of complex conditions has been negatively affected. The purpose of this mixed methods study is to further understand women's experience of health service access during the COVID pandemic.

## **A841: Econometric modelling and resources use implications of NCDs for women.**

- Prof Brenda Gannon, The University of Queensland

Given there is limited evidence on the burden of NCDs among women in Australia, the aim of this project is two-fold. First, this project will apply econometric models to evaluate the current burden of NCDs, in terms of health care services and resource costs. Second, simulation and forecasting models will be used to quantify the future costs of NCDs, while accounting for the prevalence of risk factors.

## **A842: Mental health and Type 2 diabetes: Associations with conventional and complementary medicine health service utilisation in young and mid-aged women.**

- Tracey Oorschot, University Technology Sydney

Approximately 6% of Australian adults report a diabetes condition with up to 90% of cases representing T2DM. True prevalence is estimated to be much higher (10%) and is increasing. The first step in treatment includes engaging with recommended health care professionals

and adoption of a range of healthy lifestyle behaviours, which largely falls to the individual to self-manage. T2DM is also associated with an increased risk of anxiety, depression or psychological distress, with women most at risk, which can have a detrimental effect on optimal self-management and a range of health outcomes. Whilst past research has explored mental health and T2DM, less is known about associations between mental health status and conventional or complementary medicine self-management practices.

### **A843: Plant-based dietary patterns and chronic disease risk in Australian women.**

- Dr Jessica Ferguson, The University of Newcastle

Plant-based diet (PBD) patterns are gaining societal traction globally, due to ethical and sustainability concern and perceived healthfulness. Recent studies have shown lower risk of chronic diseases in individuals following PBD patterns such as vegetarian or vegan as well as improved management of cardiometabolic risk factors. Since it has been reported that women are more likely to follow PBDs than men, this project will investigate the dietary profile and nutritional adequacy of PBDs followed by Australian women including associated health concerns, overall health status and chronic disease risk from a representative sample of middle-aged Australian women.

### **A844: Understanding the Australian ‘Weekend Warrior’ physical activity pattern and its health consequences in Australian women.**

- Dr Gregore Mielke, The University of Queensland

The role of physical activity (PA) in the prevention and management of NCDs is well established. However, it remains unclear whether different patterns of duration, frequency and intensity of activity are critical for the prevention of different conditions. The aim of this project is to understand the ‘weekend warrior’ physical activity pattern and its health consequences in Australian women. This study will improve knowledge and understanding of the optimal patterns of PA for improved health in women. The findings of this study can be used to inform the development of strategies for increasing PA among women and thereby help to prevent inactivity-related chronic health problems.

## **A845: Predictors of infertility and costs of infertility treatments in Australia**

- Dr Maarit Laaksonen, University of New South Wales

Infertility is estimated to affect one in six Australian couples of reproductive age. It can be successfully treated with lifestyle changes and medical interventions. However, the evidence of the effect of some modifiable lifestyle-related and hormonal factors on infertility is inconclusive. There is also lack of knowledge on the expected full cost of medical treatment of infertility in Australia. We aim to improve fertility outcomes and access to care by producing information on modifiable predictors of infertility and costs of infertility treatment among Australian women to allow for more informed individual choice and policy-making.

## **A846: Stressful life events, diet quality and incident cardiometabolic disease.**

- Dr Sabita Soedamah-Muthu, Tilburg University

Existing literature supports the finding that diet and stress are associated with cardiometabolic disease, defined as CVD and diabetes. However, studies were often performed in men, although the onset and the course of illness differ between men and women. Symptoms of CVD in women are less specific and in both CVD and diabetes risk factors have different effects on men and women. Furthermore, animal studies showed interaction effects between diet and stress influencing factors related to metabolic disease. The current study will further elucidate the interaction between stressful life events and diet and its influence on cardiometabolic disease in women.

## **A847: Income contingent loans for women who experience intimate partner violence.**

- Dr Jananie William, Australian National University

Financial stress is known to be a major factor for women staying in violent relationships. This project will investigate an income-contingent loan (ICL) scheme for women who experience IPV to enable them to more safely leave these situations. Data from the ALSWH will be used to analyse the demographics of women who experience violence, which will provide input into the parameters of an ICL scheme so that it will be financially sustainable for all parties involved.

## **A848: A life course approach to determining the prevalence and impact of sexual violence in Australia.**

- Prof Deborah Loxton, The University of Newcastle

Approximately one in 5 Australian women have experienced sexual violence, according to the Australian Bureau of Statistics 2016 Personal Safety Survey. The purpose of this research is to take a life course approach to determining the prevalence, and impact of sexual violence among Australian women, by analysing national, longitudinal data. Analyses will include disaggregation by sexual identity, cultural and linguistic diversity, disability, and urban/regional/remote area of residence, where the data permit.

## **A849: Three essays in Health Economics: IVF policy change implications.**

- Prof Brenda Gannon, The University of Queensland

This research will use a microeconomics health production model, 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 care services for women who received In Vitro Fertilisation (IVF) treatment. This project will also elaborate on the cost variations amongst different IVF clinics across Australia. Additionally, it will study the mortality and morbidity rates differentials among IVF born and conventionally born children.

## **A850: Understanding health care use by Australian women after stroke: Change in health status and service access.**

- Dr Xenia Dolja-Gore, The University of Newcastle

Stroke is a major health care issue in Australia, with over 60,000 new cases of stroke each year<sup>1</sup>. Designated hospital-based stroke units and rehabilitation services have also proven integral to improved stroke survival<sup>2,3</sup>. Despite this many stroke survivors are discharged directly home from the hospital where they often realize the extent of their disabilities, often not identified during their hospitalisation. Furthermore, they are at risk for complications such

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<sup>1</sup> Senes S. (2006). How we manage stroke in Australia. Australian Institute of Health and Welfare and The University of Sydney.

<sup>2</sup> Hankey G. (2002). Stroke: Your questions answered. London: Elsevier Health Sciences. Churchill Livingstone.

<sup>3</sup> Langhorne P, Duncan P. (2001). Does the organization of post-acute stroke care really matter? Stroke, 35:268-274.

as falls, physical de-conditioning, aspiration pneumonia, infections, social isolation and depression as well as recurrent stroke<sup>4</sup>. Concern stems from evidence that many stroke survivors do not access essential rehabilitation services. The purpose of this study is to investigate the prospective experience of stroke in women participating in the ALSWH. Specifically, we will focus on characterising access to health service use.

## **A851: The mental health of young Australian women: A comparison of two national cohorts surveyed 17-21 years apart.**

- Dr Nicole Reilly, The University of Newcastle

Previous ALSWH research has demonstrated poorer physical health outcomes, and higher levels of stress, for women born 1989-95 compared to women born 1973-78. This project will extend this earlier work by comparing the self-reported mental health of the 1989-95 and 1973-78 ALSWH cohorts, who were surveyed 17-21 years apart, when both groups were aged 18-27 years. We will identify whether sociodemographic factors, health behaviours or other factors explain any mental health differences identified between the cohorts over time. We will also examine which risk and protective factors are the most salient in terms of mental health outcomes for young women, and whether these have also changed over time.

## **A852: Mental health of single mothers in Australia.**

- Dr Tania Dey, University of Adelaide

The role of nutrition in chronic lifestyle diseases such as cardiovascular disease and diabetes is well known. However, the role of nutrition in mental health is lesser known. In Australia, over 3 million people live with the symptoms of depression, with more women experiencing symptoms than men. Research suggests that dietary patterns rich in fresh fruit, vegetables, wholegrains, nuts, seeds, legumes, lean meat and water may protect against depressive symptoms and that dietary patterns high in processed, refined and sugary foods could contribute to the symptoms of depression. This project aims to examine the relationship between Australian women's dietary patterns and depression.

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<sup>4</sup> McGuire JR, Harvey RI. (1999). The prevention and management of complications after stroke. *Physical Medicine and Rehabilitation Clinics*, 10:857-874.



## **A853: Alcohol intake in middle-aged Australian women and access to primary health care services.**

- Suzannah Bownes, University of Notre Dame

The purpose of this project will be to explore the relationship between middle-aged Australian women whom drink alcohol above the recommended amount and access to primary health care services. We will analyse Survey 8 of the 1973-78 cohort to identify if and how frequently these women access primary health care services. The assumption being that if general practitioners are to opportunistically screen and undertake appropriate interventions with these women, we must first establish whether or not they attend primary health care.

## **A854: Major Report 2021: Reproductive health.**

- Prof Deborah Loxton, The University of Newcastle

This project covers key reproductive health issues for women in 2020, namely contraceptive patterns and pregnancy plans (including use of Assisted Reproductive Therapies), perinatal mental health, and menopause. This project will also touch on contraceptive use and pregnancy planning as it relates to the unfolding COVID-19 crisis. This project will be presented in the 2021 Major Report, a key deliverable for the Australian Government Department of Health. The findings from this report will be used for future policy planning and program development by key government departments and related organisations.

## **A855: Young Australian women's experiences of endometriosis: A thematic analysis of longitudinal survey data.**

- Sophie Callen, The University of Queensland

Many women with endometriosis describe significant delay in their diagnosis of endometriosis, which can negatively impact on their social, psychological, and physical wellbeing. However, the experiences of young women (<25 years) have been under-represented in the endometriosis research. The present study will address a unique gap in the literature, by drawing on longitudinal qualitative data to explore the experiences of the same women over time. Drawing on a national cohort of young women will provide an insight into a wider range of Australian women's experiences with endometriosis.

## **W102A: Living beyond expectations: How older women demonstrate successful and healthy ageing.**

- Prof Julie Byles, The University of Newcastle

Centenarians are a “model of ageing well”, having lived long and delayed the onset of disease and disability until much later in life. With increasing longevity, larger numbers of people will live to 100. However, little is known about the experiences of people at this extreme old age, as few studies have included very old people and most do not have data from earlier life to put these late life experiences into a life course context. Current participants of the ALSWH include an elite group of over 1,400 women who are already past their mid 90s and who are likely to live to 100. In-depth interviews with a sample of these women will provide a rare opportunity to gain insights into the experience of extreme old age, and to contrast their current and retrospective views with the trajectories and circumstances presented by the quantitative and qualitative data collected by ALSWH since 1996, when the women were in their 70s. The interviews will be framed by the new World Health Organization (WHO) healthy ageing framework, and will focus on women's ability to do the things they want to do, and the balance between intrinsic capacity and functional support. Interviews with women born 1946-51 will provide insight into the prospects for healthy ageing for women in this cohort.

## **W104: Contraceptive choice for women with chronic disease: a qualitative approach.**

- Dr Melissa Harris, The University of Newcastle

Unintended pregnancy rates remain high in developed countries despite access to high quality sexual and reproductive services. In Australia, we currently lack high quality information on unintended pregnancy across the reproductive life course. A Marie Stopes survey indicated that half of Australian women experience an unintended pregnancy in their lifetime, while a recent population cohort study suggests that unintended pregnancy rates are around 85% for Australian women aged 18-23 years who become pregnant. For women experiencing an unintended pregnancy around half of pregnancies result in termination. Although all women of reproductive age may experience an unintended pregnancy, certain sub-populations have been found to be at an increased risk. There is evidence to suggest that women with chronic diseases experience unintended pregnancy at a higher rate than women without chronic disease. Rates of unintended pregnancy in this population have been reported as high as 60%. For women with chronic disease, unintended pregnancies are associated with serious adverse maternal and perinatal outcomes, including congenital

abnormalities, pre-term labour, spontaneous abortion, premature birth, low birthweight and foetal death. Currently, there is a lack of knowledge around how women with chronic conditions use contraceptives (if any) and what factors influence these decisions, including what barriers exist to the uptake of LARC. Use of effective contraception such as LARC allows women to appropriately plan pregnancies and creates a window of opportunity to obtain preconception care. Contraceptive decision-making is a complicated and dynamic process with the benefits and disadvantages of each method required to be weighed up. Therefore, a deeper understanding of how women with chronic disease make contraceptive choices and the factors that influence these choices could have a significant impact on decision-making.

## **W105: Genetic variants, Early Life exposures, and Longitudinal Endometriosis symptoms Study (GELLES).**

- Prof Gita Mishra, The University of Queensland

Endometriosis is a complex disease with a poorly understood aetiology. There is some evidence that implicates various genetic factors in the aetiology of the disease. Limited epidemiologic data is available on the role of early life factors, particularly in utero exposures, and symptoms during adolescence in endometriosis development. The Genetic variants, Early Life exposures, and Longitudinal Endometriosis symptoms Study (GELLES) aims to identify genetic and early life factors that contribute to the development and progression of endometriosis. The outcomes of the study will assist in the prediction of endometriosis to facilitate earlier diagnosis for young women.

# Completed Student Projects

## Investigation of the benefits and harms of a polycystic ovary syndrome diagnosis and the potential for overdiagnosis

**PhD candidate:** Tessa Copp

**Supervisors:** Dr Jesse Jansen, Prof Kirsten McCaffery, Dr Jolyn Hersch and Prof Jenny Doust

**Institution:** The University of Sydney

There is growing evidence that an increasing number of healthy people are being overdiagnosed and labelled as patients. A condition with increasing concern about the risk of overdiagnosis is PCOS, where a change in the diagnostic criteria resulted in doubling the number of women diagnosed despite limited investigation of the benefits and harms.

Using a multi-method approach, this project examined the benefits and harms of a PCOS diagnosis and the potential for overdiagnosis. Topics covered were:

- an analysis article describing the uncertainties surrounding PCOS diagnosis, limitations in the current evidence and the potential for overdiagnosis.
- a qualitative research study exploring the benefits and harms of a PCOS diagnosis for women diagnosed. Benefits included, relief to have an explanation and increased understanding, whilst harms included altered self-perceptions and fear of infertility, commonly resulting in adverse psychological and behavioural consequences, such as long-lasting worry and risk taking with contraception.
- an exploration of the perspectives of clinicians who diagnose PCOS. A number of uncertainties and challenges were identified, including the risk of both under- and overdiagnosis.
- a longitudinal analysis of population data collected 12 months apart, examining changes in young women's behaviour after receiving a PCOS diagnosis. Results indicated that young women newly diagnosed were more likely to stop using contraception but did not change their physical activity or vegetable intake.

This project adds new knowledge about the benefits and harms of a PCOS diagnosis, enhancing the growing body of literature regarding the consequences of disease labelling.

Given the many areas of uncertainty surrounding diagnosis, limitations in evidence and risk of overdiagnosis, the potential harms highlighted in this thesis deserve greater consideration.

## Assessment of incidence and predictors of long-term metabolic complications of PCOS

**PhD candidate:** Nadira Kakoly

**Supervisors:** Dr Anju Joham, A/Prof Lisa Moran, Prof Helena Teede and A/Prof Arul Earnest

**Institution:** Monash University

This thesis explores the poorly understood area of long-term cardiometabolic health among women with and without PCOS over their reproductive years. It aims to analyse and present evidence on when, how and if PCOS per se impacts on cardiometabolic health outcomes (including obesity, gestational diabetes mellitus (GDM), T2DM and hypertension) among women with compared to without PCOS, across their reproductive years.

It addresses critical gaps in our understanding of the natural history of PCOS over the reproductive years and advances the field by providing a greater understanding of the patterns of change including insight into when and how PCOS influences cardiometabolic health across a woman's reproductive years.

**Background:** PCOS is a common endocrine disorder underpinned by hyperandrogenism and intrinsic insulin resistance (IR) that affects up to 18% of women of reproductive age. The syndrome is associated with a range of cardiometabolic complications such as obesity, GDM, T2DM, dyslipidaemia and cardiovascular risk factors (CVRF). Excess weight, present in up to 70% of women with PCOS in many countries including Australia, exacerbates the incidence, prevalence and severity of the syndrome. IR may accelerate the expression of long-term cardiometabolic complications.

There is a lack of longitudinal studies assessing the natural history of cardiometabolic outcomes in PCOS over the reproductive age. Of the limited literature, which has looked at change over time, few have looked at patterns over long periods, including examining critically important periods such as the reproductive years. A limited number of studies have longitudinally assessed how PCOS affects cardiometabolic health over time, adjusting for important confounders, in large, representative population-based settings. Further research addressing these critical knowledge gaps was therefore vital.

**Objectives:** This thesis aims to gain a better understanding of the natural history of PCOS and cardiometabolic health over the reproductive years (early adulthood to late adulthood). It aims to analyse and present evidence supporting the rate of development of new cases (incidence) of cardiometabolic disease among women with PCOS, including time to disease development, in a representative population-based setting across their reproductive years. It examines patterns of body mass index (BMI) change over this period and assesses the independent impact of PCOS, including an assessment of the interactions of BMI and ethnicity with PCOS on cardiometabolic health (GDM, T2DM and hypertension) over this period.

**Methods:** Extensive data from the ALSWH were longitudinally assessed using a series of different epidemiological methodologies to address the research question as well as address challenges inherent in longitudinally collected women's health registry data.

**Results:** A 3-fold increased prevalence of dysglycemia among women with PCOS was observed compared to women without PCOS. A moderate incidence rate of T2DM and hypertension among women with PCOS was observed. The incidence rate of T2DM was 4.19/1000 person-years (PY) and 1.02/1000 PY ( $p < 0.001$ ) in women with PCOS and controls respectively. Similarly, the incidence of hypertension was significantly higher ( $p = 0.001$ ) among women with PCOS (17/1000 PY) compared to controls (11/1000 PY). Heterogeneity and clustering in BMI change over the years was observed. Early adulthood obesity predicted GDM, T2DM and hypertension with a relatively early age of onset for both T2DM and hypertension seen among women with PCOS. Cardiometabolic impacts were observed across the BMI range, with the highest impact observed among obese women, but the highest relative risk was seen among lean women. While obesity increased the risk of cardiometabolic outcomes, PCOS was independently associated with GDM, T2DM and hypertension adjusting for obesity and other important confounders.

**Conclusion:** The findings from this thesis suggest a high prevalence and moderate incidence of cardiometabolic disease among a nationally representative population based cohort of women, indicating a substantial health care burden. Increased frequency of metabolic disease and cardiovascular risk factors from early adulthood was noted, and cardiometabolic impact was influenced by obesity. The highest impact was observed among obese women, but the highest relative impact seen among lean women with PCOS when compared to age-matched lean women without PCOS. This underscores the impact of PCOS on cardiometabolic health. Early adulthood obesity was additive to, as well as independently predicted development of adverse cardiometabolic outcomes among women with PCOS, indicating opportunities for preventive strategies and lifestyle intervention during the reproductive years. Further work to

explore the change in clinical and biochemical parameters over this period would be beneficial in understanding the pathophysiology underlying the observed patterns of this research.

## **The burden of multimorbidity on Australian women: Associations with health related quality of life and health service use**

**PhD candidate:** Jeeva Kanesarajah

**Supervisors:** Prof Gita Mishra and Prof Jenny Whitty

**Institution:** The University of Queensland

Multimorbidity is associated with frequent and longer health service use, however longitudinal evidence is limited. This project aimed to develop a multimorbidity index for mid-age women, quantify multimorbidity trajectories, and examine its association with health service use. Data from the ALSWH were used. Using the new multimorbidity index, five multimorbidity trajectory were identified. Health service use increased in a dose-response manner with multimorbidity trajectory. Those with severe multimorbidity used double the number of services. These findings may provide information to better predict health service resource allocation based on women's morbidity burden over time, at mid-life.

## **Modelling trajectories of aged care use among older Australian women**

**PhD candidate:** MD Mijanur Rahman

**Supervisors:** Prof Julie Byles and Prof Jimmy Eford

**Institution:** The University of Newcastle

A substantial growth in the number of older people needing care has raised enormous challenges to the health and social care system in many countries including Australia. One challenge is the relative lack of research evidence about how different parts of the system intersect and how an individual transitions from one level of care to another in accordance with changing needs over time. There is also a lack of understanding of how individual and social circumstances and supports might predispose older people to use care, or enable them to use appropriate care when they need it.

To fill these knowledge gaps, this study utilised data from the older cohort (born between 1921-26) of the ALSWH and linked aged care and National Death Index data to assess patterns and trajectories of different types of aged care use over time. The study analysed the movements of older women into and between different levels of aged care, and according to their changing needs and circumstances throughout later life.

The results reveal a wide diversity in the patterns of Home and Community Care use, with a majority of older women living at home independently, requiring only low-level use of a few basic services, while one quarter have complex care needs requiring greater use of multiple services. Women were most likely to enter aged care by first using HACC. There was also significant variation in the latent patterns of aged care use, with around two-thirds of women not using any services or using a limited basic community care services until age 85-90. Only a small proportion of women were increasingly dependent on residential Aged Care as they age.

Having complex use of HACC was associated with delayed admission to RAC, after adjusting for individual characteristics. Following admission to RAC, there was substantial variation among residents in terms of the trajectories of care needs over time across three domains of the Aged Care Funding Instrument including activities of daily living, behaviour, and complex health care needs. The findings highlight the importance of providing a range of services to meet the diverse care needs of older women, especially in the community setting.



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This list includes the first named investigator or collaborator from all currently active projects using ALSWH data. For further information, please [visit the ALSWH website](#).

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# Publications

## Summary

During 2020, 77 papers were published or accepted for publication in peer reviewed academic journals. 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

[Patterns of medications for atrial fibrillation among older women: Results from the Australian Longitudinal Study on Women's Health.](#) *Journal of Cardiovascular Pharmacology and Therapeutics*, 2021, 26(1). (Epub ahead of print, August 2020).

Abbas SS, Majeed T, Nair BR, Forder P, Weaver N & Byles J. [Burden of atrial fibrillation and stroke risk among octagenarian and nonagenarian women in Australia.](#) *Annals of Epidemiology*, 2020, 44; 31-37.

Anderson AE, Cavenagh D, Forder P, Loxton D & Byles J. [Alcohol-related risk from pre-loading and heavy episodic drinking \(HED\) among a cohort of young Australian women: A cross-sectional analysis.](#) *Australian and New Zealand Journal of Public Health*, 2020, 44(5).

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### **Accepted papers**

Abbas SS, Majeed T, Nair K, Forder P, Weaver N & Byles J. **Utility estimations of health states of older Australian women with atrial fibrillation using SF-36.** *Quality of Life Research*.

Thiruchelvam K, Byles J, Kairuz T. **Frailty and potentially inappropriate medications using the 2019 Beers Criteria: Findings from the Australian Longitudinal Study on Women's Health (ALSWH).** *Aging Clinical and Experimental Research*.

# Reports

[The impact of multiple chronic conditions: Findings from the Australian Longitudinal Study on Women's Health](#). Dobson A, Forder P, Hockey R, Egan N, Cavenagh D, Waller M, Xu Z, Anderson A, Byrnes E, Barnes I, Loxton D, Byles J & Mishra G. Report prepared for the Australian Government Department of Health, May 2020.

[ALSWH COVID-19 Survey Report 1](#). Loxton D, Forder P, Townsend N, Thomson C, Mishra G, Tooth L & Byles J. 29 April 2020.

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[ALSWH COVID-19 Survey Report 7](#). Loxton D, Anderson A, Cavenagh D, Townsend N, Mishra G, Tooth L & Byles J. 22 July 2020.

[ALSWH COVID-19 Survey Report 8](#). Loxton D, Anderson A, Cavenagh D, Townsend N, Mishra G, Tooth L & Byles J. 5 August 2020.

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## Conference Presentations

In 2020, ALSWH data were used in 32 conference presentations.

Awoke MA, Ernest A, Joham A, Hodge A, Brown W, Teede H & Moran L. **Longitudinal weight gain and lifestyle factors in women with and without polycystic ovary syndrome** (Oral presentation). *Androgen Excess and PCOS Society (AE-PCOS), 18th Annual Virtual Meeting*, 7– 8 November, 2020.

Awoke MA, Ernest A, Joham A, Hodge A, Brown W, Teede H & Moran L. **Longitudinal weight gain and lifestyle factors in women with and without polycystic ovary syndrome** (e-poster presentation). *The Austral-Asia Obesity Research Update (ANZOS) Virtual Conference*, 15 – 16 October, 2020.

Awoke MA, Ernest A, Joham A, Hodge A, Brown W, Teede H & Moran L. **Longitudinal weight gain and lifestyle factors in women with and without polycystic ovary syndrome** (e-poster presentation). *Nutrition Society of Australia (NSA) Virtual Conference*, 3 – 4 December, 2020.

Baldwin JN, Forder P, Haslam R, Hure A, Loxton DJ, Patterson AJ and Collins CE. **Change in diet quality and 15-year healthcare costs in the mid-age cohort of the Australian Longitudinal Study on Women’s Health**. *2020 International Society of Behavioral Nutrition and Physical Activity (ISBNPA), XChange*, Auckland, New Zealand (online), 17 - 20 June 2020.

Bennet CJ, Mansfield D, Mo L, Hodge A, Joham J Cain S, Blumfield M, Teede H & Moran L. **Sleeping behaviour in women with and without polycystic ovary syndrome (PCOS) and their association with lifestyle factors (diet, physical activity and sitting time)**. Poster presentation. *ENDO 2020*, San Francisco, USA 28-31 March 2020.

Bizuayehu HM, Harris ML, Chojenta C, Forder PM & Loxton D. **Preterm birth and its biopsychosocial predictors: A national prospective cohort study in Australia.** *Virtual Australian Public Health Conference*, 1-30 October 2020.

Bizuayehu HM, Harris ML, Chojenta C, Forder PM & Loxton D. **Low birth weight rate and predictors: A prospective study using the Australian Longitudinal Study on Women's Health.** *Center for African Research, Engagement and Partnerships (CARE-P) and African Postgraduate Student Association (APSA) Online Inaugural Conference: The Next Normal and Development Strategies for Post Covid-19 Recovery: An African Perspective*, 16 October 2020.

Bizuayehu HM, Harris ML, Chojenta C, Forder PM & Loxton D. **Patterns of labour interventions and associated biopsychological factors: Path analysis of a prospective cohort study (1996-2015).** *Inaugural conference of the Health in Preconception, Pregnancy and Postpartum Early- and Mid-Career Researcher Collective - Innovations in the Prevention and Management of Maternal Obesity*, 3 December 2020.

Byles J. **Healthy Ageing at very old ages – perspectives of women from the Australian Longitudinal Study on Women's Health.** *53rd Australian Association of Gerontology Virtual Conference*, 18 - 20 November 2020.

Campbell A, Perales F & Baxter J. **Patterns and prevalence of sexual identity change: Evidence from two cohorts of Australian women.** *International Academy of Sex Researchers 2020 Virtual Meeting*, 29 July 2020.

Cao S, Jones M, Tooth L, & Mishra G. **Does premenstrual syndrome before pregnancy increase the risk of postpartum depression? Findings from the Australian Longitudinal Study on Women's Health (ALSWH).** *Virtual Preventive Health Conference 2020*, 13-27 May 2020.

Dobson A, Anderson A, Cavenagh D, Egan N, Fitzgerald D, Forder P, Hockey R, Loos C, Loxton D, Waller M, Xu Z, Mishra G & Byles J. **Tracking the development of multimorbidity in the Australian Longitudinal Study on Women's Health.** *International Population Data Linkage Network Virtual Conference*, 1-13 November 2020.

Gete DG, Waller M & Mishra GD. **Pre-pregnancy diet quality and its association with offspring behavioral problems.** *Nutrition 2020 Live Online*, 30 May - 2 June 2020.



Hambisa, M. **Predictors of driving among oldest-old Australian women based on World Health Organization approach to Healthy Ageing.** *53rd Australian Association of Gerontology Virtual Conference*, 18-20 November 2020.

Hussain SM, Wang Y, Peeters G, Wluka AE, Mishra GD, Teede H, Urquhart D, Brown WJ, Cicuttini FM. **Demographic, psychosocial factors, musculoskeletal pain and prescription opioid use in community-based middle-aged women: A prospective cohort study** (Poster presentation). *World Congress on Osteoarthritis*. Vienna, Austria, 30 April 2020.

Loos C. **20 years of data linkage in the Australian Longitudinal Study on Women's Health.** *International Population Data Linkage Network Virtual Conference*, 1-13 November 2020.

Loxton D. **From April to October: Women's health and wellbeing during COVID-19.** *Public Health Association Australia Australasian COVID-19 Virtual Conference*, 9 December 2020.

Makama M, Ernest A, Lim S, Hill B, Skouteris H, Teede H, Boyle J, Hodge A & Moran L. **Patterns of change in lifestyle behaviours following childbirth** (e-poster presentation). *The Australasia Obesity Research Update (ANZOS) Virtual Conference*, 15 – 16 October 2020.

Makama M, Ernest A, Lim S, Hill B, Skouteris H, Teede H, Boyle J, Hodge A & Moran L. **Patterns of change in lifestyle behaviours following childbirth** (Oral presentation). *Nutrition Society of Australia (NSA) Virtual Conference*, 3 – 4 December 2020.

Makama M, Ernest A, Lim S, Hill B, Skouteris H, Teede H, Boyle J, Hodge A & Moran L. **Accessing changes in lifestyle behaviours after birth** (Rapid fire oral presentation). Inaugural Conference of the *Health in Preconception, Pregnancy and Postpartum Early- and Mid-Career Researcher Collective (HiPPP EMR-C)* Online, 3 December 2020.

Melka A, Chojenta C, Holliday E & Loxton D. **Adverse childhood experiences and electronic cigarette use among young Australian women** (Poster presentation). *Australian Society of Behavioural Health and Medicine (ASBHM) Annual Scientific Meeting*, Sydney, NSW, 5 - 7 February 2020.

Mishra GD. **A life course approach to preconception health and pregnancy planning.** *9th International Conference on Birth Defects and Disabilities in the Developing World*, Colombo, Sri Lanka, 23 - 26 February 2020.

Mishra G. **Invited speaker.** *Event co-hosted by the World Health Organisation and the International Council of Women and the Communications Coordination Committee for the United Nations: Advancing Women's Health and Well-Being: Focus on Non-Communicable Diseases (NCDs)*, UN Headquarters New York, USA. 12 March 2020.

Mishra GD. **Insights from the Australian Longitudinal Study on Women's Health in relation to cardio-metabolic risk factors and disease.** (Invited speaker, virtual presentation). *Annual Scientific meeting of the Cardiac Society of Australia and New Zealand (CZANZ)*. Gold Coast, Australia, 10-13 December 2020.

Mishra SR. **Oestrogen exposure indices and incident stroke in post-menopausal women: Insights from Australian Longitudinal Study on Women's Health.** *The American College of Cardiology's 69th Scientific Session with WHF's World Congress of Cardiology (ACC.20/WCC)*, Chicago, USA, 28 - 30 March 2020.

Moss KM, Dobson AJ, Tooth L & Mishra GD. **Which women don't exclusively breastfeed to 6 months, and why?** *The International Marce Society for Perinatal Mental Health Biennial Meeting (Virtual)*, 5-8 October 2020.

Moss KM, Reilly N, Dobson AJ, Loxton D, Tooth L & Mishra GD. **Changes in perinatal screening in Australia (2000-2017), and which women are missing out.** *The International Marce Society for Perinatal Mental Health Biennial Meeting (Virtual)*, 5-8 October 2020.

Rahman M, Byles J. **Impact of life-style factors on health life expectancy from mid-to-older age: Evidence from Australian Longitudinal Study on Women's Health.** *53rd Australian Association of Gerontology Virtual Conference*, 18 - 20 November 2020.

Schoenaker D & Steel A. **How do women with overweight and obesity prepare for pregnancy?** Inaugural conference of the *Health in Preconception, Pregnancy and Postpartum (HiPPP) Early- and Mid-career Researcher Collective (EMR-C)* Online, 3 December 2020.

Tollosa D. **A 15-year follow-up study on long-term adherence to health behaviour recommendations in women diagnosed with breast cancer** (poster presentation). *2020*

*International Society of Behavioral Nutrition and Physical Activity (ISBNPA) XChange, Online, 17 - 20 June 2020.*

Wang Y, Hussain SM, Wluka AE, Lim YZ, Urquhart DM, Mishra GD, Teede H, Doust J, Brown WJ & Cicuttini FM. **Rates, costs and determinants of lumbar spine imaging in population-based women born in 1973-1978: A prospective cohort study** (Poster presentation). *World Congress on Osteoarthritis*. Vienna, Austria, 30 April 2020.

White J, Cavenagh D, Loxton D & Byles J. **Delayed health care access during the COVID19: A mixed methods exploration**. *Australasian COVID-19 Virtual Conference*, 8-10 December 2020.

## Seminars and Workshops

Byles J. **Healthy Ageing: A multi-dimensional perspective contrasting measures of older people's abilities against their own experiences.**

*Center for Excellence in Population Ageing Research (CEPAR), Forum on Healthy Ageing, Sydney, NSW, 28 January 2020.*

Byles J. **A caring world – responding to the impact of coronavirus on long-term care.**

*International Longevity Centre Global Alliance Webinar, 18 June 2020.*

Byles J. **Australian Longitudinal Study on Women's Health.**

*6th Annual MARC Symposium: From Cells to Society – The most recent trends in Research and Ageing, Virtual symposium, 15 - 17 July 2020.*

Byles J. **Aged Care: Houston we have a problem.**

*Hall & Wilcox Health Law Seminars - Webinar No 3, 14 May 2020.*

Byles J. **A decade of healthy ageing? What good looks like and how we get there?**

*International Longevity Centre UK Webinar, 23 July 2020.*

Edvardsson K, Hooker L, Shankar M, Lucke J, Norman W V, Taft A. **The influence of geographic location on Australian women's reproductive health.**

*NHMRC Centre of Research Excellence in Sexual and Reproductive Health for Women in Primary Care (SPHERE) Annual Meeting, 26 November 2020.*

Jayawardana D. **Resource use implications of NCDs for women.**

*Economics of Women's Health, Online Webinar, 2 July 2020.*

Mishra G. **Type of menopause, age at menopause and variations in the risk of incident cardiovascular disease.**

*Redcliffe Hospital Grand Round sessions for Medical Education, Redcliffe Hospital, QLD, 20 August 2020. (Virtual)*

Mishra G. **The Australian Longitudinal Study on Women's Health.**

*Grand Rounds*, Gold Coast University Hospital, Southport QLD. 8 October 2020. (Virtual).

Moss K. **Testing the role of the timing and chronicity of maternal depressive symptoms in the associations with child behaviour and development.**

*Redcliffe Hospital Grand Rounds*, Redcliffe, QLD, 12 November 2020. (Virtual)

Pak A. **Do access, quality and cost of general practice affect emergency department use?**

*Economics of Women's Health, Online Webinar*, 2 July 2020.

# Submissions

## **Australian Government Department of Health Review of the Clinical Practice**

### **Guidelines: Pregnancy Care**

Submitted: July 2020

The ALSWH submission noted the rich data available from over 24,000 pregnancies (and another 13,000 not to term) reported by women in the Study over the last two decades. The submission included data on pre-pregnancy, antenatal and postnatal health, quality of life, and health service use, with a particular focus on preconception care. Full details are available on the Study [website](#).

## **Australian Government House Standing Committee on Social Policy and Legal Affairs Inquiry into Family, Domestic and Sexual Violence.**

Submitted: October 2020.

The ALSWH response addressed the adequacy of the qualitative and quantitative evidence base around the prevalence of domestic and family violence in Australia. It made a number of recommendations around the collection and analysis of data. It also discussed the impact of events such as the COVID-19 pandemic on women's experience of family and domestic violence. Full details are on the website. Subsequent to this submission, Professor Loxton was invited to give evidence during the public hearings held by this committee. Evidence from the study was presented by Professor Loxton and ALSWH staff members Peta Forder and Natalie Townsend on 16<sup>th</sup> October 2020.

# Data Archiving

ALSWH data are annually archived at the Australian Data Archive (ADA) 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 8 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 2020, data from Survey 8 of the 1973-78 cohort and recent data from the six-month follow up survey of the 1921-1926 cohort were archived.

# Enquiries

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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.





Australian Longitudinal Study  
on Women's Health

[www.alswh.org.au](http://www.alswh.org.au)