



women's
health
australia

australian longitudinal
study on women's
health

Annual Report
2013

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DIRECTOR'S REPORT



presentations on all aspects of women's health. This year has also seen considerable progress towards linkage of ALSWH data with other health datasets (in ways that ensure linked data are fully de-identified to preserve confidentiality) with approval for linkage to Aged Care data, and State-based hospital, perinatal and cancer data.

This year has been my last as ALSWH Director. I would like to thank the Department of Health for their continued support for the Study during my tenure over the past 18 years, my colleagues for all their help, and the many women who have participated in the research during this time.

Annette Dobson

Annette Dobson
Study Director

The Australian Longitudinal Study on Women's Health (ALSWH) is a long-running survey funded by the Australian Government Department of Health to provide evidence to develop and evaluate policies to lead to better health for all Australian women. Now in its eighteenth year, ALSWH involves more than 50,000 women in four cohorts, selected from the Australian population.

When it began in 1996, the Study was designed to cover the adult lifespan, and comprised three age cohorts - young women aged 18 to 23 (now 35-40), mid-aged women aged 45 to 50 (now 62-67) and older women aged 70 to 75 (now 87-92). A major undertaking in 2013 has been the recruitment of a new cohort of young women aged 18-23, who will ensure that the Study continues to cover the adult lifespan. A brief summary of recruitment is included in this report.

This year ALSWH surveyed women in the 1946-51 cohort for the seventh time, and continued to survey the oldest cohort at six-monthly intervals, sending them surveys in May and November. The new young cohort (born in 1989-95) will be surveyed annually and their second survey was also developed this year, with pilot-testing beginning in December. Our commitment to integrating and promoting new technology has continued, with more and more participants completing surveys online.

A major report examining women's mental health was prepared for the Australian Government Department of Health this year, and the findings are summarised later in this annual report.

In addition to the main survey work, we have continued to conduct substudies and subsidiary analyses, enhance data quality and documentation, and produce scientific papers and conference

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This list includes the first named investigator or collaborator from all currently active projects as recorded through the ALSWH Expression of Interest process.

For more information please see www.alswh.org.au

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CONGRATULATIONS TO OUR SUCCESSFUL GRADUATES FOR 2013



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Mental Health

Findings from the Australian Longitudinal Study on Women's Health

This report used data from the cohorts born 1973-78, 1946-51 and 1921-26 to explore patterns of mental health among Australian women as well as their use of mental health services. It included analyses of factors associated with poor mental health as well as specific areas such as perinatal mental health, interpersonal relationships and mental health, and comorbidity of physical and mental health. Key findings are outlined below. The full report is available at <http://www.alswh.org.au/publications-and-reports/major-reports>



Patterns of prevalence of poor mental health

Psychological distress and other measures of poor mental health is highest in younger women, and decreases with age except in later old age where it increases slightly (Figure 1).

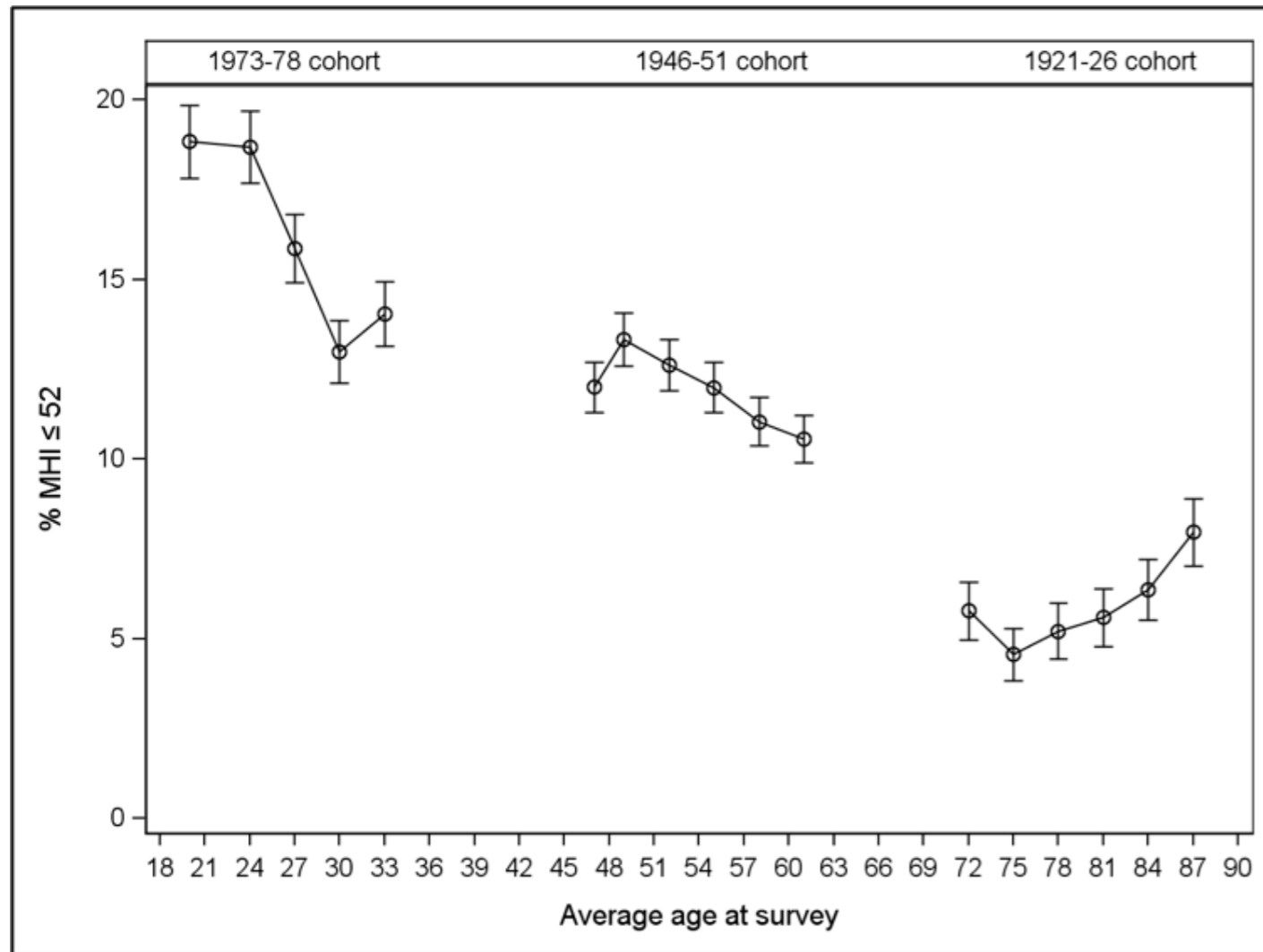


Figure 1: Percentage of women with psychological distress (SF-36 MHI ≤ 52) in past four weeks; plotted against the average age of the women for that survey, vertical lines indicate 95% confidence intervals.

Many women experience ongoing good mental health. For other women, mental health fluctuates over time, with few women having poor mental health at each survey (approximately 1% for each cohort). Many women who experienced an episode of poor mental health also experienced a relapse at a later time period.

From 1998-2010 the detection and treatment of depression increased in all cohorts - from 13% to 18% in the 1973-78 cohort, 9% to 12% in the 1946-51 cohort and 4% to 6% in the 1921-26 cohort. The percentage of women with undetected or unresolved psychological distress also reduced over this period, from 48% to 24% for the 1973-78 cohort and 44% to 23% for the 1946-51 cohort. Among older women, there was a drop similar to the other cohorts early in the period, but this benefit was lost in later years.

Anxiety symptoms are more prevalent than depressive symptoms across age cohorts. Co-morbid anxiety and depression are also evident, again for all ages. However, ALSWH data suggest that diagnosis and treatment is less common for those reporting anxiety than for those experiencing depression.

Mental health service use

There has been a steady increase in the use of Medicare items from the Better Access to Psychiatrists, Psychologists and General Practitioners through the Medicare Benefits Schedule (Better Access: BAS) since the scheme's introduction in 2006. By December 2010, around 18% of the 1973-78 cohort, 10% of the 1946-51 cohort, and 3% of the 1921-26 cohort had claimed for at least one BAS Medicare item. (Figures 2 - 4). Women in the 1973-78 and 1946-51 cohorts who used the BAS were more likely to have private health insurance compared with women who reported a diagnosis of depression/ anxiety but were not treated under the BAS. For women in the 1921-26 cohort, those treated under BAS were less likely to have a pension card

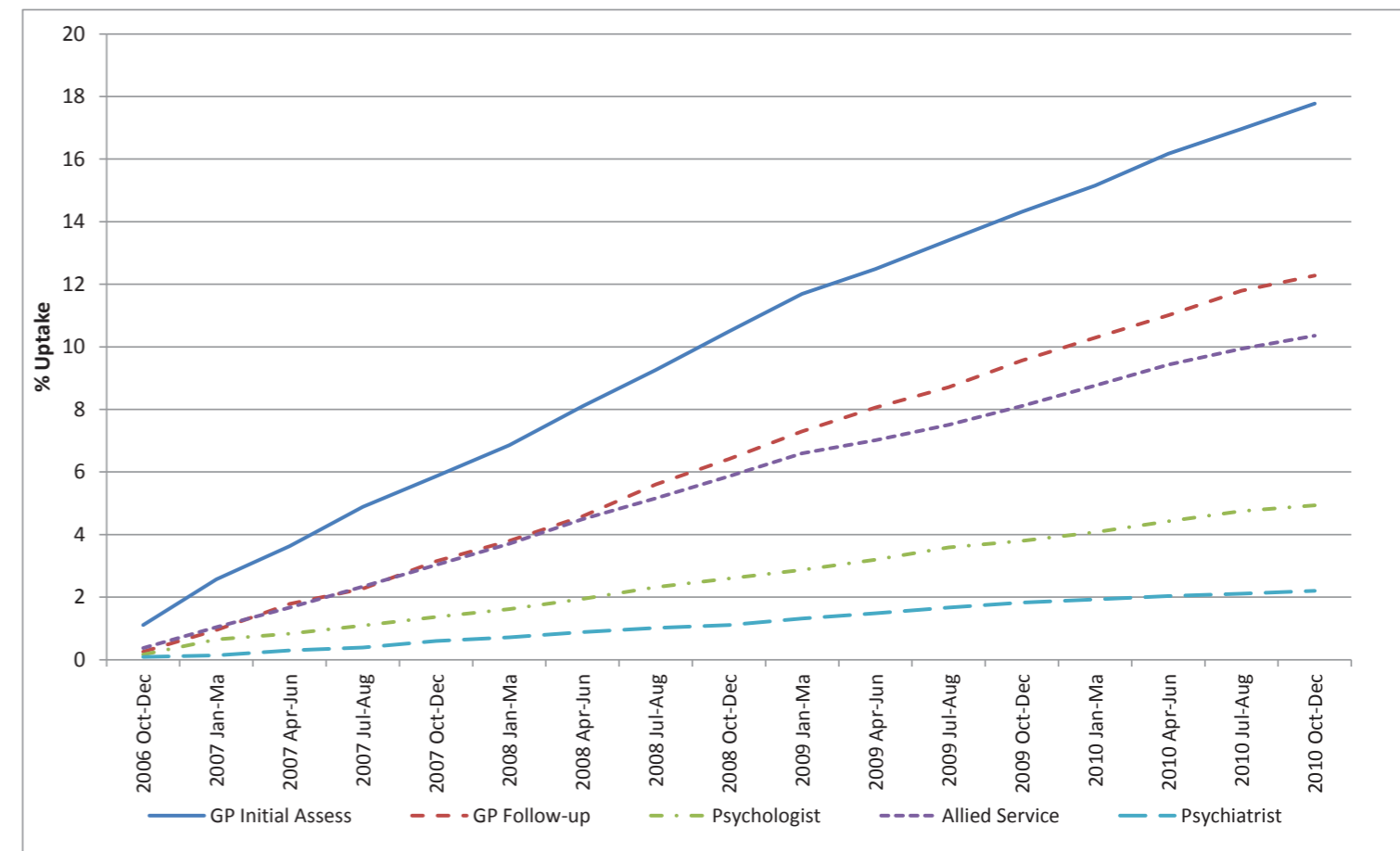


Figure 2 Cumulative uptake of BAS services for the cohort born 1973-78.

Socio-demographic characteristics and health behaviours correlated with poor mental health

Women with poor mental health were more likely to have lower education and difficulty managing on available income. Work force non-participation and not being in a relationship were also significantly associated with poor mental health among mid-aged women and younger women, as was studying for young women.

Health behaviours associated with poor mental health were: smoking, lower levels of physical activity, excessive alcohol consumption and being underweight or obese. A 'Mediterranean-style' diet, consisting of vegetables, garlic etc., was associated with better mental health compared with diets high in meat, dairy products, fats and sugars.

Perinatal mental health

Close to half the women from an ALSWH sub-study on pregnancy and mental health had a health assessment during the perinatal period (time from conception to 12 months after birth). Those less likely to have a mental health assessment were women with a previous birthing history, those with a lower education, in private hospital care or from a non-English speaking background. Women who were asked about their mental health history were more likely to be referred to support services.

Women with an increased risk of postnatal depression were more likely to have experienced antenatal or birth-related anxiety or depression, to have a history of perinatal anxiety and/or depression or to have experienced postnatal anxiety related to that pregnancy.

Among the 1973-78 cohort, women who experienced intimate partner violence had a greater chance of experiencing poor mental health. Similarly, women with poor mental health had a greater chance of later experiencing intimate partner violence. Among the 1946-51 cohort, women who ceased living with a violent partner experienced improvements in mental health. However, they continued to have poorer mental health than women who had never experienced intimate partner violence. Sub-optimal mental health continued even 12 years after the violent relationship had ended.

Carers of people with a long-term illness or disability had poorer mental health than non-carers. This was the case regardless of how intensive the care requirements or whether the care was intermittent. Those who provided live-in care had worse mental health than those not living-in. Mid-aged carers were asked additional questions which revealed that carers who remained in the workforce and/or had strong social support had better mental health.

Poor social support can lead to poor mental health and poor mental health can lead to poor social support. The lowest level of social support was associated with the highest chance of poor mental health. Many of the characteristics associated with poor mental health are also associated with poor social support. Levels of social support change over time for most women. Characteristics most strongly associated with subsequent poor social support were: not being in an intimate relationship, difficulty managing on available income and for young women, study with or without also working.

Life stages

Socially normative timing of motherhood was associated with better mental health; that is early motherhood or delaying the decision to become a mother was associated with poorer mental health.

Few women experience poor mental health during the menopausal life stage. Of those who do, most had only a moderate probability in either the early or late phases, whereas those experiencing a high probability of poor mental health had an ongoing high probability even prior to the menopausal life stage.

Widows experienced a decline in mental health up to 4 years prior to the death of their spouse, with the lowest mental health experienced in the year immediately after their loss. Within four years of their loss their mental health had returned to pre-loss levels.

Physical and mental health co-morbidity

A history of mental health problems is predictive of subsequent cardio-vascular disease in both mid-aged and older women with increased risk of heart disease following anxiety and/ or depression in mid-aged women and stress in older women. There is increased risk of stroke after depression in both mid-aged and older women. Both diabetes and arthritis are associated with previous poor mental health.

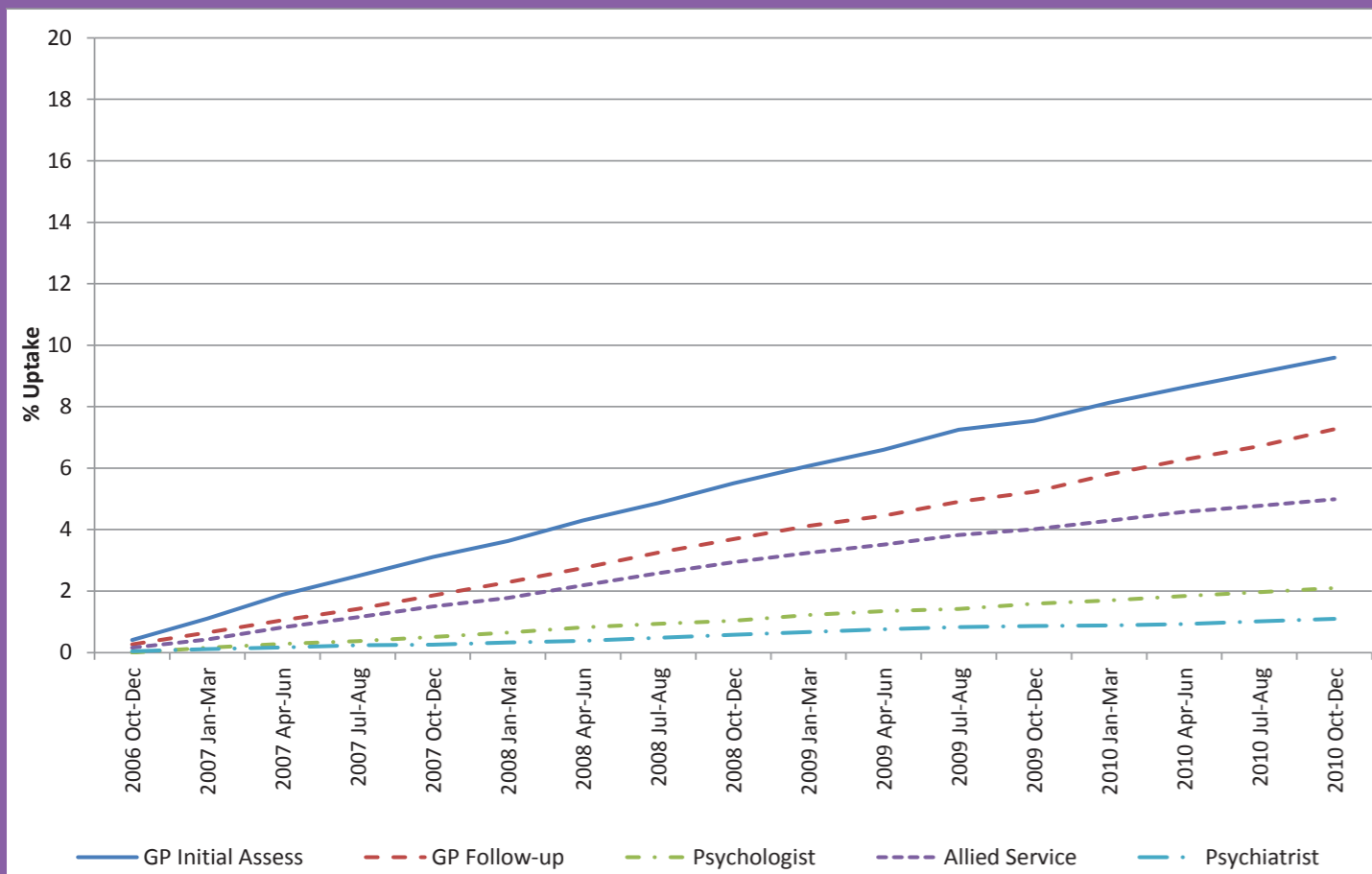


Figure 3: Cumulative uptake of BAS services for the cohort born 1946-51.

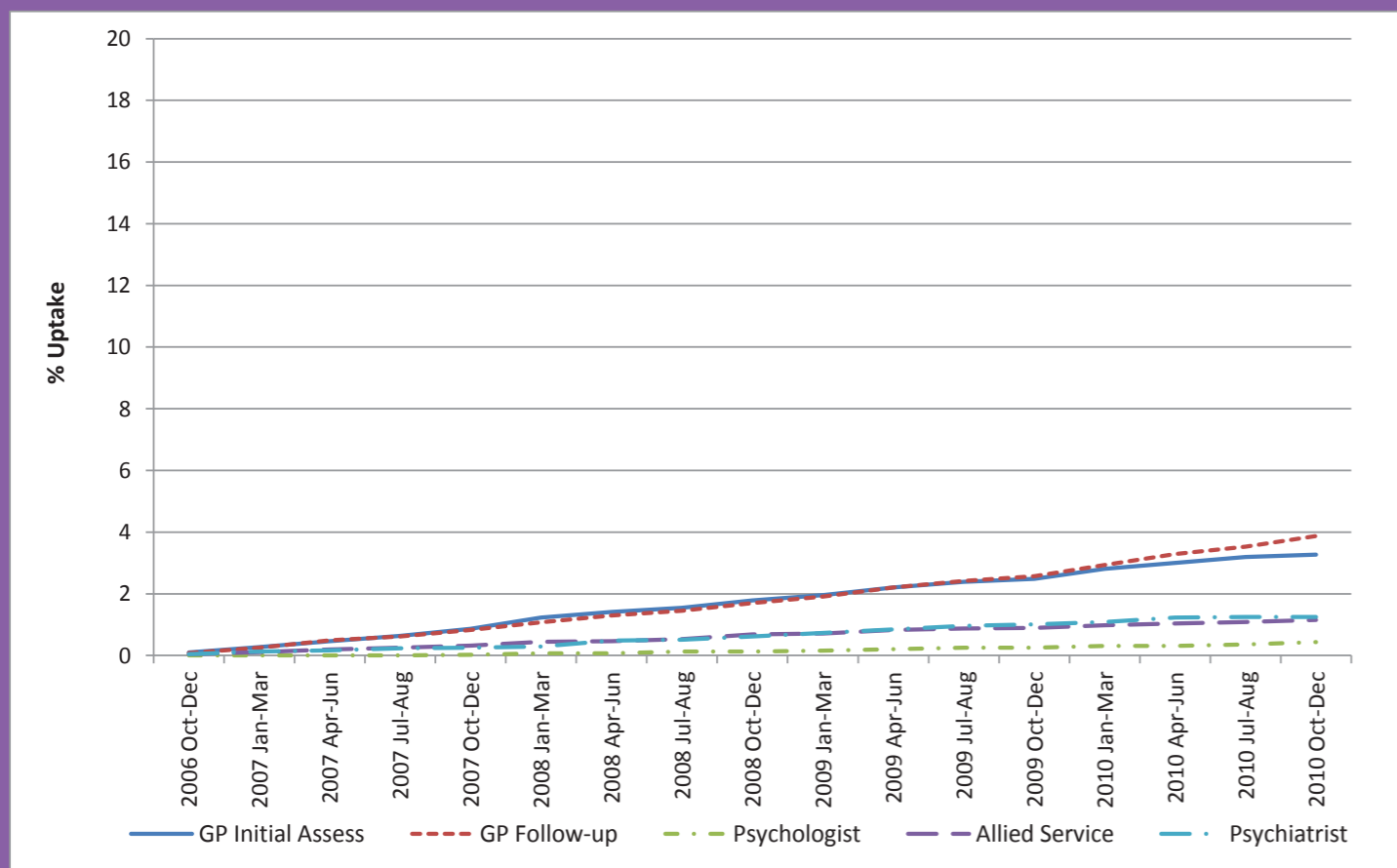


Figure 4: Cumulative uptake of BAS services for the cohort born 1921-26.

In 2013, approximately
11 000 women aged
18-23 made a difference to
the health outcomes of future
women.

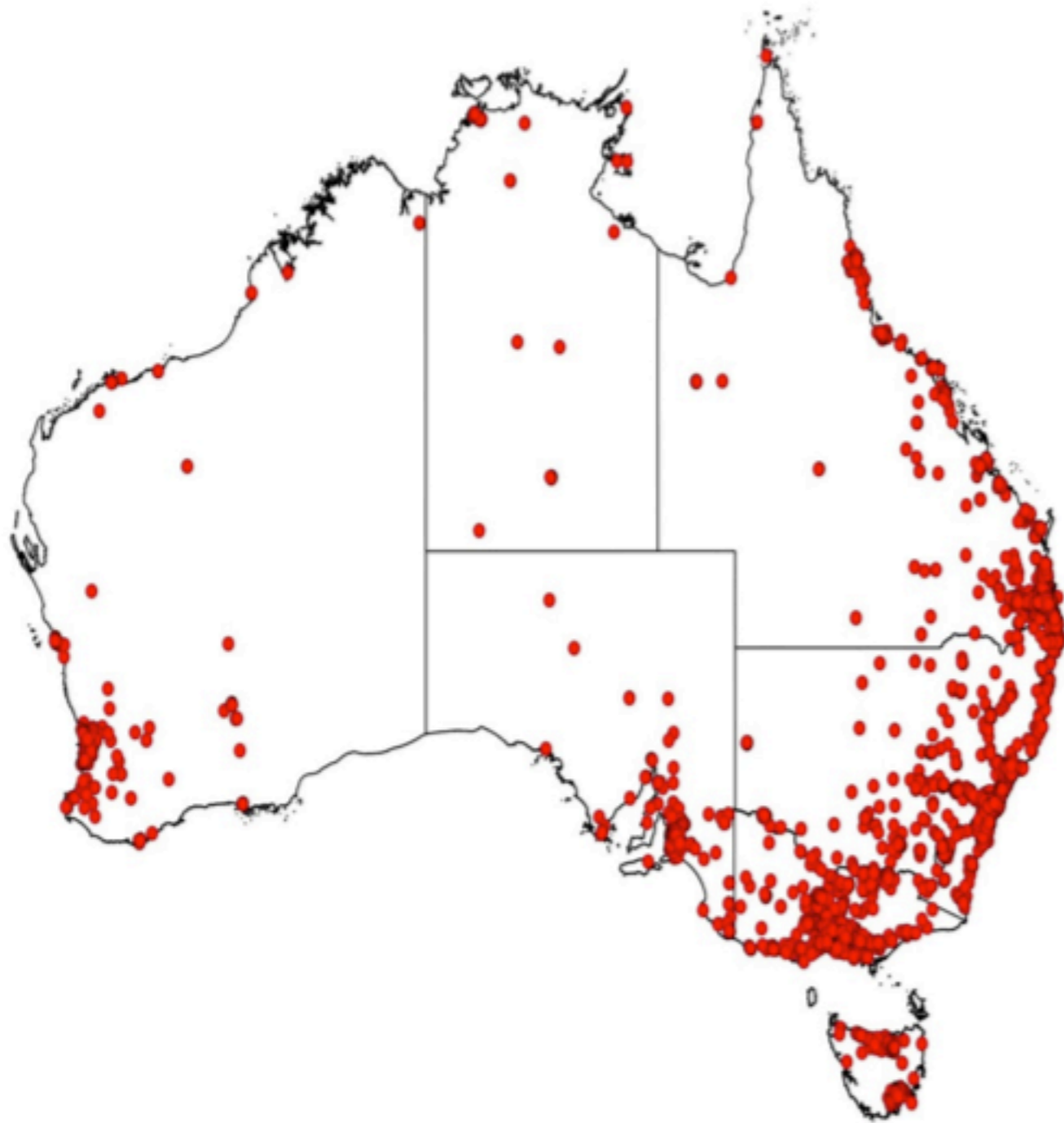
In October 2012 recruitment began of a new cohort of young women aged 18-23, who will comprise the fourth ALSWH cohort, and the first to participate wholly online. Participation was open to all Australian women aged 18-23 (when they completed the survey) who possessed a Medicare card and who consented to data linkage. To ensure participants were representative of the Australian population, a variety of recruitment methods were used. In-person recruitment was conducted at various locations across the country, such as music festivals, like Groovin' The Moo and Splendour in the Grass, and at university orientation weeks. Recruitment was also heavily promoted online using social media, where Facebook was particularly successful. Based on feedback from focus groups, incentives (lotteries with prizes of either \$50 gift cards or leggings which were specially designed for the cohort) were also offered to encourage participation.



The ALSWH 1989-1995 Cohort

The ALSWH 1989-1995 Cohort

At 19 December 2013, 10,982 young women had been verified as meeting the required criteria and were included in the cohort. Follow-up of additional participants who have not yet provided all required information is underway and the number of participants in the cohort is expected to be finalised in March 2014. A location map of participants is shown in below.



RECRUITMENT ACTIVITIES



82 papers using ALSWH data were published or accepted for publication in national and international scientific journals during 2013.

PUBLISHED PAPERS

Adams J, Sibbritt D, Broom A, Loxton D, Pirotta M, Lui C-W.

Complementary and alternative medicine consultations in urban and nonurban areas: A national survey of 1427 Australian women.

Journal of Manipulative and Physiological Therapeutics, 2013; 36(1), 12-19.

Objectives: The purpose of this study was to evaluate survey data from a national cross-sectional sample of 1427 urban and nonurban Australian women focusing on the relationship between the use of specific complementary and alternative medicine (CAM) practitioner types and the levels of CAM use across urban and nonurban areas.

Methods: A cross-sectional survey of 1427 middle-aged participants from the Australian Longitudinal Study on Women's Health conducted in 2009 was performed. The survey was designed to investigate multiple factors affecting the health and well-being of a cohort of women, with a particular emphasis on urban and nonurban residence. Women in 3 age groups ("young" 18-23 years, "mid-age" 45-50 years, and "older" 70-75 years) were randomly selected from the national Medicare database. The survey covered place of residence, measures of health status, rating of health care providers/services, and consultation with CAM practitioners.

Results: The most commonly consulted CAM practitioners for this sample were massage therapists (n = 912; 63.9%), doctors of chiropractic/chiropractors (n = 614; 43.0%), and naturopaths/herbal therapists (n = 327; 22.9%). Statistically significant differences between the areas of residence were found for women who used chiropractors (P = .0165), yoga practitioners (P = .0087), and osteopaths (P < .0001). Women residing in nonurban areas were more likely to consult with a chiropractor compared with women residing in major cities.

Women in major cities were more likely to consult with a yoga practitioner or osteopath than women from nonurban areas. Women from nonurban areas who consulted a chiropractor were significantly less satisfied with their access to a medical specialist (P < .0001), access to a female general practitioner (P = .043), the number of general practitioners they have to choose from (P = .001), how long they have to wait for an appointment (0.0146), and the amount of information sharing by their general practitioner (P = .003), compared with urban women.

Conclusions: For the population sample studied, the higher overall consultation rates with CAM therapists by Australian nonurban women were caused by consultations for chiropractic care.

Alhazmi A, Stojanovski E, McEvoy M & Garg M.
Macronutrient intake and type 2 diabetes risk in middle-aged Australian women. Results from the Australian Longitudinal Study on Women's Health.

Public Health Nutrition Journal, 2013; 1-8, doi:10.1017/S1368980013001870 (published online first).

Objective: To investigate the association between macronutrient intake and type 2 diabetes risk in middle-aged Australian women.

Design: A prospective cohort study, with 6 years (2002-2007) of follow up. Dietary intake was assessed with a validated FFQ. Relative risks with 95 % confidence intervals were used to examine risk associations.

Setting: Australian Longitudinal Study on Women's Health, Australia.

Subjects: Australian women (n 8370) from the Australian Longitudinal Study on Women's Health aged 45-50 years and free of type 2 diabetes at baseline.

Results: After 6 years of follow-up, 311 women developed type 2 diabetes. After adjusting for sociodemographic, lifestyle and other dietary risk factors, MUFA, total n-3 PUFA, α-linolenic acid and total n-6 PUFA intakes were positively

associated with the incidence of type 2 diabetes. The relative risks for type 2 diabetes for the highest compared with the lowest quintiles were 1.64 (95 % CI 1.06, 2.54), P = 0.04 for MUFA; 1.55 (95 % CI 1.03, 2.32), P = 0.01 for n-3 PUFA; 1.84 (95 % CI 1.25, 2.71), P < 0.01 for α-linolenic acid; and 1.60 (95 % CI 1.03, 2.48), P = 0.04 for n-6 PUFA. Other dietary macronutrients were not significantly associated with diabetes risk.

Conclusions: The data indicate that consumption of MUFA, n-3 PUFA and n-6 PUFA may influence the risk of developing type 2 diabetes in women.

Aljadani H, Patterson A, Sibbritt D, Hutchesson M, Jensen M & Collins C.

Diet quality, measured by fruit & vegetable intake, predicts weight change in young women.

Journal of Obesity, 2013; doi: org/10.1155/2013/525161 (published online).

This study investigates the relationship between diet quality and weight gain in young women. Young women (n = 4,287, with 1,356 women identified as plausible subsample aged 27.6 ± 1.5 years at baseline) sampled from the Australian Longitudinal Study on Women's Health study completed food frequency questionnaires in 2003, which were used to evaluate diet quality using three indices: Australian Recommended Food Score (ARFS), Australian Diet Quality Index (Aus-DQI), and Fruit and Vegetable Index (FAVI). Weight was self-reported in 2003 and 2009. Multivariate linear regression was used to examine the association between tertiles of each diet quality index and weight change from 2003 to 2009. The ARFS and FAVI were significant predictors of 6-year weight change in this group of young women, while Aus-DQI did not predict weight change (P > 0.05). In the fully adjusted model, those who were in the top tertile of the ARFS significantly gained lower weight gain compared with the lower tertile for the plausible TEI sub-sample (β = -1.6 kg (95% CI: -2.67 to -0.56), P = 0.003). In the fully adjustment model, young women were classified in the highest FAVI tertile and gained significantly less weight than those in the lowest tertile for the plausible TEI (β = -1.6 kg (95% CI: -2.4 to -0.3) P = 0.01). In conclusion, overall diet quality measured by the ARFS and the frequency and variety of fruit and vegetable consumption may predict long-term weight gain in young women. Therefore, health promotion programs encouraging frequent consumption of a wide variety of fruits and vegetables are warranted.

Aljadani H, Sibbritt D, Patterson A & Collins C.
The Australian Recommended Food Score did not predict weight gain in mid-age Australian women during six year of follow-up.
Australian and New Zealand Journal of Public

Health, 2013; 37(4), 322-328.

Objective: To evaluate the relationship between diet quality score, as measured by the Australian Recommended Food Score (ARFS) and six-year weight gain in middle-aged Australian women. **Methods:** Participants were a sub-sample of women from the Australian Longitudinal Study on Women's Health (ALSWH) who were followed up from 2001 to 2007 (n= 7,155, aged 48 to 56 years). The ARFS was derived from responses to a sub-set of questions from a food frequency questionnaire, with possible scores ranging from 0 to 74 (maximum). Absolute weight gain was calculated from the difference in self-reported weight between 2001 and 2007. Linear regression was used to test the relationship between diet score and weight change.

Results: On average, women gained weight during follow-up (1.6 ± 6.2 kg) and had a mean baseline ARFS of 32.6 (SD 8.7) which was not optimal. There was no association between ARFS and weight change during follow-up (β= 0.016; p=0.08) in the fully adjusted model that included total energy intake, education, area of residence, baseline weight, physical activity, smoking and menopause status.

Conclusions: Weight gain and low ARFS were common. However, diet quality as measured by the ARFS did not predict six-year weight gain. **Implications:** This lack of association may be due to limitations related to ARFS, or may be a false negative finding. Further research is warranted to evaluate the impact of promoting optimal diet quality on weight gain prospectively.

Anderson A, Hure A, Forder P, Powers J, Kay-Lambkin F & Loxton D.

Predictors of antenatal alcohol use among Australian women: a prospective cohort study.

BJOG: An International Journal of Obstetrics and Gynaecology, 2013; 120(11), 1366-1374.

Objective: To identify predictors of antenatal alcohol consumption among women who usually consume alcohol.

Design: Prospective cohort study.

Setting: Australian Longitudinal Study on Women's Health (ALSWH). **Population or Sample:** A total of 1969 women sampled from the ALSWH 1973-78 cohort.

Methods: Women were included if they were pregnant in 2000, 2003, 2006 or 2009. The relationship between antenatal alcohol consumption and sociodemographics, reproductive health, mental health, physical health, health behaviours, alcohol guidelines and healthcare factors was investigated using a multivariate logistic regression model. **Main outcome measures:** Alcohol use during pregnancy.

Results: Most (82.0%) women continued to drink alcohol during pregnancy. Women were more likely to drink alcohol during pregnancy if they had consumed alcohol on a weekly basis before pregnancy (odds ratio [OR] 1.47; 95% confidence interval [95% CI] 1.13-1.90), binge drank before pregnancy (OR 2.28; 95% CI 1.76-2.94), or if they were pregnant while alcohol guidelines recommended low alcohol versus abstinence (OR 1.60; 95% CI 1.26-2.03). Drinking during pregnancy was less likely if women had a Health Care Card (OR 0.63; 95% CI 0.45-0.88) or if they had ever had fertility problems (OR 0.64; 95% CI 0.48-0.86).

Conclusions: Most Australian women who drank alcohol continued to do so during pregnancy. Pre pregnancy alcohol consumption was one of the main predictors of antenatal alcohol use. Alcohol guidelines, fertility problems and Health Care Card status also impacted antenatal alcohol consumption.

Baker A, Byles J, Loxton D, McLaughlin D, Graves D & Dobson A.
Utility and acceptability of the Modified Telephone Interview for Cognitive Status (TICS-M) in a longitudinal study of Australian women aged 85-90 years.

Journal of the American Geriatrics Society, 2013; 61(7), 1217-1249.

Many studies of aging include face-to-face assessment of cognitive state using a variety of instruments, but this approach is not feasible for use with large and geographically dispersed samples. The modified Telephone Interview for Cognitive Status (TICS-M) was modeled after the Mini-Mental State Examination and is a widely used telephone-based screening instrument, but it has rarely been used with the oldest old, who may have more difficulty completing it. The aim of this study was to assess the acceptability and utility of the TICS-M in a group of women aged 85 to 90 participating in a community-based longitudinal study.

Berecki-Gisolf J, McKenzie S J, Dobson A J, McFarlane A & McLaughlin D.
A history of comorbid depression and anxiety predicts new onset of heart disease.

Journal of Behavioral Medicine, 2013; 36(4), 347-353.

The objective of the current study was to examine whether a history of comorbid depression and anxiety predicted new onset of heart disease. Data from 6 surveys, spanning 15 years, of the Australian Longitudinal Study on Women's Health, a large prospective cohort study were used, including health status, lifestyle, and sociodemographic measures. Participants of the 1946-1951 cohort who did not self-report heart disease at surveys 1 (1996) and 2 (1998) were included in the study (n = 11,828). After adjusting for health status, lifestyle and sociodemographic

factors, a history of comorbid depression and anxiety (odds ratio (OR) = 1.78; 95% confidence interval (CI) = 1.41-2.24) was associated with new onset of heart disease. A history of comorbid depression and anxiety is an important predictor of new onset of heart disease in mid aged women. Due to the possible detrimental consequences of heart disease, psychological factors as well as established predictors should be considered when assessing a person's risk for heart disease.

Byles J, Tavener M, Robinson I, Parkinson L, Warner Smith P, Stevenson D, Leigh L & Curryer C.

Transforming retirement: New definitions of life after work.

Journal of Women and Aging, 2013; 25(1), 24-44.

This quantitative research study uses survey data of women born between 1946 and 1951 in Australia. It follows earlier work that identified the importance of transitions from work for women of the baby boomer generation. We provide important insights into the lives of women who have partially or fully retired and the changing nature of women's work and retirement. For many women, retirement is characterized by newfound freedoms, opportunities, career change, and evolving identities, yet others view retirement as a continuation of previous occupational and gendered roles and commitments. This study has important implications for retirement policies for women.

Dolja-Gore X, Pit S, Parkinson L, Young A & Byles J.

Accuracy of self-reported medicines use compared to pharmaceutical claims data amongst a national sample of older Australian women.

Open Journal of Epidemiology, 2013; 3(1), 25-32.

This study assessed agreement between two measures of medicine use, self-report by mail and pharmaceutical claims data, for a national sample (N = 4687) of older women aged 79 to 84 in 2005, from the Australian Longitudinal Study on Women's Health. Medicines used for common chronic diseases in older people were selected, with pharmaceutical claims data retrieval periods of three and six months. For six month retrieval, Kappa's ranged between 0.44 (nervous system medicines) and 0.94 (glucose lowering medicines). For three month retrieval, aspirin (Kappa: 0.35) and folic acid (Kappa = 0.48) had lowest agreement. Women were least able to accurately report use of nervous system medicines (sensitivity < 50%), and most accurately report glucose lowering medicines use (sensitivity > 80%). Specificity was consistently high across all classes, suggesting women could accurately report using a medicine. Pharmaceutical claims data can assist evaluation of judicious medicines use, changes to availability and uptake of medicines, and track medicine expenditure for chronic conditions. Over-the-counter

medicines, medicines not covered by pharmaceutical subsidies and those used on an as needed basis may be best measured by self-report, as use may be underestimated using pharmaceutical claims data.

Ferguson A, Spencer E, Craig H & Colyvas K.
Propositional Idea Density in women's written language over the lifespan: Computerized analysis.

Cortex, 2013; 1-15. doi: http://dx.doi.org/10.1016/j.cortex.2013.05.012 (published online first).

The informativeness of written language, as measured by Propositional Idea Density (PD), has been shown to be a sensitive predictive index of language decline with age and dementia in previous research. The present study investigated the influence of age and education on the written language of three large cohorts of women from the general community, born between 1973 and 1978, 1946 and 1951 and 1921 and 1926. Written texts were obtained from the Australian Longitudinal Study on Women's Health in which participants were invited to respond to an open-ended question about their health. The informativeness of written comments of 10 words or more (90% of the total number of comments) was analyzed using the Computerized Propositional Idea Density Rater 3 (CPIDR-3). Over 2.5 million words used in 37,705 written responses from 19,512 respondents were analyzed. Based on a linear mixed model approach to statistical analysis with adjustment for several factors including number of comments per respondent and number of words per comment, a small but statistically significant effect of age was identified for the older cohort with mean age 78 years. The mean PD per word for this cohort was lower than the younger and mid-aged cohorts with mean age 27 and 53 years respectively, with mean reduction in PD 95% confidence interval (CI) of .006 (.003, .008) and .009 (.008, .011) respectively. This suggests that PD for this population of women was relatively more stable over the adult lifespan than has been reported previously even in late old age. There was no statistically significant effect of education level. Computerized analyses were found to greatly facilitate the study of informativeness of this large corpus of written language. Directions for further research are discussed in relation to the need for extended investigation of the variability of the measure for potential application to the identification of acquired language pathologies.

Gomersall S, Dobson A & Brown W.
Weight gain, overweight, and obesity: Determinants and health outcomes from the Australian Longitudinal Study on Women's Health.

Etiology of Obesity, 2013; doi: 10.1007/s13679-013-0077-4 (published online).

Recent estimates suggest that 35.3% of adult Australians are overweight and a further 27.5% are obese. The Australian Longitudinal Study on Women's Health (ALSWH) is a prospective study of women's health that commenced in Australia in 1996. The study recruited approximately 40,000 women in three birth cohorts, 1973-1978, 1946-1951 and 1921-1926, who have since been followed up approximately every three years using self-report surveys. Six surveys have been completed to date. This review aims to describe the changes in weight and weight status over time in the three ALSWH cohorts, and to review and summarise the published findings to date relating to the determinants and health consequences of weight gain, overweight and obesity. Future plans for the ALSWH include on-going surveys for all cohorts, with a seventh survey in 2013-2015, and establishment of a new cohort of women born in 1990-1995, which is currently being recruited.

Halland M, Koloski NA, Jones M, Byles J, Chiarelli P, Forder P & Talley N.

Prevalence correlates and impact of fecal incontinence among older women.

Diseases of the Colon and Rectum, 2013; 56(9), 1080-1086.

Background: Fecal incontinence is a common problem that has been associated with anatomic, physiological, and medical conditions. There are very few data on the factors associated with fecal incontinence in elderly women.

Objectives: We aimed to determine the factors associated with fecal incontinence via a population-based survey in a large cohort of elderly Australian women.

Design and setting: Data from a large longitudinal population-based study of elderly Australian women aged 82 to 87 years were analyzed.

Patients: Participants were 5560 women (aged 82-87 years) who participated in the Australian Longitudinal Study on Women's Health; 4815 women responded to questions relating to fecal incontinence.

Main outcome measures: Fecal incontinence was defined as leakage of liquid and/or solid stool at least once per month over the past 12 months. Self-reported medical conditions and lifestyle factors as well as demographic factors were recorded.

Results: The prevalence of fecal incontinence was 10.4% (95% CI, 9.6-11.3) (n = 510). The prevalence was significantly higher among institutional- versus community-dwelling women (14.1% vs 9.7%; p = 0.0002). Univariately, lifestyle factors including fruit intake and fluid intake, along with a range of comorbidities, were associated. However, independent factors for fecal incontinence among community-dwelling women included diabetes mellitus (OR, 1.51; 95% CI, 1.14-2.01; p = 0.004), depression (OR, 1.84; 95%

CI, 1.30-2.62; $p = 0.001$), urinary incontinence (OR, 2.29; 95% CI, 1.83-2.86; $p < 0.0001$), and osteoarthritis (OR, 0.73; 95% CI, 0.57-0.94; $p = 0.013$). Among institutional-dwelling women, however, we found urinary incontinence (OR, 4.43; 95% CI, 2.83-6.93; $p < 0.0001$) and poorer general health (OR, 0.98; 95% CI, 0.97-0.99; $p = 0.003$) to be independently associated.

Limitations: This is a cross-sectional study, which prevents making conclusions about the cause and effect of observed correlations.

Conclusions: The independent factors associated with fecal incontinence in this population do not appear readily modifiable, and many previously identified risk factors may not be important in the elderly women with fecal incontinence.

Harris ML, Loxton D, Sibbritt DW & Byles JE. The influence of perceived stress on the onset of arthritis in Women: findings from the Australian Longitudinal Study on Women's Health.

Annals of Behavioral Medicine, 2013; 46(1) 9-18.

Background: Psychosocial factors are considered as risk factors for some chronic diseases. A paucity of research exists surrounding the role of perceived stress in arthritis onset.

Purpose: Perceived stress as a risk factor for arthritis development was explored in an ageing cohort of Australian women.

Methods: This study focused on 12,202 women from the 1946–1951 cohort who completed the Australian Longitudinal Study on Women's Health surveys in 2001, 2004 and 2007. Longitudinal associations were modelled, with and without a time lag.

Results: Findings from the multivariate time lag modelling, excluding women with persistent joint pain, revealed that perceived stress predicted the onset of arthritis, with women experiencing minimal and moderate/high stress levels having a 1.7 and 2.4 times greater odds of developing arthritis 3 years later, respectively ($p < 0.001$). Conclusion Chronically perceiving life as stressful is detrimental to future health. The findings provide support for perceived stress to be considered alongside other modifiable risk factors.

Herber-Gast G & Mishra G. Fruit, mediterranean-style, and high-fat and sugar diets are associated with the risk of night sweats and hot flushes in midlife: results from a prospective cohort study.

American Journal of Clinical Nutrition, 2013; 97(5), 1092-1099.

Background: Diet has been suggested to be a potential risk factor for vasomotor menopausal symptoms (VMSs), ie, hot flushes and night sweats.

Objective: We investigated the associations between dietary patterns and risk of VMSs by using data from middle-aged women born between 1946 and 1951 in the Australian Longitudinal Study on Women's Health.

Design: A prospective cohort study of 6040 women with a natural menopause were followed up at 3-y intervals over 9 y. Dietary intake was assessed at baseline in 2001, and the presence of VMSs was assessed at baseline and follow-up. Factor analysis and generalized estimating equation models for binary repeated measures were performed.

Results: Six dietary patterns were identified from factor analysis: cooked vegetables, fruit, Mediterranean style, meat and processed meat, dairy, and high fat and sugar. A higher consumption of the fruit or Mediterranean-style diet was inversely associated with VMSs in a comparison of the top with the bottom quintile, with adjusted ORs of 0.81 (95% CI: 0.71, 0.93; P-trend = 0.0009) and 0.80 (95% CI: 0.69, 0.92; P-trend = 0.0004), respectively. The high-fat and -sugar pattern increased the risk of VMSs in a comparison of the top with the bottom quintile, with an adjusted OR of 1.23 (95% CI: 1.05, 1.44; P-trend = 0.02).

Conclusions: Consumption of a fruit or Mediterranean-style diet decreased the risk of reporting VMSs, whereas consumption of a high-fat and -sugar diet increased the risk of VMSs. These results may eventually lead to a basis for the development of dietary preventive measures for VMSs.

Herber-Gast GC, Mishra G, van der Schouw Y, Brown W & Dobson A. Risk factors for night sweats and hot flushes in midlife: results from a prospective cohort study.

Menopause, 2013; 20(9), 953-959.

Objective: To identify social, lifestyle, and reproductive history risk factors of night sweats (NS) only, hot flushes (HF) only and co-occurrence of both NS and HF.

Methods: Risk factors and symptoms were measured at baseline and at three-year intervals (survey 2-6) over 15 years, in 10,454 participants in the Australian Longitudinal Study on Women's Health who were aged 45-50 years at baseline in 1996. Multinomial logistic regression analyses were performed.

Results: Compared to neither symptom, both symptoms together were reported less often by highly educated women (Odds Ratio:0.61 [99.9% Confidence Interval:0.50-0.74]), but more often by women who were heavier (1.23 [1.08-1.40]), current smokers (1.31 [1.09-1.56]), risky drinkers (1.44 [1.10-1.89]) peri- (6.57 [5.52-7.82]) or postmenopausal (4.74 [4.00-5.63]) and had gained weight (1.15 [1.01,1.31]) or had premenstrual tension (1.86 [1.48-2.34]) than by women without these characteristics. HF only was reported less often by highly educated women (0.73 [0.59- 0.90]), but more often by peri-menopausal (3.58 [2.95-4.35]) or postmenopausal (2.97 [2.47-3.57]) women and by those with premenstrual tension (1.60 [1.25-2.04]). Finally, NS only was reported

more often among current smokers (1.55 [1.11-2.19]), risky drinkers (1.76 [1.04-2.97]), peri-menopausal women (1.53 [1.14-2.06]) and by those with diabetes (1.91 [1.08-3.35]), premenstrual tension (1.67 [1.09-2.56]) or an early age at first pregnancy (1.45 [1.05-1.99]).

Conclusions: Presence of both symptoms was associated with social, behavioural and menstrual factors. There were some differences in risk factors among women who reported only one or both symptoms, suggesting a slightly different aetiology for each.

Herber-Gast G, Jackson C, Mishra G & Brown W. Self-reported sitting time is not associated with incidence of cardiovascular disease in a population-based cohort of mid-aged women.

International Journal of Behavioral Nutrition and Physical Activity, 2013; 10:55, doi:10.1186/1479-5868-10-55 (published online).

Background: In Westernised societies adults are increasingly spending many hours each day in sedentary, low energy expenditure activities such as sitting. Although there is growing evidence on the relationship between television/screen time and increased cardiovascular disease mortality, very little is known about the association between total sitting time (in different domains) and cardiovascular disease incidence. We investigated this in a population-based cohort of mid-aged women in Australia.

Findings: Data were from 6154 participants in the 1946--51 birth cohort of the Australian Longitudinal Study on Women's Health who were free of cardiovascular disease at baseline. Survival analysis was used to determine the association between self-reported sitting time and cardiovascular disease incidence, determined through hospital diagnoses and cause of death data. During a mean (+/- SD) follow-up time of 9.9 +/- 1.2 years, 177 cases of cardiovascular disease occurred. Mean sitting time (+/- SD) was 5.4 +/- 2.6 hours a day. Sitting time was not associated with incident cardiovascular disease (adjusted hazard ratio 0.97, 95% CI 0.92 to 1.03). We found no interaction between physical activity and sitting time and cardiovascular disease.

Conclusions: In mid-aged women sitting time does not appear to be associated with cardiovascular disease incidence. These findings are contrary to expectations, given the growing evidence of a relationship between sitting time and cardiovascular disease mortality. Research in this area is scarce and additional studies are needed to confirm or refute these findings.

Hure A, Powers J, Chojenta C, Byles J & Loxton D. Poor adherence to national and

international breastfeeding duration targets in an Australian longitudinal cohort.

PLoS One, 2013; 8(1), 54409, DOI: 10.1371/journal.pone.0054409.

Objectives: To report on the proportion and characteristics of Australian infants who are fed, and mothers who feed, in accordance with the national and international breastfeeding duration targets of six, 12 and 24 months. Furthermore, to examine the longitudinal breastfeeding duration patterns for women with more than one child.

Methods: Breastfeeding duration data for 9773 children have been self-reported by a national sample of 5091 mothers aged 30–36 years in 2009, participating in the Australian Longitudinal Study on Women's Health.

Results: Only 60% of infants received the minimum recommended 6 months of breast milk, irrespective of breastfeeding exclusivity. Less than 30% of infants received any breast milk at 12 months, and less than 3% were breastfed to the international target of 24 months. Young, less educated, unmarried or low-income women were at an increased risk of premature breastfeeding cessation. For women with three or more children, nearly 75% of women who breastfed their first child for at least six months reached this breastfeeding duration target for their next two children.

Conclusion: While national breastfeeding rates are typically evaluated in relation to the infant, a novel component of our study is that we have assessed maternal adherence to breastfeeding duration targets and the longitudinal feeding practices of women with more than one child. Separate evaluations of maternal and infant breastfeeding rates are important as they differ in their implications for public health policy and practice.

Jackson C & Mishra G. Depression and risk of stroke in mid-age women: a prospective longitudinal study.

Stroke, 2013; 44, 1555-1560.

Background and Purpose: Depression is known to increase stroke risk. Although limited, there is some evidence for age differences, with a suggestion for a stronger association in younger groups. We investigated the effect of depression on stroke incidence in a large cohort of midaged women.

Methods: We included 10 547 women without a history of stroke aged 47 to 52 years from the Australian Longitudinal Study on Women's Health, surveyed every 3 years from 1998 to 2010. Depression was defined at each survey using the Center for Epidemiological Studies Depression Scale (shortened version) and antidepressant use in the past month. Stroke was ascertained through self-report and mortality data. We determined the association between depression and stroke at the subsequent survey, using generalized estimating equation analysis, adjusting for time-varying

covariates.

Results: At each survey, ≈24% were defined as having depression. During follow-up, 177 strokes occurred. Depression was associated with a >2-fold increased odds of stroke (odds ratio, 2.41; 95% confidence interval, 1.78–3.27), which attenuated after adjusting for age, socioeconomic status, lifestyle, and physiological factors (odds ratio, 1.94; 95% confidence interval, 1.37–2.74). Findings were robust to sensitivity analyses addressing methodological issues, including definition of depression, antidepressant use, and missing covariate data.

Conclusions: Depression is a strong risk factor for stroke in midaged women, with the association partially explained by lifestyle and physiological factors. Further studies of midaged and older women from the same population are needed to confirm whether depression is particularly important in younger women and to inform targeted intervention approaches.

Kirby E, Broom A, Sibbritt D, Adams J & Refshauge K.
A national cross-sectional survey of back pain care amongst Australian women aged 60–65.

European Journal of Integrative Medicine, 2013; 5(1), 36-43.

Aim of the study: To analyse the use of complementary and alternative medicine (CAM), allied health and biomedicine for back pain amongst Australian women aged 60–65.

Methodology: Self-completion postal survey in 2011/2012 of 1310 women who reported seeking help for back pain from the mid-age cohort of the Australian Longitudinal Study on Women's Health (ALSWH). Questions asked about their use of, and attitudes towards, CAM, allied health and biomedicine for the treatment of back pain.

Results: Intensity of back pain was greater for those who consulted biomedical and allied health practitioners. Women reported seeking help from biomedical and allied health practitioners more quickly after onset of pain than CAM practitioners but the longer their pain persisted the more likely they were to consult CAM practitioners. Use of CAM reflected less perceived benefit of biomedicine and allied health. The perceived differences in approach of CAM practitioners (e.g. more time in consultation, more equal relationship, more holistic approach) may be influential in their use and perceived benefit. Ease of access/availability may also influence use of CAM in particular. Some communication limitations were reported regarding discussing the use of other practitioner groups with biomedical and CAM practitioners.

Conclusions: Help for back pain occurs within highly

differentiated contexts of care with patients juggling multiple and often ideologically distinct provider groups in order to improve their health and well-being. Further detailed research is required to examine patient motivations and pathways across biomedical, allied health and CAM providers in order to facilitate continuity of clinical care.

Kirby E, Broom A, Sibbritt D, Refshauge K & Adams J.
Health care utilisation and out-of-pocket expenditure associated with back pain: A nationally representative survey of Australian women.

PLOS ONE, 2013; 8(12), doi: 10.1371/journal.pone.0083559 (published online).

Background: Back pain impacts on a significant proportion of the Australian population over the life course and has high prevalence rates among women, particularly in older age. Back pain care is characterised by multiple practitioner and self-prescribed treatment options, and the out-of-pocket costs associated with consultations and self-prescribed treatments have not been examined to date.

Objective: To analyse the extent of health care practitioner consultations and self-prescribed treatment for back pain care among Australian women, and to assess the self-reported costs associated with such usage. Methods: Survey of 1,310 women (response rate 80.9%) who reported seeking help for back pain from the '1946-51 cohort' of the Australian Longitudinal Study on Women's Health. Women were asked about their use of health care practitioners and self-prescribed treatments for back pain and the costs associated with such usage.

Results: In the past year 76.4% consulted a complementary and alternative practitioner, 56% an allied health practitioner and 59.2% a GP/medical specialist. Overall, women consulted with, on average, 3.0 (SD = 2.0) different health care practitioners, and had, on average, 12.2 (SD = 9.7) discrete health care practitioner consultations for back pain. Average self-reported out-of-pocket expenditure on practitioners and self-prescribed treatments for back pain care per annum was AU\$873.10.

Conclusions: Multiple provider usage for various but distinct purposes (i.e. pain/mobility versus anxiety/stress) points to the need for further research into patient motivations and experiences of back pain care in order to improve and enhance access to and continuity of care. Our results suggest that the cost of back pain care represents a significant burden, and may ultimately limit women's access to multiple providers. We extrapolate that for Australian working-age women, total out-of-pocket expenditure on back pain care per annum is in excess of AU\$1.4billion, thus indicating the prominence of back pain as a major economic, social and health burden.

Koloski N, Jones M, Wai R, Gill R, Byles J, Talley N.

Impact of persistent constipation on health related quality of life and mortality in older community dwelling women.

American Journal of Gastroenterology, 2013; 108(7), 1152-1158.

Objectives: Very little is known about whether the reported health-related impact of constipation is worse in people who experience constipation over a long period of time vs. those with more transient symptoms. We aimed to determine the impact of persistent vs. transient constipation on health-related quality of life (QOL), depression, and mortality.

Methods: We analyzed data from 5,107 women (aged 70-75 years in 1996) who answered "Have you had constipation in the past 12 months?" in all five surveys sent out every 3 years of the Australian Longitudinal Study on Women's Health.

Results: Of the 5,107 women, 20.9, 54.1, and 24.7% reported having persistent constipation on at least 4 out of 5 surveys, transient constipation reported on 1-3 surveys, or none reported over the 15-year time frame, respectively. Women who reported persistent constipation had significantly lower scores for all domains of QOL on the SF-36 except role-emotional, and had higher levels of self-reported depression, even after adjusting for number of chronic illnesses and fluid intake. Mortality rates were increased when comparing women with no reported constipation with persistently reported constipation (8.2% vs. 11%, odds ratio = 1.32, 95% confidence interval 1.0, 1.74, P = 0.05) controlling for specific chronic illnesses.

Conclusions: Persistent constipation among older women is associated with poor health outcomes.

Liddle J, Parkinson L & Sibbritt D.
Health-related factors associated with participation in creative hobbies by Australian women aged in their eighties.

Arts & Health: An International Journal for Research, Policy and Practice, 2013; doi:10.1080/17533015.2013.808253 (published online)

Background: Population-based epidemiological studies can contribute to the spectrum of research evidence regarding the potential role of the arts in improving health and well-being among older people. To date, these studies are uncommon. The aim of the current study was to investigate health-related factors associated with participation in creative hobbies in women aged in their eighties living in Australia.

Method: Descriptive and regression analyses were performed on data from the Australian Longitudinal Study on Women's Health 2008 postal survey of women born 1921–1926 (n = 5470).

Results: Creative hobbies were undertaken by 52.7% of the sample and positively associated with physical

health (IADL), health-related quality of life (general health, social functioning) and other social and demographic indicators.

Conclusion: The relationship between participation in creative hobbies and health in older women is likely to be complex and influenced by many factors including individual physical capacity and independence as well as access to art-making activities

Liddle J, Parkinson L & Sibbritt D.
Purpose and pleasure in late life: Conceptualising older women's participation in art and craft activities.

Journal of Aging Studies, 2013; 27(4), 330-338.

The fourth age, as the last stage of life, represents a final challenge to find personal meaning in the face of changing capacities, illness and disability. Participation in valued activities is important for sustaining interest in life and has been associated with enhanced health and well-being. Art and craft activities are a popular form of participation amongst women in late life with growing international interest in the potential for these types of activities To maintain health and well-being and address problems of social isolation. Drawing on open text comments from 114 women enrolled in the Australian Longitudinal Study on Women's Health and in-depth interviews with 23 women all aged in their eighties, this paper explores the nature of older women's participation in art and craft activities and conceptualises links between participation in these activities and health and well-being in late life. Participation in art and craft activities is complex and dynamic, comprising cognitive and physical processes infused with emotion and occurs in the context of social relationships, physical spaces, physical ailments and beliefs about the value of the activities. By participating in art and craft activities, older women find purpose in their lives, contributing to their subjective well-being whilst helping and being appreciated by others. They develop a self view as enabled and as such take on new art and craft challenges, continue to learn and develop as art and craft makers and remain open to new possibilities.

Loxton D, Powers J, Fitzgerald D, Forder P, Anderson A, Taft A & Hegarty K.
The Community Composite Abuse Scale: Reliability and validity of a measure of intimate partner violence in a community survey from the ALSWH.

Journal of Women's Health, Issues & Care, 2013; 2(4), doi:10.4172/2325-9795.1000115 (published online).

Research examining the prevalence of Intimate Partner Violence (IPV) is limited by a lack of comprehensive measurement tools. While the Composite Abuse Scale (CAS) was designed to assess multiple forms of partner abuse, to date it has been primarily used in clinical samples and has not been applied to the

broader community. This study aimed to validate a version of the CAS that was modified to suit community distribution (CCAS). Participants were 7608 women from the 1973-1978 cohort of the Australian Longitudinal Study on Women's Health who provided complete data on the CCAS when it was administered within the self-report questionnaire of the fourth survey in 2006. Factor analyses revealed that the CCAS reliably distinguished three different types of abuse (labelled physical abuse, emotional abuse, and harassment), and a stand-alone item indicating sexual abuse. The validity of the CCAS and its subscales was demonstrated by support for all proposed hypotheses. CCAS scores were significantly positively correlated with other measures of abuse and with relationship stress. Scores on the CCAS and its subscales were negatively correlated with mental and physical health, and positively correlated with general practitioner visits. The current study has demonstrated the acceptability and validity of a comprehensive measure of abuse in a community sample. For women in their twenties and thirties, the one-year prevalence of abuse was found to be 25% overall, with 23% experiencing emotional abuse, 9% experiencing physical abuse, 5% experiencing harassment and 1% experiencing sexual abuse. The most common form of abuse was emotional abuse, which may be least recognised as abuse by the women themselves. Hence it is important to measure intimate partner abuse using a variety of items, to help prevent underreporting, and to take a lifecourse perspective, to recognise the warning signs of abuse onset and of abuse escalation.

Lucke J, Herbert D, Watson M, & Loxton D. **Predictors of Sexually Transmitted Infection in Australian Women: Evidence from the Australian Longitudinal Study on Women's Health.** *Archives of Sexual Behavior*, 2013; 42(2), 236-247.

This longitudinal study examined characteristics of women diagnosed with sexually transmitted infections (STI) for the first time in their later 20s and early 30s. Participants were 6,840 women (born 1973-1978) from the Australian Longitudinal Study on Women's Health. Women aged 18-23 years were surveyed in 1996 (S1), 2000 (S2), 2003 (S3), and 2006 (S4). There were 269 women reporting an STI for the first time at S3 or S4. Using two multivariable logistic regression analyses (examining 18 predictor variables), these 269 women were compared (1) with 306 women who reported an STI at S2 and (2) with 5,214 women who never reported an STI across the four surveys. Women who reported an STI for the first time at S3 or S4 were less likely to have been pregnant or had a recent Pap smear compared to women reporting an STI at S2. Women reporting a first STI at S3 or S4 were less likely to have been pregnant or had a recent Pap smear

compared to women reporting an STI at S2. Women were more likely to report an STI for the first time at S3 or S4 compared to women not reporting an STI at any survey if they were younger, unpartnered, had a higher number of sexual partners, had never been pregnant, were recently divorced or separated, and reported poorer access to Women's Health or Family Planning Centres at S2. These findings demonstrate the value of longitudinal studies of sexual health over the life course beyond adolescence.

McKenzie S, Lucke J, Hockey R, Dobson A & Tooth L. **Is use of formal community services by older women related to changes in their informal care arrangements?** *Ageing & Society*, 2013; 1-20, doi:10.1017/S0144686X12000992 (First view).

This paper examines how the relationships between the factors (predisposing, enabling and illness) of the 1973 Andersen framework and service use are influenced by changes in the caring role in older women of the 1921-26 cohort of the Australian Longitudinal Study on Women's Health. Outcome variables were the use of three formal community support services: (a) nursing or community health services, (b) home-making services and (c) home maintenance services. Predictor variables were survey wave and the following carer characteristics: level of education, country of birth, age, area of residence, ability to manage on income, need for care, sleep difficulty and changes in caring role. Carer changes were a significant predictor of formal service use. Their inclusion did not attenuate the relationship between the Andersen framework factors and service use, but instead provided a more complete representation of carers' situations. Women were more likely to have used support services if they had changed into or out of co-resident caring or continued to provide co-resident care for a frail, ill or disabled person, needed care themselves, and reported sleep difficulties compared with women who did not provide care. These findings are important because they indicate that support services are particularly relevant to women who are changing their caring role and who are themselves in need of care.

McLaughlin D, Hockey R & Mishra G. **Heart disease in women in remote Australia: urban-rural differences after adjusting for lifestyle behaviours and socio-demographic factors.** *Australian and New Zealand Journal of Public Health*, 2013; 37:90.

Background: Rural-urban differences in the prevalence of a number of chronic conditions have been identified, with rural residents more likely to have higher morbidity than their urban counterparts.

However, differences are not always consistent and variations may exist in particular diseases. The aim of this study was to compare differences in selected chronic conditions in urban, inner regional, outer regional and remote dwelling mid-aged Australian women, and to consider the impact of known socio-demographic and lifestyle factors.

Methods: Longitudinal analysis of data from a prospective cohort study. Participants were a community-based random sample of women (n=13,715) aged 45 to 50 years when recruited in 1996. Measures used were: area of residence in Australian States and Territories, chronic conditions, BMI, smoking, physical activity, consumption and socio-demographic characteristics.

Results: Women living in inner regional (OR 1.24, 95%CI 1.05-1.47) and remote/very remote (OR 1.74, 95%CI 1.24-2.44) areas were more likely to report heart disease than women in urban areas after adjusting for survey and age. These differences remained for women in remote/very remote areas after further adjusting for demographic factors alone (OR 1.73, 95%CI 1.23-2.44), demographics and BMI (OR 1.66, 95%CI 1.17-2.34) and demographics, BMI, smoking, alcohol and exercise (OR 1.63, 95%CI 1.16-2.31).

Conclusions: Our results indicate that differences in heart disease between urban and remote women are not driven by socio-demographic factors nor are they generally related to poor lifestyle behaviours. These findings suggest that any subsequent discrepancy in mortality between women living in urban and remote areas is most likely the result of differences in access to health services and available treatments.

Mehraban A, Mackenzie L, Byles J, Gibson R & Curryer C. **Can the International Classification of Functioning, Disability and Health (ICF) be used to understand falls risk factors in older Australian women?** *Health*, 2013; 5(12A), 39-48. doi: 10.4236/health.2013.512A006 (published online).

Purpose: To evaluate the relevance and accuracy of determining and predicting risk factors for falls in older women using the International Classification of Functioning, Disability and Health (ICF).

Methods: We tested the accuracy of the ICF against risk of falls amongst 568 community dwelling participants of the Australian Longitudinal Survey on Women's Health (ALSWH). We linked health-related variables to the ICF using ten linking rules. The logistic regression analysis evaluated the relationship between the variables and the outcome of falls. Self-report surveys measured daily functioning, health service use, medications, housing and social support.

Results: Variables aligned with the ICF components of body function, health conditions, environment, activity and participation (ADL/IADL), and general health were significantly associated with falls.

Discussion and conclusion: Mapping ALSWH health-related data to ICF components identified significant risk factors for falls are related to health conditions, functional limitations and home hazards. Biopsychosocial approaches guided by the ICF framework are crucial for fall prevention.

Meurk C, Broom A, Adams J & Sibbritt D. **Bodies of knowledge: Nature, holism and women's plural health practices.** *Health*, 2013; 17(3), 300-318.

The proliferation of complementary and alternative medicine (CAM), and women's high level of engagement with these practices, has presented sociology with a range of questions regarding gender, embodiment and identity work in the context of contemporary medical pluralism. The current study, drawing on 60 qualitative interviews with women from the Australian Longitudinal Study on Women's Health (ALSWH), examines how a group of Australian women negotiate CAM and biomedicine in a range of health and illness contexts. Selected from the mid-aged cohort of this national study, here we explore their accounts of engagement with CAM and biomedicine, unpacking their logics underpinning, and rhetorical practices surrounding, their therapeutic engagement. The results provide significant insight into: the importance of ideas about nature, holism and strengthening; perceptions of the harshness and softness of medicines for women's bodies; and, the relative importance of scientific proof vis-a-vis individual subjectivities. Ultimately, their accounts illustrate gendered and embodied strategies of strategic integration, and importantly, border crossing. We conclude that while women's engagement with CAM and biomedicine may be indeed be gendered in character, we suggest a rethinking of gender-based resistance (to biomedicine) or gender-alignment (to CAM) arguments; the notion of women as designers would more adequately capture the landscapes of contemporary medical pluralism.

Meurk C, Broom A, Adams J & Sibbritt D. **Rurality, mobility, identity: Women's use of complementary and alternative medicine in rural Australia.** *Health and Place*, 2013; 20, 75-80.

This article explores why women in rural and remote areas of Australia use complementary and alternative medicine (CAM) at higher rates than their counterparts in urban areas. Drawing on qualitative interviews with 60 women 60-65 years of age, currently living in rural Australia, we explore the possibility that CAM use in rural areas may be embedded in processes of spatialised identity-building and the health-creating practices of mobile, ex-urban, individuals who drive this process. We problematise previous explanations which suggest CAM use in rural areas is principally

derived from a lack of biomedical service provision and enhanced community ties showing instead how and why identity and mobility are useful additional variables for understanding CAM use in rural areas.

Mishra G, Anderson D, Schoenaker D, Adami H-O, Avis NE, Brown D, Bruinsma F, Brunner E, Cade JE, Crawford SL, Dobson AJ, Elliott J, Giles GG, Gold Ebl, Hayashi K, Kuh D, Lee KA, Lee JS, Melby MK, Mizunuma H, & Sievert LL. **InterLACE: A new International Collaboration for a Life Course Approach to Women's Reproductive Health and Chronic Disease Events.**

Maturitas, 2013; 74(3), 235-240.

Evidence from population-based studies of women increasingly points to the inter-related nature of reproductive health, lifestyle, and chronic disease risk. This paper describes the recently established International Collaboration for a Life Course Approach to Reproductive Health and Chronic Disease. InterLACE aims to advance the evidence base for women's health policy beyond associations from disparate studies by means of systematic and culturally sensitive synthesis of longitudinal data. Currently InterLACE draws on individual level data for reproductive health and chronic disease among 200,000 women from over thirteen studies of women's health in seven countries. The rationale for this multi-study research programme is set out in terms of a life course perspective to reproductive health. The research programme will build a comprehensive picture of reproductive health through life in relation to chronic disease risk. Although combining multiple international studies poses methodological challenges, InterLACE represents an invaluable opportunity to strength evidence to guide the development of timely and tailored preventive health strategies.

Moran LJ, Ranasinha S, Zoungas S, McNaughton SA, Brown WJ & Teede HJ. **The contribution of diet, physical activity and sedentary behaviour to body mass index in women with and without polycystic ovary syndrome.**

Human Reproduction, 2013; 28(8), 2276-2283.

Study question: What is the contribution of diet, physical activity and sedentary behaviour to body mass index (BMI) in women with and without polycystic ovary syndrome (PCOS)?

Summary answer: PCOS status, higher energy intake and glycaemic index and lower physical activity were independently associated with BMI.

What is known already: Obesity worsens the clinical features of PCOS and women with PCOS have an elevated prevalence of overweight and obesity. It is not known whether there is a contribution of lifestyle

factors such as dietary intake, physical activity or sedentary behaviour to the elevated prevalence of obesity in PCOS.

Study design, size, duration: This study is a population-based observational study with data currently collected at 13 year follow up. The study commenced in 1996. For this analysis, data are analysed at one time point corresponding to the Survey 5 of the cohort in 2009. At this time 8200 participants remained (58% retention of baseline participants) of which 7466 replied to the questionnaire; 409 self-reported a diagnosis of PCOS and 7057 no diagnosis of PCOS. Participants/materials, setting, methods: Australian women born in 1973-1978 from the Australian Longitudinal Study on Women's Health.

Main results and the role of chance: Mean BMI was higher in women with PCOS compared with non-PCOS (29.3+7.5 versus 25.6+5.8 kg/m², P, 0.001). Women with PCOS reported a better dietary intake (elevated diet quality and micronutrient intake and lower saturated fat and glycaemic index intake) but increased energy intake, increased sitting time and no differences in total physical activity compared with non-PCOS. PCOS status, higher energy intake and glycaemic index and lower physical activity, as well as age, smoking, alcohol intake, occupation, education and country of birth, were independently associated with BMI.

Limitations, reasons for caution: The weaknesses of this study include the self-reported diagnosis of PCOS, and the women not reporting PCOS not having their control status clinically verified which is likely to underrepresent the PCOS population. We are also unable to determine if lifestyle behaviours contributed to the PCOS diagnosis or were altered in response to diagnosis.

Wider implications of the findings: The strengths of this study include the community-based nature of the sample which minimizes selection bias to include women with a variety of clinical presentations. These results are therefore generalizable to a broader population than the majority of research in PCOS examining this research question which are performed in clinic-based populations. This study is in agreement with the literature that PCOS is independently associated with elevated BMI. We provide new insights that diet quality is subtly improved but that sedentary behaviour is elevated in PCOS and that PCOS status, higher energy intake and glycaemic index and lower physical activity are independently associated with BMI.

Parkinson L, Curryer C, Gibberd A, Cunich M & Byles J.

Good agreement between self-report and centralised hospitalisations data for arthritis related surgeries.

Journal of Clinical Epidemiology, 2013; 66(10),

1128-1134.

Objectives: To examine the level of agreement between self-reported and hospital administration records of arthritis-related surgeries for two large samples of community-dwelling older women in Australia, born between 1921-1926 and 1946-1951.

Study Design and Setting: Self-report survey data from the Australian Longitudinal Study on Women's Health was linked to inpatient hospital data from the New South Wales Admitted Patient Data Collection. Levels of agreement were compared using Cohen's kappa, sensitivity, specificity, and positive and negative predictive values. Reasons for false positives were examined.

Results: This study found good agreement (kappa 0.70; sensitivity and specificity 0.80) between self-report and hospitalizations data for arthritis-related surgeries.

Conclusions: This study provides new evidence for good agreement between self-reported health survey data and administrative records of arthritis-related joint procedures, and supports the use of self-report surveys in epidemiological studies of joint procedures where administrative data are either not available or not readily accessible, or where more extensive contextual information is needed. The use of health survey data in conjunction with administrative data has an important role to play in public health planning and policy.

Pavey T, Peeters G, Bauman A & Brown W. **Does vigorous physical activity provide additional benefits beyond those of moderate?**

Medicine & Science in Sports & Exercise, 2013; 45(10), 1948-1955.

Background: Although guidelines suggest that vigorous physical activity (PA) confers 'extra' benefits compared with those from moderate intensity activity alone, the magnitude of this additional benefit is unclear. The aim was to compare the reduction in risk of hypertension (HT) and depressive symptoms (DS) over 12-years in mid-age women who reported (a) only moderate intensity (MOPA) PA and (b) a combination of moderate and vigorous PA (MVPA), after controlling for overall volume of activity.

Methods: The study involved 11285 participants in the Australian Longitudinal Study on Women's Health, who completed surveys in 1998 (age 46-52), 2001, 2004, 2007 and 2010. Generalised estimating equation models (with 3-year time lag) were used to examine the relationship between PA in 7 categories from 0 to >2000 MET.min/week, and occurrence of HT and DS, for women who reported MOPA or MVPA.

Results: For HT, risk was slightly lower for MVPA than for MOPA across the entire range of PA levels, but this difference was only significant at the highest PA level (>2000; OR=0.80 MOPA and 0.56 MVPA). For DS, ORs

were similar in both groups up to 500 MET.min/week, then slightly lower for MVPA than for MOPA at higher PA levels. Again, this difference was only significant at the highest PA level (>2000; OR=0.57 MOPA and 0.42 MVPA). ORs were slightly attenuated in adjusted models.

Conclusion: Doing both vigorous and moderate activity does not have significant additional benefits in terms of HT and DS, above those from moderate intensity activity alone, except at very high levels of PA.

Peeters G, Burton N & Brown W. **Associations between sitting time and a range of symptoms in mid-age women.** *Preventive Medicine*, 2013; 56(2), 135-141.

Objective: The aim of this study was to explore longitudinal associations between sitting and physical and psychological symptoms in mid-age women.

Method: Mid-age (53-58years) participants in the Australian Longitudinal Study on Women's Health completed mail surveys in 2004 (n=10,286), 2007 (n=10,128) and 2010 (n=9452) with questions about sitting time (<6, 6-9, and ≥9h/day) and frequency of 19 symptoms in the preceding 12months (often vs. never/rarely/sometimes). Associations between sitting and symptoms were examined using two logistic generalized estimating equations models: (a) sequential cross-sectional data from 3 surveys, and (b) prospective model with a 3-year time lag (significance level=0.01).

Results: Approximately 53%, 30% and 17% of the women were classified as sitting <6, 6-9 and ≥9h/day in 2004. In adjusted cross-sectional models, women sitting ≥9h/day had significantly higher odds of breathing difficulties (OR=1.52, 99% CI=1.17-2.00), tiredness (OR=1.21, CI=1.05-1.40), bowel problems (OR=1.26, CI=1.02-1.56), eyesight problems (OR=1.16, CI=1.01-1.34), and depression (OR=1.39, CI=1.15-1.68) than women sitting <6h/day. Adjusted prospective models showed higher odds of breathing difficulties (OR=1.94, CI=1.40-2.69), chest pain (OR=2.04, CI=1.14-3.70), and tiredness (OR=1.24, CI=1.04-1.48). Associations with breathing difficulties and chest pain remained significant after excluding participants with chronic conditions in 2004.

Conclusion: Prolonged sitting may a determinant of breathing difficulties and chest pain three years later in mid-age women.

Peeters G, Dobson A, Dorly D & Brown W. **A life-course perspective on physical functioning in women.**

Bulletin of the World Health Organization, 2013; 91(9), 661-670.

Objective: To validate Kalache & Kickbusch's model: namely, that functional capacity peaks in early adulthood, then declines at a rate dependent on

fitness level until a “disability threshold” is reached.

Methods Data came from the Australian Longitudinal Study on Women’s Health, which followed three cohorts from 1996 to 2011: a young, a mid-aged and an older cohort (born in 1973–78, 1946–51 and 1921–26, respectively). The Short Form (36) Health Survey was used to measure physical functioning (score 1–100). The disability threshold was the mean physical functioning score in older women requiring assistance with daily activities (62.8). The relationship between age and physical functioning was modelled using spline regression for the entire sample, and by baseline physical functioning quintile and physical activity level.

Findings: Physical decline quickened with age: 0.05 annual units (95% confidence interval, CI: –0.13 to 0.22) at ages 18–23 years (i.e. no decline); –2.43 (95% CI: –2.64 to –2.23) at ages 82–90 years. Decline was faster in quintiles with lower baseline physical functioning in the younger and mid-age cohorts and in quintiles with higher baseline physical functioning in the older cohort. The disability threshold was reached at a mean age of 79 years, but the range was 45–88 years, depending on baseline physical functioning and physical activity.

Conclusion: Age and physical decline are not linearly related, as traditionally believed; decline accelerates with age. However, baseline physical functioning, but not physical activity, influences the rate of decline.

Peeters G, Lips P & Brown W.
Changes in physical functioning over 6 years in older women: Effects of sitting time and physical activity.

European Journal of Ageing, 2013; doi: 10.1007/s10433-013-0300-x (published online first).

The combined effects of physical activity (PA) and sitting time (ST) on physical functioning (PF) may be stronger than for each factor separately. This study examined associations between ST, PA, and PF over 6 years in older women. Data were from 6,61 participants in the Australian Longitudinal Study on Women’s Health (mean age 78 ± 1.5 years). Activity pattern at baseline (2002) was categorized as one of 12 combinations of ST (\4, 4–7, or C8 h/day) and PA (\40, 40–450, 450–900, or C900 MET min/week). PF was measured using the SF-36 (range 0–100) in 2002, 2005, and 2008. General estimating equations for linear regression were used with adjustment for confounders. Baseline PF ranged from 40 to 74 in the least to the most active groups. PF was 6.3 (95 % confidence interval [CI] -7.6 to -5.0) points lower in participants sitting C8 h/day than in participants sitting \4 h/day, and 16.9 (CI 15.7–18.0) points higher in participants reporting C900 MET min/week than in participants reporting \40 MET min/week PA.

Peeters G, Tett S, Dobson A & Mishra G.

Validity of self-reported osteoporosis in mid-age and older women.

Osteoporosis International, 2013; 24(3), 917-927.

The validity of self-reported osteoporosis is often questioned, but validation studies are lacking. We validated self-reported prevalence and incidence of osteoporosis against self-reported and administrative data on medications. The concurrent validity was moderate to good for self-reported prevalent osteoporosis, but only poor to moderate for self-reported incident osteoporosis in mid-age and older women, respectively. Construct validity was acceptable for self-reported prevalent but not for incident osteoporosis.

Introduction: The validity of self-reported osteoporosis is often questioned, but validation studies are lacking. The aim was to examine the validity of self-reported prevalence and incidence of osteoporosis against self-reported and administrative data on medications.

Methods: Data were from mid-age (56-61 years in 2007) and older (79-84 years in 2005) participants in the Australian Longitudinal Study on Women’s Health. Self-reported diagnosis was compared with medication information from (1) self-report (n(mid) = 10,509 and n(old) = 7,072), and (2) pharmaceutical prescription reimbursement claims (n(mid) = 6,632 and n(old) = 4,668). Concurrent validity of self-report was examined by calculating agreement, sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV). Construct validity was tested by examining associations of self-reported diagnosis with osteoporosis-related characteristics (fracture, weight, bodily pain, back pain, and physical functioning).

Results: Agreement, sensitivity and PPV of self-reported prevalent diagnosis were higher when compared with medication claims (mid-age women: kappa = 0.51, 95% confidence interval [CI] = 0.46-0.56; older women: kappa = 0.65, 95% CI = 0.63-0.68) than with self-reported medication (mid-age women: kappa = 0.41, 95% CI = 0.37-0.45; older women: kappa = 0.57, 95% CI = 0.55-0.59). Sensitivity, PPV and agreement were lower for self-reported incident diagnosis (mid-age women: kappa = 0.39, 95% CI = 0.32-0.47; older women: kappa = 0.55, 95% CI = 0.51-0.61). Statistically significant associations between self-reported diagnosis and at least four of five characteristics were found for prevalent diagnosis in both age groups and for incident diagnosis in older women.

Conclusions: The concurrent validity was moderate to good for self-reported prevalent osteoporosis, but only poor to moderate for self-reported incident osteoporosis in mid-age and older women, respectively. Construct validity was acceptable for self-reported prevalent but not for incident osteoporosis.

Peters G, Parkinson L, Badley E, Jones M, Brown W, Dobson A & Mishra G.

Contemporaneous Severity of Symptoms and Functioning Reflected by Variations in Reporting Doctor-Diagnosed Osteoarthritis.

Arthritis Care & Research, 2013; 65(6), 945-953.

Objective: Osteoarthritis is acknowledged as an enduring condition, however, in epidemiological studies, half the participants who report having osteoarthritis at one time may report not having it at a subsequent time. The aim of this study was to examine whether variations in reporting doctor-diagnosed osteoarthritis reflected concurrent fluctuations in indicators of disease severity in mid-age women.

Methods: Data were from 7,623 participants (aged 50-55 years in 2001) in the Australian Longitudinal Study on Women’s Health. Based on self-report of doctor-diagnosed osteoarthritis at surveys in 2001, 2004, 2007 and 2010, the participants were classified according to pattern of osteoarthritis reporting (e.g. 0-0-0-0=‘no’ on all surveys, 0-1-0-1=‘no-yes-no-yes’). Indicators of disease severity included frequency of joint pain/stiffness, use of anti-inflammatory medications, and physical functioning assessed with the SF-36. Bar graphs were used to show concurrent variations in osteoarthritis and markers, and associations were examined using log-linear models.

Results: In this sample, 46% reported having osteoarthritis on at least one survey, with half these cases reporting not having osteoarthritis at a later survey. Odds of reporting joint pain/stiffness often (odds ratio (OR) 7.26, 95% confidence interval (CI) 7.06-7.47) and using anti-inflammatory drugs (OR 4.44, CI 2.37-8.33) were higher, and physical functioning scores were lower (OR 3.75, CI 3.56-3.95) when participants reported having osteoarthritis.

Conclusion: Variations in reporting osteoarthritis coincided with episodic fluctuations in symptoms and functioning. Inconsistent reporting of osteoarthritis could therefore reflect presence of symptoms rather than reporting error and should be considered in longitudinal studies.

Powers J, Loxton D, O’Mara A, Chojenta C & Ebert L.

Regardless of where they give birth, women living in non-metropolitan areas are less likely to have an epidural than their metropolitan counterparts.

Women and Birth, 2013; 26, e77-e81.

Question: Can differences in Australian birth intervention rates be explained by women’s residence at the time of childbearing?

Methods: Data were collected prospectively via surveys in 1996, 2000, 2003, 2006 and 2009 from women, born between 1973 and 1978, of the Australian Longitudinal Study on Women’s Health. Analysis included data from 5886 women who had given birth to their first child

between 1994 and 2009. Outcome measures were self-report of birth interventions: pharmacological pain relief (epidural and spinal block analgesia, inhalational analgesia and intramuscular injections), surgical births (an elective or emergency caesarean section) and instrumental births (forceps and ventouse).

Findings: Primiparous women residing in non-metropolitan areas of Australia experienced fewer birth interventions than women residing in metropolitan areas: 43% versus 56% received epidural analgesia; 8% versus 11% had elective caesarean sections; and 16% versus 18% had emergency caesarean sections. Differences in maternal age and private health insurance status at first birth accounted for differences in surgical birth rates but did not fully explain differences in epidural analgesia.

Conclusion: Non-metropolitan women had fewer birth interventions, particularly epidural analgesia, than metropolitan women. Differences in maternal age and private health insurance do not fully explain the differences in epidural analgesia rates, suggesting care provided to labouring women may differ by area of residence. The difference in epidural analgesia rates may be due to lack of choice in maternity services, however it could also be due to differing expectations leading to differences in birth interventions for primiparous women living in metropolitan and non-metropolitan areas

Powers J, McDermott L, Loxton D & Chojenta C.

A prospective study of prevalence and predictors of concurrent alcohol and tobacco use during pregnancy.

Maternal and Child Health Journal, 2013; 17(1), 76-84.

Concurrent drinking and smoking during pregnancy is a major public health concern. Changes in these behaviours are under-researched, although essential if effective interventions are to be implemented. Hence this paper investigated characteristics of women who decreased concurrent drinking and smoking during pregnancy. 1,591 women were identified as pregnant at one of three surveys from 2000 to 2006 of the Australian Longitudinal Study on Women’s Health and not pregnant at the previous survey. Relative risks (RRs) were calculated for concurrent drinkers and smokers before pregnancy of (1) decreasing drinking, (2) decreasing smoking and (3) decreasing drinking and smoking during pregnancy. Three hundred and fifty-four women (22%) were concurrent drinkers and smokers before pregnancy; of these women, 73% decreased drinking, 72% decreased smoking and 53% decreased drinking and smoking during pregnancy. Decreased concurrent drinking and smoking was significantly higher among women who had at least 12 years education (RRs: 1.5–1.6), who drank at least 1–2

days/week (RRs: 1.5–1.6) and who had 3 or more drinks per occasion (RRs: 1.6–1.8), and significantly lower among heavy smokers, mothers of other children (RRs: 0.8) and disadvantaged women: those stressed about money, with poor mental health, low social support and experience of partner violence (RRs: 0.6–0.7). Clearly programs are needed to tackle concurrent drinking and smoking during pregnancy. Given many pregnancies are unplanned, these programs should target drinking and smoking before and during pregnancy, as well as disadvantaged women, to reduce the deleterious effects of concurrent substance use on their babies and themselves.

Reilly N, Harris S, Loxton D, Chojenta C, Forder P, Milgrom J & Austin M-P. **Disparities in reported psychosocial assessment across public and private maternity settings: A national survey of women in Australia.** *BMC Public Health*, 2013; 13, 632.

Background: Psychosocial assessment and depression screening is now recommended for all women who are pregnant or have recently given birth in Australia. Existing studies which have examined the extent of participation by women in such population-based programs have been primarily concerned with depression screening rather than a more comprehensive examination of psychosocial assessment, and have not been sufficiently inclusive of the 30% of women whose maternity care is provided in the private sector. Whether there are disparities in equity of access to perinatal psychosocial assessment is also unknown.

Methods: A sub-sample of women (N = 1804) drawn from the Australian Longitudinal Study on Women's Health participated in the study. Overall rates of assessment across five psychosocial domains (current emotional health; mental health history; current level of support; current drug or alcohol use; experience of domestic violence or abuse), as well as receipt of mental health promotion information, were examined. Log binomial regression was performed to investigate whether there were socio-demographic or health system inequalities among women who are and are not assessed across each domain.

Results: Two-thirds of women (66.8%) reported being asked about their current emotional health in the antenatal period, increasing to 75.6% of women in the postnatal period. Rates decreased markedly for reported assessment of mental health history (52.9% during pregnancy and 41.2% postnatally). Women were least likely to be asked about their experience of domestic violence or abuse in both the antenatal and postnatal periods (in total, 35.7% and 31.8%, respectively). In terms of equity of access to psychosocial assessment, women who gave birth in

the public hospital sector were more likely to report being assessed across all domains of assessment in the antenatal period, compared with women who gave birth in the private sector, after adjusting for other significant covariates. State of residence was associated with reported rates of assessment across all domains in both the antenatal and postnatal periods. Women from non-English speaking backgrounds and women with more than one child were less likely to be assessed across various domains.

Conclusion: This study provides an important insight into the reported overall penetration of and access to perinatal psychosocial assessment among a sample of women in Australia. Opportunities to minimise the current shortfall in assessment rates, particularly in the private sector, and for ongoing monitoring of assessment activity at a national level are discussed.

Reilly N, Harris S, Loxton D, Chojenta C, Forder P, Milgrom J & Austin M-P. **Referral for management of emotional health issues during the perinatal period: does mental health assessment make a difference?** *Birth: Issues in Perinatal Care*, 2013; 40(4), 297-306.

Background: There exists little evidence that routine mental health assessment in the perinatal period positively impacts on rates of referral for emotional health issues. This study aimed to evaluate the impact of this early intervention approach on reported referrals for emotional health issues during pregnancy and the first postpartum year.

Method: A subsample of women (N = 1,804) drawn from the Australian Longitudinal Study on Women's Health participated in the study. Results: Multivariate analyses showed that predictors of being given a referral for emotional health issues during pregnancy and the postnatal period, respectively, included assessment of past mental health (adj. OR = 4.40, p < 0.001, and adj. OR = 5.69, p < 0.001), assessment of current mental health (adj. OR = 2.47, p < 0.001, and adj. OR = 2.72, p < 0.001), and reported experience of significant emotional distress (adj. OR = 2.58, p < 0.001, and adj. OR = 2.83, p < 0.001).

Conclusions: This study highlights that enquiry into risk factors such as past history (in addition to current mental health) enhances initiation of referrals. Importantly, results suggest that enquiry about current mental health is associated with appropriate rates of referral rather than a nonspecific initiation of referrals. In line with Australia's Clinical Practice Guidelines for Perinatal Mental Health, the value of a comprehensive approach to mental health assessment to aid decision making around referral for further assessment or care is particularly evident.

Rich J, Chojenta C & Loxton D. **Quality, Rigour and Usefulness of Free-Text Comments Collected by a Large Population Based Longitudinal Study - ALSWH.** *PLoS ONE*, 2013; 8(7), doi:10.1371/journal.pone.006883 (published online).

While it is common practice for health surveys to include an open-ended question asking for additional comments, the responses to these questions are often not analysed or used by researchers as data. The current project employed an automated semantic program to assess the useability and thematic content of the responses to an open-ended free response item included in the Australian Longitudinal Study on Women's Health (ALSWH) surveys. The study examined the comments of three cohorts of women, born between 1973-78, 1946-51, and 1921-26, from Survey 1 (in 1996) and Survey 5 (in 2007-2009). Findings revealed important differences in the health status of responders compared to non-responders. Across all three cohorts, and at both time points, women who commented tended to have poorer physical health (except for women aged 82-87) and social functioning, experienced more life events, were less likely to be partnered, and (except for women aged 18-23 years) more likely to have higher levels of education, than women who did not comment. Results for mental health were mixed. The analysis revealed differences between cohorts as well as changes over time. The most common themes to emerge for the 1973-78 cohort were health, time, pregnant and work, for the 1946-51 cohort, the most common themes were health, life, time and work, while for the 1921-26 cohort, the most common themes were husband, health and family. The concepts and frequency of concepts changed from the first to the fifth survey. For women in the 1973-78 cohort, pregnant emerged as a prevalent theme, while eating disappeared. Among women in the 1946-51 cohort, cancer, operation and medication emerged as prevalent themes, while for women in the 1921-26 cohort, the concept children disappeared, while family emerged. This analysis suggests that free-text comments are a valuable data source, suitable for content, thematic and narrative analysis, particularly when collected over time.

Rienks J, Dobson A & Mishra G. **Mediterranean dietary pattern and prevalence and incidence of depressive symptoms in mid-aged women: results from a large community-based prospective study.** *European Journal of Clinical Nutrition*, 2013; 67(1), 75-82.

Background/Objectives: To investigate the association between dietary patterns and prevalence and incidence 3 years later of depressive symptoms using data from the mid-aged cohort in the Australian

Longitudinal Study on Women's Health.

Subjects/Methods: Participants (aged 50-55 years) completed a food frequency questionnaire in 2001. Depressive symptoms were measured in 2001 and 2004 using the validated 10-item Centre for Epidemiologic Studies Depression scale. Multiple logistic regression was used for cross-sectional analysis (8369 women) and longitudinal analysis (7588) to assess the associations between dietary patterns and prevalence of depressive symptoms, and then for longitudinal analysis (6060) on their associations with the incidence of depressive symptoms in 2004, while adjusting for sociodemographic and lifestyle factors.

Results: Six dietary patterns were identified from factor analysis: cooked vegetables, fruit, Mediterranean style, meat and processed meat, dairy, and high fat and sugar. A higher consumption of the Mediterranean-style diet had a cross-sectional association with lower prevalence of depressive symptoms in 2001, adjusted odds ratio 0.82 (95% confidence interval 0.77-0.88); and longitudinally with lower incidence of depressive symptoms in 2004, adjusted odds ratio 0.83 (0.75-0.91). None of the associations found for other dietary patterns remained statistically significant after adjustment for confounders. A dose-response relationship was found cross-sectionally when women were grouped according to quintiles of Mediterranean-style diet (P-value for trend <0.001).

Conclusions: Consumption of a 'Mediterranean-style' dietary pattern by mid-aged women may have a protective influence against the onset of depressive symptoms. These findings suggest that dietary patterns have a potential role in the prevention and management of depressive symptoms.

Schoenaker D, Dobson A, Soedamah-Mathu S & Mishra G. **Factor analysis is more appropriate to identify overall dietary patterns associated with diabetes when compared with treelet transform analysis.** *The Journal of Nutrition*, 2013; 143(3), 392-398.

Treelet transform (TT) is a proposed alternative to factor analysis for deriving dietary patterns. Before applying this method to nutrition data, further analyses are required to assess its validity in nutritional epidemiology. We aimed to compare dietary patterns from factor analysis and TT and their associations with diabetes incidence. Complete data were available for 7349 women (50-55 y at baseline) from the Australian Longitudinal Study on Women's Health. Exploratory factor analysis and TT were performed to obtain patterns by using dietary data collected from an FFQ. Generalized estimating equations analyses were used to examine associations between dietary patterns and diabetes incidence. Two patterns were identified by both methods: a prudent and a Western

dietary pattern. Factor analysis factors are a linear combination of all food items, whereas TT factors also include items with zero loading. The Western pattern identified by factor analysis showed a significant positive association with diabetes [highest quintile: OR = 1.94 (95% CI: 1.25, 3.00); P-trend = 0.001]. Both factor analysis and TT involve different assumptions and subjective decisions. TT produces clearly interpretable factors accounting for almost as much variance as factors from factor analysis. However, TT patterns include food items with zero loading and therefore do not represent overall dietary patterns. The different dietary pattern loading structures identified by both methods result in different conclusions regarding the relationship with diabetes. Results from this study indicate that factor analysis might be a more appropriate method for identifying overall dietary patterns associated with diabetes compared with TT.

Schofield M, Powers J & Loxton L.
Mortality and disability outcomes of self-reported elder abuse: A 12-year prospective investigation.
Journal of the American Geriatric Society, 2013; 61(5), 679-685.

Background/Objectives: Elder abuse is a challenging public health issue in need of more robust studies to identify abuse and examine health outcomes following abuse. This study aimed to determine whether elder abuse could predict mortality and disability over the ensuing 12 years.

Design: Population-based prospective cohort study of women aged 70–75 in 1996; survival analysis.

Setting: Australia

Participants: 12,066 women with complete data on elder abuse

Measurements: Elder abuse was assessed using the 12-item Vulnerability to Abuse Screening Scale (VASS) subscales: vulnerability, coercion, dependence, and dejection. Outcomes were death, and disability (defined as an affirmative response to ‘Do you regularly need help with daily tasks because of long-term illness, disability or frailty?’).

Results: In 1996, 8% reported vulnerability, 6% coercion, 18% dependence and 22% dejection. By October 2008, 3488/12066 (29%) were deceased. Increased mortality was associated with coercion and dejection, after controlling for demographics, social support, and health behavior (hazard ratio (HR) and 95% confidence interval (CI) 1.21 (1.06; 1.40) and 1.12 (1.03; 1.23) respectively), but not after adding chronic conditions to the coercion model. Over the 12 years, disability was reported by 2158/11027 women who had reported no disability in 1996. Women who reported vulnerability or dejection were at increased risk of disability, after controlling for demographics, social support, and health behavior (HR and CI: 1.25

(1.06; 1.49) and 1.55 (1.38; 1.73) respectively). The hazard ratio remained significant for dejection when chronic conditions and mental health were included in the model (1.40 (CI 1.24; 1.58)).

Conclusion: This study found that specific components of vulnerability to elder abuse were differentially associated with higher rates of disability and mortality over the ensuing 12 years.

Sibbritt D, Adams J & Vijayendra M.
The prevalence and determinants of Chinese medicine use by Australian women: Analysis of a cohort of 10,287 women aged 56–61 years.
The American Journal of Chinese Medicine, 2013; 41(2), 281-291.

This study aimed to examine the factors associated with Chinese medicine use amongst a sample of 10,287 Australian women aged 56–61 years. Data was obtained from a cross-sectional postal questionnaire conducted in 2007, this being the fifth survey of the Australian Longitudinal Study on Women’s Health. This representative sample of 10,287 women was randomly selected from the Health Insurance Commission (Medicare) database. The outcome measure was the use of Chinese medicine in the previous 12 months. The predictive factors included demographics, health status measures and health service utilization measures. Statistical analyses included univariate chi-square and ANOVA tests and backward stepwise multiple logistic regression modelling. The use of Chinese medicine amongst women aged 56–61 years appears to be strongly influenced by their country of birth, consultation with a range of CAM practitioners, and the use of some self-prescribed CAM. Interestingly, severe tiredness was the only symptom or diagnosis that predicted Chinese medicine use. Given the substantial prevalence of Chinese medicine use and the finding that the use of Chinese medicine is heavily integrated alongside the use of many other CAM and conventional treatments, it is imperative for the safety of patients that health professionals (across complementary and conventional healthcare) fully recognise the possible Chinese medicine use amongst their practice populations. In order to help inform relevant practice and policy development it is also important that future research further examining women’s decision-making, motivations and evaluations regarding Chinese medicine use considers such issues within the context of broader CAM and conventional health care utilization.

Sibbritt D, Catling-Paull C, Scarf V & Homer C.
The profile of women who consult midwives in Australia.
Women and Birth, 2013; 26(4), 240-245.

Background: There is no Australian data on the

characteristics of women who consult with midwives. **Aim:** To determine the profile of women who consult midwives in Australia.

Methods: This cross-sectional research was conducted as part of the Australian Longitudinal Study on Women’s Health (ALSWH). Participants were the younger (31–36 years) cohort of the ALSWH who completed a survey in 2009, and indicated that they were currently pregnant (n = 801). The main outcome measure was consultation with a midwife.

Findings: Of the 801 women who indicated that they were currently pregnant at the time of the survey, 19%, 42%, and 70% of women in the first, second and third trimesters respectively had consulted with a midwife. Women were more likely to consult a midwife if they: also consulted with a hospital doctor (OR = 2.70, 95% CI: 1.66, 4.40); also consulted with a complementary and alternative medicine practitioner (OR = 1.94, 95% CI: 1.25, 3.03); were depressed (OR = 1.84, 95% CI: 1.03, 3.28); constipated (OR = 1.80, 95% CI: 1.04, 3.13); or had been diagnosed or treated for hypertension during pregnancy (OR = 2.78, 95% CI: 1.27, 6.09). Women were less likely (OR = 0.34, 95% CI: 0.21, 0.56) to consult with a midwife if they had private health insurance.

Conclusion: Women were more likely to consult with midwives in conjunction with consultations with hospital doctors or complementary and alternative medicine practitioners. Women with private health insurance were less likely to consult midwives. More research is necessary to determine the implications of the lack of midwifery care for these women.

Stewart Williams J, Cunich M, & Byles J.
The impact of socioeconomic status on changes in the general and mental health of women over time: Evidence from a longitudinal study of Australian women.
International Journal for Equity in Health, 2013; 12(25), doi: 10.1186/1475-9276-12-25 (published online).

Introduction: Generally, men and women of higher socioeconomic status (SES) have better health. Little is known about how socioeconomic factors are associated with changes in health as women progress through mid-life. This study uses data from six survey waves (1996 to 2010) of the Australian Longitudinal Study on Women’s Health (ALSWH) to examine associations between SES and changes in the general health and mental health of a cohort of women progressing in years from 45–50 to 59–64.

Methods: Participants were 12,709 women (born 1946–51) in the ALSWH. Outcome measures were the general health and mental health subscales of the Medical Outcomes Study Short Form 36 Questionnaire (SF-36). The measure of SES was derived from factor analysis of responses to questions in the ALSWH baseline survey (1996) on school leaving age, highest

qualifications, and current or last occupation. Multi-level random coefficient models, adjusted for socio-demographic factors and health behaviors, were used to analyze repeated measures of general health and mental health. Survey year accounted for changes in factors across time. In the first set of analyses we investigated associations between the SES index, used as a “continuous” variable, and general health and mental health changes over time. To illuminate the impact of different levels of SES on health, a second analysis was conducted in which SES scores were grouped into three approximately equal sized categories or “tertiles” as reported in an earlier ALSWH study. The least square means of general and mental health from the longitudinal models were plotted for the three SES tertiles.

Results: The longitudinal analysis showed that, after adjusting for the effects of time and possible confounders, the general (mental) health of this cohort of mid-aged women declined (increased) over time. Higher SES women reported better health than lower SES women, and SES significantly modified the effects of time on both general and mental health in favor of higher SES women.

Conclusions: This study contributes to our current understanding of how socioeconomic and demographic factors, health behaviors and time impact on changes in the general and mental health of women progressing in years from 45–50 to 59–64.

Stewart Williams J, Wallick C, Byles J & Doran C.
Assessing Patterns of Use of Cardio-Protective Polypill Component Medicines in Australian Women.
Drugs and Aging, 2013; 30(3), 193-203.

Background: A low-cost ‘polypill’ could theoretically be one way of improving medication affordability and compliance for secondary prevention of cardiovascular and cerebrovascular disease. The polypill has also been proposed as a primary prevention strategy. Yet many of the issues surrounding the polypill are still being debated and the underlying assumptions have not been proven. In this paper, we step back from the complexities of the debate and report upon the utilization of polypill component medicines in two population cohorts of Australian women who were aged 56–61 years and 81–86 years in 2007.

Objectives: The aims of this study were firstly, to describe the association between the women’s characteristics (health, illness, behavioural, demographic, socioeconomic) and their use of statins and antihypertensive medicines for the treatment of heart disease, and secondly, to discuss possible health and economic benefits for women with these characteristics that may be expected to result from the introduction of a cardio-protective polypill.

Methods: Survey records from the Australian

Longitudinal Study on Women's Health (ALSWH) were linked to 2007 Pharmaceutical Benefits Scheme (PBS) claims for 7,116 mid-aged women and 4,526 older-aged women. Associations between women's characteristics (self-reported in ALSWH surveys) and their use of statins and antihypertensive medicines (measured through PBS claims in 2007) were analysed using Chi-square and multivariate regression techniques.

Results: Between 2002 and 2007, the use of statins in combination with antihypertensives by mid- and older-aged Australian women increased. A moderate yet increasing proportion of mid-aged women were taking statins without antihypertensives, and a high proportion of older-aged women were using antihypertensives without statins. A high proportion of women who were prescribed both statins and antihypertensives were in lower socioeconomic groups and reported difficulty managing on their incomes.

Conclusion: These results suggest that a polypill may provide an easy-to-take, cheaper alternative for Australian women already taking multiple cardiovascular disease medications, with particular benefits for older women and women in lower socioeconomic groups. Future research is needed to quantify the potential social and economic benefits of the polypill.

Tait R, French D, Burns R, Byles J & Anstey K. Alcohol, Hospital Admissions and Falls in Older Adults: A longitudinal evaluation. *International Psychogeriatrics*, 2013; 25(6), 901-912.

Background: There are limited data on the impacts of alcohol use in older adults. We aimed to evaluate self-reported hospital admissions and falls against current Australian alcohol consumption guidelines.

Methods: We conducted a longitudinal analysis of data from five Australian cohort studies. The study comprised 16,785 people aged 65 years or older at baseline. Alcohol consumption was categorized using Australian guidelines in standard (10 g) drinks per day as "abstinent," "low-risk" ($>0 \leq 2$), "long-term risk" ($>2 \leq 4$), or "short-term risk" (>4). Separate generalized estimating equations for men and women, controlling for key demographic, and health variables (depression, diabetes, circulatory and musculoskeletal conditions) were used to examine the relationship of alcohol consumption with hospitalization and falls against a reference category of low-risk consumption.

Results: Most participants were in the low (10,369, 62%) or abstinent (5,488, 33%) categories. Among women, all alcohol groups had greater odds of admission than low-risk users; among men, only the abstinent group had increased odds. For both genders, depression, diabetes, circulatory and musculoskeletal conditions all increased the odds of admission.

For both genders, the unadjusted model showed that abstainers had increased odds of falling, with depression, diabetes, and for women, musculoskeletal conditions also associated with falls in the adjusted model.

Conclusion: These outcomes suggest that older women in particular could benefit from targeted alcohol consumption messages or interventions. In relation to falls, other health conditions appear better targets for intervention than alcohol use.

Tavener M, Byles J & Loxton D. Expert perceptions of the popular baby boomer image. *Australasian Journal on Ageing*, 2013; doi: 10.1111/ajag.12087 (published online first).

Aim: This paper explored how gerontology experts described baby boomers, whether they challenged the popular image, and if they provided alternatives to the popularly reported baby boomer behaviours and characteristics.

Methods: Qualitative interviews were conducted with ten experts from different areas across Australia. The interviews were semi-structured and guided by a 'sense-making' approach to explore the baby boomer construct and identify expert narratives that differed from the popularly tendered image.

Results: The majority of experts were identified as baby boomers and made use of phrases associated with the popular baby boomer image, such as 'cashed up', 'reinventing retirement' and 'sea change'. Lifestyle and wealth were recognised as staple features of the popular image. To a lesser degree, the experts also recognised

alternative characteristics and behaviours, including people with disabilities and those who struggle financially.

Conclusions: Experts appeared to identify with the popular baby boomer label, but not necessarily the accompanying stereotypes.

Teede H, Joham, A, Paul E, Moran L, Loxton D, Jolley D & Lombard C.

Longitudinal weight gain in women identified with Polycystic Ovary Syndrome: Results of an observational study in young women. *Obesity (Silver Spring)*, 2013; 21(8), 1526-1532.

Objective: Polycystic ovary syndrome (PCOS) affects 6-18% of women. The natural history of weight gain in women with PCOS has not been well described. We aim to examine longitudinal weight gain in women with and without PCOS and to assess the association between obesity and PCOS prevalence.

Design and methods: This observational study was set in the general community. Participants were women

randomly selected from the national health insurance scheme (Medicare) database. Mailed survey data were collected by the Australian Longitudinal Study on Women's Health. Data from respondents to survey 4, aged 18-23 years (2006, n=9145) were analysed. The main outcome measures were PCOS prevalence and body mass index (BMI).

Results: Self-reported PCOS prevalence was 5.8% (95% CI: 5.3%-6.4%). Women reporting PCOS had higher weight, mean BMI [2.5kg/m² (95% CI: 1.9-3.1)] and greater 10-year weight gain [2.6kg (95% CI: 1.2-4.0)]. BMI was the strongest correlate of PCOS status with every BMI increment increasing risk by 9.2% (95% CI: 6%-12%).

Conclusions: This community based observational study with longitudinal measurements of weight shows that weight, BMI and 10-year weight gain were higher in PCOS. We report the novel finding that obesity and greater weight gain are significantly associated with PCOS status. Considering the prevalence, major health and economic burden of PCOS, the increasing weight gain in young women and established benefits of weight loss, these results have major public health implications.

van Uffelen J, Gellecum Y, Burton N, Peeters G, Heesch K & Brown W.

Sitting-time, physical activity, and depressive symptoms in mid-aged women. *American Journal of Preventive Medicine*, 2013, 45(3), 276-281

Background: Associations of sitting-time and physical activity with depression are unclear.

Purpose: To examine concurrent and prospective associations between both sitting-time and physical activity with prevalent depressive symptoms in mid-aged Australian women.

Methods: Data were from 8950 women, aged 50-55 years in 2001, who completed mail surveys in 2001, 2004, 2007, and 2010. Depressive symptoms were assessed using the Center for Epidemiological Studies Depression questionnaire. Associations between sitting-time (≤ 4 hours/day, $>4-7$ hours/day, >7 hours/day) and physical activity (none, some, meeting guidelines) with depressive symptoms (symptoms/no symptoms) were examined in 2011 in concurrent and lagged mixed-effect logistic modeling. Both main effects and interaction models were developed.

Results: In main effects modeling, women who sat >7 hours/day (OR=1.47, 95% CI=1.29, 1.67) and women who did no physical activity (OR=1.99, 95% CI=1.75, 2.27) were more likely to have depressive symptoms than women who sat ≤ 4 hours/day and who met physical activity guidelines, respectively. In interaction modeling, the likelihood of depressive symptoms in women who sat >7 hours/day and did no physical activity was triple that of women who sat

≤ 4 hours/day and met physical activity guidelines (OR 2.96, 95% CI=2.37, 3.69). In prospective main effects and interaction modeling, sitting-time was not associated with depressive symptoms, but women who did no physical activity were more likely than those who met physical activity guidelines to have future depressive symptoms (OR=1.26, 95% CI=1.08, 1.47).

Conclusions: Increasing physical activity to a level commensurate with guidelines can alleviate current depression symptoms and prevent future symptoms in mid-aged women. Reducing sitting-time may ameliorate current symptoms.

Vashum K, McEvoy M, Zumin S, Hasnat M, Rafiqul I, Sibbritt D, Patterson A, Byles J, Loxton D & Attia J.

Is dietary zinc protective for type 2 diabetes? Results from the Australian Longitudinal Study on Women's Health. *BMC Endocrine Disorders*, 2013; 13, 40, doi: 10.1186/1472-6823-13-40 (published online).

Background: Animal studies have shown that zinc intake has protective effects against type 2 diabetes, but few studies have been conducted to examine this relationship in humans. The aim of this study is to investigate if dietary zinc is associated with risk of type 2 diabetes in a longitudinal study of mid-age Australian women.

Methods: Data were collected from a cohort of women aged 45-50 years at baseline, participating in the Australian Longitudinal Study on Women's Health. A validated food frequency questionnaire was used to assess dietary intake and other nutrients. Predictors of 6-year incidence of type 2 diabetes were examined using multivariable logistic regression.

Results: From 8921 participants, 333 incident cases of type 2 diabetes were identified over 6 years of follow-up. After adjustment for dietary and non-dietary factors, the highest quintile dietary zinc intake had almost half the odds of developing type 2 diabetes (OR=0.50, 95% C.I. 0.32-0.77) compared with the lowest quintile. Similar findings were observed for the zinc/iron ratio; the highest quintile had half the odds of developing type 2 diabetes (OR=0.50, 95% C.I. 0.30-0.83) after multivariable adjustment of covariates.

Conclusions: Higher total dietary zinc intake and high zinc/iron ratio are associated with lower risk of type 2 diabetes in women. This finding is a positive step towards further research to determine if zinc supplementation may reduce the risk of developing type 2 diabetes.

Walkom E, Loxton D & Robertson J. Costs of medicines and health care: A concern for Australian women across the ages. *BMC Health Services Research*, 2013; 13:484,

doi:10.1186/1472-6963-13-484 9 (published online).

Background: Evidence from Australia and other countries suggests that some individuals struggle to meet the costs of their health care, including medicines, despite the presence of Government subsidies for low-income earners. The aim of our study was to elucidate women's experiences with the day to day expenses that relate to medicines and their health care.

Methods: The Australian Longitudinal Study on Women's Health (ALSWH) conducts regular surveys of women in three age cohorts (born 1973--78, 1946--51, and 1921--26). Our data were obtained from free text comments included in surveys 1 to 5 for each cohort. All comments were scanned for mentions of attitudes, beliefs and behaviours around the costs of medicines and health care. Relevant comments were coded by category and themes identified.

Results: Over 150,000 responses were received to the surveys, and 42,305 (27%) of these responses included free-text comments; 379 were relevant to medicines and health care costs (from 319 individuals). Three broad themes were identified: costs of medicines (33% of relevant comments), doctor visits (49%), and complementary medicines (13%). Age-specific issues with medicine costs included contraceptive medicines (1973--78 cohort), hormone replacement therapy (1946--51 cohort) and osteoporosis medications (1921--26 cohort). Concerns about doctor visits mostly related to reduced (or no) access to bulk-billed medical services, where there are no out-of-pocket costs to the patient, and costs of specialist services. Some women in the 1973--78 and 1946--51 cohorts reported 'too much income' to qualify for government health benefits, but not enough to pay for visits to the doctor. In some cases, care and medicines were avoided because of the costs. Personal feelings of embarrassment over financial positions and judgments about bulk-billing practices ('good ones don't bulk-bill') were barriers to service use, as were travel expenses for rural women.

Conclusions: For some individuals, difficulty in accessing bulk-billing services and increasing out-of-pocket costs in Australia limit affordability of health services, including medications. At greatest risk may be those falling below thresholds for subsidised care such as self-funded retirees and those on low-middle incomes, in addition to those on very low incomes, who may find even small co-payments difficult to manage.

Windsor T, Burns R & Byles J.
Age, physical functioning, and affect in midlife and older adulthood.
Journal of Gerontology: Psychological Sciences and Social Sciences, 2013; 68(3), 395-399.
Objectives: The aim of this study was to examine

age differences in high- and low-arousal positive and negative affect, and associations of physical functioning with affect over the latter half of the life course.

Method: Participants consisted of 39,958 midlife and older adults contributing to DYNOPTA; a large-scale collaborative project concerned with pooling data from Australian studies of aging. Items assessing the experience of discrete emotions were selected to represent different combinations of high- and low-arousal affect, and positive and negative valence affect.

Results: Older adults were more likely to endorse low-arousal positive affect, and less likely to endorse negative affect (both high and low arousal) relative to those in midlife. Better self-reported physical functioning was associated with younger age, higher positive, and lower negative affect, with physical functioning emerging as a suppressor of associations of age with affect in regression analyses.

Conclusions: The results, based on a very large sample of older adults, are consistent with those of other studies demonstrating lower levels of negative emotion among older, relative to midlife adults. The findings also highlight the relevance of physical functioning to emotional well-being over the latter part of the life course.

PAPERS ACCEPTED

Anderson AE, Hure AJ, Forder PM, Powers J, Kay-Lambkin FJ & Loxton DJ.
Risky drinking patterns are being continued into pregnancy: A prospective cohort study.
PLoS ONE

Background: Risky patterns of alcohol use prior to pregnancy increase the risk of alcohol-exposed pregnancies and subsequent adverse outcomes. It is important to understand how consumption changes once women become pregnant.

Objective: The aim of this study was to describe the characteristics of women that partake in risky drinking patterns before pregnancy and to examine how these patterns change once they become pregnant.

Methods: A sample of 1577 women from the 1973--78 cohort of the Australian Longitudinal Study on Women's Health were included if they first reported being pregnant in 2000, 2003, 2006, 2009 and reported risky drinking patterns prior to that pregnancy. Multinomial logistic regression was used to determine which risky drinking patterns were most likely to continue into pregnancy.

Results: When reporting risky drinking patterns prior to pregnancy only 6% of women reported weekly drinking only, whereas 46% reported binge drinking only and 48% reported both. Women in both binge

categories were more likely to have experienced financial stress, not been partnered, smoked, used drugs, been nulliparous, experienced a violent relationship, and were less educated. Most women (46%) continued these risky drinking patterns into pregnancy, with 40% reducing these behaviors, and 14% completely ceasing alcohol consumption. Once pregnant, women who binged only prior to pregnancy were more likely to continue (55%) rather than reduce drinking (29%). Of the combined drinking group 61% continued to binge and 47% continued weekly drinking. Compared with the combined drinking group, binge only drinkers prior to pregnancy were less likely to reduce rather than continue their drinking once pregnant (OR = 0.37, 95% CI = 0.29, 0.47).

Broom A, Meurk C, Adams J & Sibbritt D.
Networks of knowledge or just old wives' tales? A diary-based analysis of women's self-care practices and everyday lay expertise.

Health

Complementary and alternative medicine is increasingly popular in Australia and particularly among women. While existing research provides some understanding of women's engagement with complementary and alternative medicine and biomedicine, there has been comparatively little examination of the day-to-day character of their experiences. In this study, we utilise solicited diaries with women aged 60-65 years drawn from the 1946-1951 cohort of the Australian Longitudinal Study on Women's Health to capture the temporal dimension of their therapeutic engagement. Focusing on 30 active complementary and alternative medicine users, we explore women's experiences of managing their health, illness and well-being over a 1-month period. The themes that emerge from their diaries illustrate the day-to-day enactment of lay expertise through informal knowledge networks, practices of self-trialling and experimentation and the moralities underpinning self-care. The diaries provide unprecedented temporal insight into the (often problematic) enactment of lay expertise at the nexus of complementary and alternative medicine and biomedicine. They also point to the value of longitudinal techniques of data collection for augmenting more traditional sociological ways of exploring therapeutic pluralism.

Byles J, Tooth L, Chojenta C & Loxton D.
Adherence to recommended health checks by women in mid-life: A prospective study of women across Australia.
Australian and New Zealand Journal of Public Health.

Objective: To examine factors related to Papanicolaou (Pap) tests, mammography and cholesterol testing in mid-aged Australian women as they age.

Methods: Data were obtained from the 1946-51 cohort of the Australian Longitudinal Study on Women's Health, a prospective study of the health

and lifestyle of Australian women. Data were collected via self-report mailed surveys on a three-yearly basis since 1996 when participants were aged 45-50. Demographic factors, health service use and health-related factors were examined in relation to screening practices in a lagged analysis.

Results: As women aged, they were less likely to have a Pap test and more likely to report having a mammogram and a cholesterol test. Smokers were less likely to have all screening tests, and HRT use and more general practitioner (GP) visits were associated with increased odds of having health checks. Compared to healthy weight, higher BMI was associated with increased odds of cholesterol testing but decreased odds for Pap testing; obese women had lower odds for mammography and Pap testing. Worse self-rated health and self-report of a chronic condition were significantly related to increased likelihood of cholesterol testing. While some demographic and area of residence factors were also significantly associated with screening, large inequities based on socio-economic status were not evident.

Conclusions: Health and health care use are important determinants of screening.

Implications: Greater advantage needs to be taken of opportunities to encourage women with more health risk behaviours and health problems to engage in screening.

Daley C, Patterson AJ, Sibbritt D & MacDonald-Wicks L.
Unsaturated fat intakes and mental health outcomes in young women from the Australian Longitudinal Study on Women's Health.
Public Health Nutrition.

Objective: To determine if associations exist between a range of unsaturated fatty acid intakes and mental health outcomes.

Design: Cross sectional data analysis of the Australian Longitudinal Study on Women's Health (ALSWH) Survey three that included the validated 74-item Dietary Questionnaire for Epidemiological Studies FFQ, validated mental health scales and self-report questions on depression and anxiety.

Setting: Australia, 2003.

Subjects: A nationally representative sample of young Australian women (25-30 years) from ALSWH. The 7635 women with plausible energy intakes (>4.5 but <20.0MJ/d) were included in the analyses.

Results: Adjusted logistic regression analyses found statistically significant associations between higher intakes of alpha-linolenic acid (ALA) and decreased likelihood of depressive symptoms indicated by the 10-item Center for Epidemiological Studies Depression Scale (CESD-10) [OR=0.77; 95% Cis:0.60,0.99; p=0.040] and the Short Form Health Survey (SF-36) mental

health subscale [OR=0.73 95% Cis:0.56,0.96; p=0.024]. Furthermore, higher intakes of omega 6 [OR=0.96, 95% CI:0.93,0.99; p=0.019] and linoleic acid (LA) [OR=0.96, 95% Cis:0.93,0.99; p= 0.020] were associated with decreased likelihood of self-reported diagnosed anxiety and higher intakes of omega 9 [OR=1.02, 95% Cis:1.00,1.04; p=0.041] and oleic acid (OA) [OR=1.02, 95% Cis:1.00,1.05; p=0.046] were associated with increased likelihood of self-reported diagnosed anxiety.

Conclusions: Increased intakes of ALA were associated with a reduced likelihood of depressive symptoms, increased intakes of omega 6 and LA were associated with a reduced likelihood of self-reported anxiety, and increased intakes of omega 9 and OA were associated with an increased likelihood of anxiety. Additional studies are needed to further elucidate associations between unsaturated fatty acids and depression and anxiety.

Frawley J, Adams J, Sibbritt, D, Steel A., Broom A. & Gallois C.
Prevalence and determinants of complementary and alternative medicine use during pregnancy: Results from a nationally representative sample of Australian pregnant women.

Australian and New Zealand Journal of Obstetrics and Gynaecology.

Background: Pregnant women have been identified as high users of complementary and alternative medicine (CAM). However, no research to date has provided a detailed analysis of the prevalence and determinants of CAM consumption amongst pregnant women. Aim: To examine the prevalence and determinants of CAM use by pregnant women, utilising a national representative sample. Methods: The study sample was obtained via the Australian Longitudinal Study on Women's Health. This paper is based on a sub-study of 1,835 pregnant women, administered in 2010. The women answered questions about CAM use, demographics, pregnancy-related health concerns and health service utilisation. Results: Complementary and alternative medicine use was found to be high with 48.1% (n = 623) of pregnant women consulting a CAM practitioner and 52.0% (n = 842) of women using CAM products (excluding vitamins and minerals) during pregnancy. CAM practitioner visits were more likely for selected pregnancy-related health concerns, namely back pain or back ache, neck pain and labour preparation. Women were less likely to consult a CAM practitioner if they suffered with headaches/migraines. Employment was also found to be predictive of pregnant women's visits to a CAM practitioner. Significant health history and demographic predictors of CAM product use were tiredness and fatigue, embarking on preparation for labour and having a university education. Conclusion: Most pregnant women are utilising CAM products and/or services as part of their maternity care and obstetricians, general practitioners and midwives need to enquire with women in their care about possible CAM use to help promote safe, effective coordinated

maternity care.

Herber-Gast GC & Mishra GD.
Early severe vasomotor menopausal symptoms are associated with diabetes.
Menopause.

Objective: The purpose of this study was to investigate associations between profiles of vasomotor menopausal symptoms (VMS) during the menopausal transition with the prevalence of diabetes.

Methods: VMS and diabetes were measured at baseline and 3-year intervals for 15 years in 4,895 women in the Australian Longitudinal Study on Women's Health who were aged 45 to 50 years at baseline in 1996. Latent class analysis and generalized estimating equation models for binary repeated measures were performed. The VMS profiles were labeled as mild, moderate, early severe, and late severe.

Results: The prevalence of diabetes in the total group was 9.0%. Compared with mild VMS, the odds of diabetes were higher in those with a late severe profile (though not statistically significant; adjusted odds ratio, 1.28; 95% CI, 0.97-1.68) and in those with an early severe profile (adjusted odds ratio, 1.67; 95% CI, 1.20-2.32). Adjustment for body mass index attenuated this association, but the odds of diabetes were still significantly higher in women with an early severe profile than in women with mild VMS (odds ratio, 1.55; 95% CI, 1.11-2.17). The moderate profile was not associated with diabetes.

Conclusions: Women with an early severe VMS profile are more likely to have diabetes across a period of 15 years. This association is not explained by body mass index or other potential confounders. Our findings imply that the predictive value of VMS for diabetes may vary with the timing of VMS to menopause.

Jackson CA, Herber-Gast GC & Brown W.
Joint effect of body mass index and physical activity on risk of hypertension.
Journal of Obesity.

Introduction: There is debate as to whether physical activity counteracts the adverse effect of weight on health outcomes. We investigated how physical activity modifies the effect of body mass index (BMI) on hypertension risk.

Methods: BMI, physical activity and hypertension were measured at baseline and at three-year intervals for 14 years (from 1996-2010), in 10,339 participants in the Australian Longitudinal Study on Women's Health. Generalised estimating equation models for binary repeated-measures were performed to determine the individual and joint effects of BMI and physical activity on incident hypertension.

Results: At baseline, (mean age 47.6 ± 1.5SD), 57% were healthy weight, 28% overweight and 14% obese. Increasing BMI and decreasing physical activity were associated with increased risk of hypertension. Physical activity attenuated the positive association between weight and risk of hypertension, especially for obese

women. Compared to healthy weight high active women, risk of hypertension in obese high active women was 3.4 times greater (OR 3.43, 95% CI 2.68, 4.39), and in obese inactive women, 4.9 times greater (OR 4.91, 95% CI 3.92, 6.13).

Conclusions: Both physical activity and maintenance of a healthy body weight are associated with lower risk of hypertension. Physical activity reduced, but did not remove, the effect of obesity on hypertension risk.

Jackson CA, Jones M & Mishra GD.
Educational and homeownership inequalities in stroke incidence: a population-based longitudinal study of mid-aged women.
European Journal of Public Health

Background: We aimed to determine which socioeconomic status measures are associated with stroke risk in mid-aged women and assess the contribution of lifestyle, biological and psychosocial factors to observed associations.

Methods: We included women born in 1946–51 from the Australian Longitudinal Study on Women's Health, who were surveyed every 3 years. Using generalized estimating equation analysis, we determined the association between socioeconomic status and stroke at the subsequent survey, adjusting for time-varying covariates. For significant associations, we calculated the contribution of individual mediating factors in explaining these associations.

Results: Among 11 468 women aged 47–52 years, 177 strokes occurred during a 12-year follow-up. Education (odds ratio lowest vs. highest 2.45, 95% confidence interval: 1.40–4.30) and homeownership, but not occupation or managing on income, were significantly associated with stroke. After full adjustment, the overall association between education and stroke was non-significant. Lifestyle (smoking, exercise, alcohol and body mass index), biological (hypertension, diabetes, heart disease and hysterectomy/oophorectomy) and psychosocial (depression and marital status) factors explained 38% of the association in the lowest versus highest education groups. Lifestyle and biological factors together accounted for 34%. Mediators accounted for 29% of the association between homeownership and stroke, with lifestyle and psychosocial factors responsible for most of this attenuation. However, a significant association remained in fully adjusted models (odds ratio non-homeowner vs. homeowner 1.63, 95% confidence interval: 1.12–2.38).

Conclusions: Lower education level is associated with increased stroke risk in mid-aged women, and is partially mediated by known risk factors, particularly lifestyle and biological factors. Non-homeownership is associated with increased stroke risk, but the underlying mechanism is unclear.

Joham A, Ranasinha S, Zoungas S, Moran L & Teede H.
Gestational Diabetes and Type 2 Diabetes in Reproductive-Aged women with Polycystic Ovary Syndrome.

Journal of Clinical Endocrinology and Metabolism
Context: Polycystic ovary syndrome (PCOS) affects 6–21% of women. PCOS has been associated with an increased risk of dysglycaemia including gestational diabetes (GDM) and type 2 diabetes (T2DM).

Objective: To assess the prevalence of dysglycaemia and the impact of obesity in young reproductive-aged women with and without PCOS in a community-based cohort.

Design: Cross-sectional analysis of data from a large longitudinal study (the Australian Longitudinal Study on Women's Health (ALSWH)).

Setting: General community

Participants: Women were randomly selected from the national health insurance database. Standardised data collection occurred at 5 survey time points (years 1996, 2000, 2003, 2006 and 2009). Data from survey 4 (2006, n=9145, 62% of original cohort aged 18 to 23 years) were examined for this study.

Main outcome measures: Self-reported PCOS, GDM and T2DM

Results: In women aged 28 to 33 years, PCOS prevalence was 5.8% (95% CI: 5.3%–6.4%). The prevalence of GDM (in women reporting prior pregnancy) and T2DM was 11.2% and 5.1% in women with PCOS and 3.8% and 0.3% in women without PCOS respectively (p for both <0.001). PCOS was associated with increased odds of GDM and T2DM. After adjusting for age, Body Mass Index (BMI), hypertension, smoking and demographic factors, the odds of GDM (OR 2.1, 95% CI 1.1–3.9, p=0.02) and T2DM (OR 8.8, 95% CI 3.9–20.1, p<0.001) remained increased in women reporting PCOS.

Conclusions: In a large community-based cohort of reproductive-aged women, PCOS was independently associated with higher risk of GDM and T2DM, independent of BMI. Aggressive screening, prevention and management of dysglycaemia is clearly warranted in women with PCOS.

Johnstone M & Lee C.
Lifestyle Preference Theory: No match for young Australian women.
Journal of Sociology.

Women's work and family choices are affected by social pressures and external constraints. Understanding young women's aspirations for future work and family is important for understanding their future needs and for developing supportive work-family practices and policies. Despite criticism, Lifestyle Preference Theory has been argued to explain women's life choices, and historically has been used to inform Australian policy. We address three issues: whether Lifestyle Preference Groups are consistent with young Australian women's stated preferences; whether aspirations are consistent over time; and whether women's later lives are consistent with their earlier stated preferences. Using four waves of data from the Australian Longitudinal Study on Women's Health (ALSWH), young women's work and family aspirations were investigated cross-sectionally and longitudinally. Most aspired to both

paid work and family; most changed their preferences over time; and the fit between preferences in 2000 and lifestyle in 2009 was modest. Lifestyle Preference Theory was not an adequate fit to the data.

Loxton D, Chojenta C, Anderson A, Powers J, Shakeshaft A & Burns L.

Acquisition and utilization of information about alcohol use in pregnancy among Australian pregnant women and service providers.

Journal of Midwifery and Women's Health.

Introduction: Due to a lack of a known safe level of alcohol consumption during pregnancy and inconsistent alcohol guidelines for pregnant women, it is unclear what information is being circulated with regards to alcohol use and pregnancy. This study aims to explore how pregnant women and service providers acquire and utilize information about alcohol use during pregnancy.

Methods: This qualitative study involved 10 minute semi-structured interviews with 74 mothers of young children, and focus groups with 14 service providers in urban and rural areas of New South Wales in 2008-2009. Mothers were asked about their use of pregnancy related services, social support, and their perceptions about advice they received about alcohol use during pregnancy. Service providers were asked about what they knew about recommended alcohol use during pregnancy, how they knew it, and how they communicated this information to pregnant clients.

Results: Women and service providers expressed uncertainty about what the alcohol recommendations were for pregnant women. Healthcare providers were inclined to discuss alcohol use with women they perceived to be high risk but not otherwise. Women felt pressure to both drink and not drink during their pregnancy. Those who drank discounted abstinence messages, and reported a process of internal bargaining on issues such as the stage of their pregnancy and the type of beverages they consumed.

Those who abstained did so mainly because they were afraid of being held responsible for any problems with their pregnancy or baby that might have occurred from drinking. Conclusions: Confusion surrounding the recommendations regarding alcohol use during pregnancy, inconsistency in addressing alcohol use with pregnant women, information overload and a culture of drinking appear to contribute to the high proportion of Australian women drinking during pregnancy.

Leung J, McKenzie S, Martin J, Dobson A & McLaughlin D.

Longitudinal patterns of breast cancer screening: Mammography, clinical, and breast self-examinations in a rural and urban setting. Womens Health Issues.

Background: We identified breast screening patterns over time and patterns among women residing in rural and urban areas by sociodemographic factors.

Methods: This study employs a longitudinal design over 9

years from 2001 on 11,200 women aged 50 to 55 from the Australian Longitudinal Study on Women's Health. Area of residence was defined in accordance with the accessibility remoteness index of Australia Plus. Breast screening measures included mammography utilization, clinical breast examinations (CBE), and breast self examinations (BSE).

Findings: Most women had a mammogram in the past 2 years in combination with CBE or BSE or both. Despite poorer access to mammography services, women residing in rural areas had similar mammography screening rates to their urban counterparts. Women residing in rural areas were less likely to have CBEs, but more likely to conduct BSEs. The breast screening behaviors were generally consistent over time.

Conclusions: The poorer breast cancer survival among rural women is unlikely to be explained by differences in mammography service use. A substantial proportion of the population may be experiencing overscreening by conducting all three types of breast screening.

Meurk C, Broom A & Adams J.

Relative bodies of knowledge: pluralism, dualism and maternal-foetal individuation. Social Theory and Health.

Use of complementary and alternative medicine (CAM) is rising in OECD countries such as Australia (Barnes et al., 2008; Hanssen et al., 2005, Australian Bureau of Statistics, 2008) with use much higher among women than men (Adams et al., 2003). Sociological examination of this gendered social movement has highlighted notable conjunctions between wider socio-cultural shifts and the discourses, practices and rhetoric that surround contemporary CAM use. These include cultural ideas around individualism, agency and self-help (Baarts and Pedersen, 2009; Bishop and Yardley, 2004; Luff and Thomas, 2000), consumerism (Coulter and Willis, 2007; Sharma, 1992) and the positive valuation of that which is non-invasive and 'natural' (Doel and Segrott, 2003). Feminism, and the drive to perform embodied femininity, have also been offered as (partial) explanations for the broader gendered consumption of CAM as a reaction against perceived biomedical patriarchy (Bix, 2004; Ruzek, 1978; Sointu, 2006, 2011). Thus, CAM use may be seen as concurrently reproducing broader socio-cultural changes as well medico-cultural shifts in ideas about disease, health and the body (Meurk et al., 2012; Tovey and Adams, 2001; Upsdell and Jaye, 2011).

Mishra G, Hockey R & Dobson A.

A comparison of SF-36 summary measures of physical and mental health for women across the life course.

Quality of Life Research.

Background: Physical and mental component summary scores (PCS and MCS, respectively) are often used to summarise SF-36 quality of life subscales. This paper investigates PCS and MCS across the life course and

compares the trajectories obtained from two different methods of calculation.

Methods: The Australian Longitudinal Study on Women's Health is a population-based study with three cohorts of women and SF-36 surveys taken at multiple time points. Scoring coefficients for each component score were determined using factor analysis with uncorrelated (orthogonal) and correlated (oblique) rotation at the baseline survey, which were then used to compute correlated and uncorrelated PCS and MCS scores at each survey (scaled to have mean of 50 and standard deviation of 10 at baseline).

Results: For both methods, PCS declined progressively across the lifespan, while MCS rose in young and mid-age women to a peak and subsequently declined in later life. Differences were apparent between correlated and uncorrelated scores, most notably for MCS in the older cohort, where correlated MCS reached 54.6 but still less than uncorrelated MCS, with a random effects model indicating 1.63 (95 % confidence intervals 1.58-1.67) units difference; it then declined to a score of 51.2 by the last survey and the difference widened to 3.44 (3.38-3.50) units compared with the uncorrelated MCS.

Conclusions: PCS and MCS have distinct trajectories through life, with differences in results from correlated and uncorrelated component summary scores. The divergence is most notable with MCS, especially for older women, suggesting that correlated MCS and PCS should be used when examining change in health over time in this age group.

Murthy V, Sibbritt D, Adams J, Broom A, Kirby E & Refshauge K.

Consultations with complementary and alternative medicine practitioners amongst wider care options for back pain: A study of a nationally representative sample of 1,310 Australian women aged 60-65 years.

Clinical Rheumatology.

Back pain is a significant health service issue in Australia and internationally. Back pain sufferers can draw upon a range of health care providers including complementary and alternative medicine (CAM) practitioners. Women are higher users of health services than men and tend to use CAM frequently for musculoskeletal conditions. However, there remain important gaps in our understanding of women's consultation patterns with CAM practitioners for back pain. The objective of this study is to examine the prevalence of use and characteristics of women who use CAM practitioners for back pain. The method used was a survey of a nationally representative sample of women aged 60-65 years from the Australian Longitudinal Study on Women's Health. Women consulted a massage therapist (44.1 %, n = 578) and a chiropractor (37.3 %, n = 488) more than other CAM practitioners for their back pain. Consultations with a chiropractor for back pain were lower for women who consulted a General Practitioner (GP) (OR, 0.56; 95 % CI 0.41, 0.76) or a physiotherapist (OR,

0.53; 95 % CI 0.39, 0.72) than for those who did not consult a GP or a physiotherapist. CAM practitioner consultations for back pain were greater for women who visited a pharmacist (OR, 1.99; 95 % CI 1.23, 3.32) than for women who did not visit a pharmacist. There is substantial use of CAM practitioners alongside conventional practitioners amongst women for back pain, and there is a need to provide detailed examination of the communication between patients and their providers as well as across the diverse range of health professionals involved in back pain care.

Pavey T, Peeters G & Brown W.

Sitting-time and 9-year all-cause mortality in older women.

British Journal of Sports Medicine.

Background: Studies of mid-aged adults provide evidence of a relationship between sitting-time and all-cause mortality, but evidence in older adults is limited. The aim is to examine the relationship between total sitting-time and all-cause mortality in older women.

Methods: The prospective cohort design involved 6656 participants in the Australian Longitudinal Study on Women's Health who were followed for up to 9 years (2002, age 76-81, to 2011, age 85-90). Self-reported total sitting-time was linked to all-cause mortality data from the National Death Index from 2002 to 2011. Cox proportional hazard models were used to examine the relationship between sitting-time and all-cause mortality, with adjustment for potential socio-demographic, behavioural and health confounders.

Results: There were 2003 (30.1%) deaths during a median follow-up of 6-years. Compared with participants who sat <4 h/d, those who sat 8-11 h/d had a 1.45 times higher risk of death and those who sat ≥11 h/d had a 1.65 times higher risk of death. These risks remained after adding socio-demographic and behavioural covariates, but were attenuated after adjustment for health covariates. A significant interaction (p=0.02) was found between sitting-time and physical activity (PA), with increased mortality risk for prolonged sitting only among participants not meeting PA guidelines (HR for sitting ≥8 h/d: 1.31, 95% CI 1.07-1.61); HR for sitting ≥11 h/d: 1.47, CI 1.15-1.93).

Conclusions: Prolonged sitting-time was positively associated with all-cause mortality. Women who reported sitting for more than 8 h/d and did not meet physical activity guidelines had an increased risk of dying within the next 9 years.

Geeske Peeters, Richard Hockey & Wendy Brown.

Should Physical Activity Intervention Efforts Take a Whole Population, High-Risk or Middle Road Strategy?

Journal of Physical Activity and Health.

Purpose: To compare theoretical strategies for changing physical activity (PA) in terms of their potential to reduce the incidence of chronic conditions in mid-age women: (1) whole population: + 30 minutes/week in all; (2)

high-risk: +60 minutes/week in the lowest 25% of the PA distribution; and (3) middle road: shift all those not meeting guidelines to a level commensurate with meeting guidelines.

Methods: 10,854 participants (50-55 years in 2001) in the Australian Longitudinal Study of Women's Health completed mail surveys in 2001, 2004, 2007 and 2010. PA was calculated as MET.minutes/week spent in walking, moderate and vigorous PA in the previous week. Incidence rates per 1000 person-years for diabetes, heart disease, hypertension, cancer and depression were calculated for the actual distribution and after modelled shifts in PA.

Results: The incidence rates were 10.6 for diabetes, 7.0 for heart disease, 30.7 for hypertension, 8.0 for cancer and 28.4 for depression. Greater reductions in incidence were found for the middle road strategy than for the whole population and high-risk strategies, with reductions ranging from -6.3% for cancer to -12.3% for diabetes.

Discussion: This theoretical modelling showed that a middle road strategy to increasing PA was superior to the whole population and high-risk strategies, in terms of reducing incidence rates of chronic conditions in middle-aged women.

Peeters G, Mishra G, Dobson A & Brown W. **Health care costs associated with prolonged sitting and inactivity.**

American Journal of Preventive Medicine.

Background: Physical inactivity and prolonged sitting are associated with negative health outcomes.

Purpose: To examine the health-related costs of prolonged sitting and inactivity in middle-aged women.

Methods: Australian Longitudinal Study on Women's Health participants (born 1946–1951) answered questions about time spent sitting, walking, and in moderate and vigorous leisure activities in 2001 (n=6108), 2004 (n=5902), 2007 (n=5754) and 2010 (n=5535) surveys. Sitting time was categorized as low (0–4), moderate (5–7), and high (≥8 hours/day). Physical activity was categorized as inactive (<40), low (40–600), moderate (600–1200) and high (≥1200 metabolic equivalent minutes/week). National health insurance claims data averaged over the survey year ±1 year were used to calculate annual costs (Australian Dollars [AU\$]). Differences between categories in median costs were estimated using quantile regression over four surveys with bootstrapped 95% CIs. Analyses were performed in 2013.

Results: In 2010, annual median costs were AU\$689 (interquartile range [IQR]=274, 1541) in highly active participants, AU\$741 (IQR=279, 1690) in inactive participants, AU\$671 (IQR=273, 1551) in participants with low sitting time, and AU\$709 (IQR=283–1575) in participants with high sitting time. The difference in median costs for inactive and highly active participants was AU\$94 (CI=57, 131) after adjustment for confounders. No statistically significant associations were found between sitting time and costs. When sitting and physical activity were combined, high sitting time did not add to

the inactivity-associated increased costs. Associations were consistent across normal weight, overweight, and obese subgroups.

Conclusions: Physical inactivity, but not prolonged sitting, was associated with higher health-related costs in middle-aged women.

Singh G, Jackson C, Dobson A & Mishra G. **Bidirectional association between weight change and depression in mid-aged women: a population-based longitudinal study.**

International Journal of Obesity.

Background: There is some evidence for a bidirectional association between obesity and depression. However, studies examining weight change and depression are scarce and report inconsistent findings.

Objective: To investigate the relationship between average annual percentage weight change and depression in mid-aged women.

Design: Prospective cohort study. Subjects: 8246 women aged 45-50 years at baseline participating in the Australian Longitudinal Study on Women's Health were surveyed every three years over a 12 year period. Information on body mass index and depression was collected at each survey. We used regression models to investigate the effect of weight change predicting depression and vice versa, by calculating odds ratios (ORs) with 95% confidence intervals (CIs).

Results: Weight gain was associated with an increased risk of prevalence (OR 1.39, 95% CI 1.25 to 1.56) and incidence (OR 1.30, 95% CI 1.14 to 1.49) of depression. However, in time-lagged analyses, where weight change between the two preceding surveys was used to predict incidence of depression at the current survey, no statistically significant associations with depression were found. Compared to women without depression, women with prevalent and incident depression had an increased risk of weight gain (OR 1.29, 95% CI 1.19 to 1.40 and OR 1.20, 95% CI 1.05 to 1.38, respectively). When incidence of depression was lagged with respect to weight change between the two subsequent surveys depression remained associated with an increased risk (OR 1.19, 95% CI 1.00 to 1.41) of gaining weight.

Conclusion: These findings suggest that depression may cause weight gain over the next three years, but that weight change (loss or gain) may not lead to depression. Further research at shorter intervals, perhaps 6 monthly or yearly is needed to ascertain whether weight change is an independent predictor of depression in the shorter term.

Steel A, Adams J, Sibbritt D, Broom A & Gallois C. **Determinants of women consulting with a complementary and alternative medicine practitioner for pregnancy-related health conditions.**

Women and Health.

Abstract Objective: To explore the determinants that are related to women's likelihood to consult with a

complementary and alternative medicine (CAM) practitioner during pregnancy. Study setting: Primary data collected as a sub-study of the Australian Longitudinal Study on Women's Health (ALSWH) in 2010. Study design: A cross-sectional survey of 2445 women from the ALSWH 'younger' cohort (n=8012) who had identified as being pregnant or had recently given birth in 2009.

Data collection/extraction: Independent Poisson backwards stepwise regression models were applied to four CAM practitioner outcome categories: acupuncturist, chiropractor, massage therapist and naturopath.

Principal findings: The survey was completed by 1835 women (79.2%). The factors associated with women's consultation with a CAM practitioner differed by practitioner groups. A range of demographic factors were related, including employment status, financial status and level of education. Women's health insurance coverage, health status, and perceptions toward both conventional maternity care and CAM were also associated with their likelihood of consultations with all practitioner groups but in diverse ways.

Conclusions: The determinants for women's consultations with a CAM practitioner varied across practitioner groups. Stakeholders and researchers would benefit from giving attention to specific individual modalities when considering CAM use in maternity care.

Steel A, Adams J, Sibbritt D, Broom A, Frawley J & Gallois C.

The influence of complementary and alternative medicine use in pregnancy on labour pain management choices: results from a nationally-representative study of 1835 women.

Journal of Alternative and Complementary Medicine.

Objectives: This study examines involvement with a range of complementary and alternative medicine (CAM) during pregnancy on the use of pharmacologic (PPMT) and nonpharmacologic (NPMT) pain management techniques for labor and birth.

Design: Longitudinal analysis of survey data. Participants: A substudy (n=2445) of the "young" cohort of the nationally representative Australian Longitudinal Study on Women's Health was conducted. Outcome measures: Use of PPMT and NPMT during labor and birth.

Results: The survey was completed by 1835 women (response rate, 79.2%). Most respondents used either intrapartum PPMT (81.9%) or NPMT (74.4%). Many (60.7%) used some form of CAM during pregnancy and also used PPMT during birth. More than two thirds of women (66.7%) who used NPMT used CAM during pregnancy. There was a general trend of increased likelihood of NPMT use by women who applied CAM during pregnancy. There was an inverse effect on use of epidural analgesia for women who consumed herbal teas during pregnancy (odds ratio, 0.60).

Conclusions: Because of the study design, this paper does not confirm a causative relationship between the use of CAM during pregnancy and intrapartum pain management choices. It does, however, indicate that the use of CAM during pregnancy may not significantly affect the uptake of intrapartum PPMT, despite possible attempts to reduce PPMT by using NPMT. It also highlights the possibility of potential interactions between CAM and PPMT, given the high prevalence of concomitant use.

Steel A, Adams J, Sibbritt D, Broom A, Gallois C & Frawley J.

Managing the pain of labour: The role of CAM and other factors influencing the use of labour pain management for Australian women.

Health Expectations

Background: Despite high rates of women's use of intrapartum pain management techniques, little is known about the factors that influence such use.

Objective: Examine the determinants associated with women's use of labour pain management.

Design: Cross-sectional survey of a substudy of women from the 'young' cohort of the Australian Longitudinal Study of Women's Health (ALSWH).

Setting and participants: Women aged 31-35 years who identified as being pregnant or recently given birth in the 2009 ALSWH survey (n = 2445) were recruited for the substudy. The substudy survey was completed by 1835 women (RR = 79.2%).

Main variables studied: Determinants examined included pregnancy health and maternity care [including complementary and alternative medicine (CAM)] for their most recent pregnancy and any previous pregnancies. Participants' attitudes and beliefs related to both CAM and maternity care were also included in the analysis.

Main outcome measures: The outcome measures examined were the use of both pharmacological and non-pharmacological pain management techniques (NPMT).

Results: Differences were seen in the effects of demographics, health service utilization, health status, use of CAM, and attitudes and beliefs upon use of intrapartum pain management techniques across all categories. The only variable that was identified as a determinant for use of all types of pain management techniques was a previous caesarean section (CS).

Discussion and conclusions: The effect of key determinants on women's use of pain management techniques differs significantly, and, other than CS, no one determinant is clearly influential in the use of all pain management options.

Taylor A, Collins C & Patterson A. **Decreasing fish intake during pregnancy to avoid exposure to mercury may impact**

adversely on nutrient intakes.

Nutrition and Dietetics.

Aim: To report fish and potential mercury intakes in women of child-bearing age and the impact on nutrient intakes.

Methods: Women (n=7486) aged 25-30 years who participated in the Australian Longitudinal Study on Women's Health were categorised according to pregnancy status. Daily fish and nutrient intakes were compared to national recommendations and Nutrient Reference Values. Estimated exposure to fish contaminants was modelled from the National Residue Survey and compared to Provisional Tolerable Weekly Intakes.

Results: Mean fish intake for pregnant women was 28.2g/day, and for women who had given birth within the last 12 months, 27.8g/day. Both were significantly lower than 'other' women, consuming 33.0g/day (P=0.01, P<0.001 respectively), and well below the latest suggested intakes by Food Standards Australia and New Zealand. Pregnant women and women who had recently given birth also had significantly lower consumption of long-chain omega-3 fatty acids than 'other' women (P<0.01 for both) and no groups met Suggested Dietary Targets. Fish can provide up to 915% of a pregnant woman's Adequate Intake for long-chain omega-3's. Contamination of Australian fish is low, with estimated maximum weekly exposure to mercury below the Provisional Tolerable Weekly Intake.

Conclusions: Limiting fish intake during pregnancy to minimise exposure to mercury may compromise nutritional adequacy and increase the risk of inadequate intakes of nutrients essential for maternal health and foetal growth and development. Public health recommendations need to balance the risks and benefits of fish consumption within specific countries.

van den Berg MJ, Mishra GD, van der Schouw YT, Herber-Gast GC.

Vasomotor menopausal symptoms are not

associated with incidence of breast cancer in a population-based cohort of mid-aged women.

European Journal of Cancer.

Background: Recently, two case-control studies showed that vasomotor meno-pausal symptoms (VMS), i.e. hot flushes (HF) and night sweats (NS), are associated with a decreased risk of breast cancer. Until now, however, no prior studies have prospectively examined the association between VMS and breast cancer incidence. We investigated this in a population-based cohort of mid-aged women in Australia.

Methods: We included 11,297 women without a history of breast cancer aged 47-52 years from the Australian Longitudinal Study on Women's Health, surveyed every 3 years from 1998 to 2010. Information regarding first invasive breast cancer events and date of diagnosis was obtained from cancer registries. We determined the association between HF and NS and breast cancer occurrence before the subsequent survey, using time-dependent cox regression analysis, adjusting for time-varying lifestyle factors.

Results: At baseline 33.1% of the women reported experiencing HF and 24.6% reported NS. During a mean follow-up of 13.7 years, 348 cases of breast cancer occurred. VMS were not associated with breast cancer; adjusted hazard ratios were 1.09; 95% confidence interval (CI) 0.87-1.35 for HF and 1.06; 95% CI 0.84-1.33 for NS. No significant interactions were found between each of body mass index, alcohol use, current hormone therapy use, meno-pausal status and VMS and breast cancer (p-values > 0.05).

Conclusions: We did not find an association between VMS and breast cancer incidence. Research in this area is scarce and additional large prospective population-based studies are required to confirm or refute these findings.

CONFERENCE HOSTING

Australasian Epidemiological Association Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing.

October 20-22

Brisbane, Queensland

The 2013 Annual Scientific Meeting of the Australasian Epidemiological Association (AEA) was hosted by the Centre for Longitudinal and Life Course Research at the University of Queensland and attracted researchers and students from across Australia, New Zealand and internationally. The theme was life course epidemiology, which investigates the role of biological, behavioural and psychosocial processes that link adult health and disease risk to physical and social exposures during life or across generations. Research involving ALSWH and other birth cohorts was particularly featured, with topics covered including epidemiological and statistical methods, nutrition and physical activity, mental health, life stages, and cancer. ALSWH Director Professor Annette Dobson was also awarded life membership of the AEA at the conference.

A summary of the conference workshops, presentations and posters that used ALSWH data is below.

Nutrition and Physical Activity Life Stages

Presentations:

Dietary patterns are associated with the risk of night sweats and hot flushes in midlife.

Dr Gerrie-Cor Herber-Gast (CREWH21, The University of Queensland)

Does psychosocial stress explain socioeconomic inequalities in women's weight trajectories?

Professor Kylie Ball (Deakin University)

Education, educational mobility and weight trajectory in young Australian women.

Natalie Holowko (ALSWH, The University of Queensland)

Posters:

Comparison of factor analysis and treelet transform analysis for identifying dietary patterns associated with diabetes.

Danielle Schoenaker (ALSWH, The University of Queensland)

Are depressive symptoms associated with low fruit and vegetable intake in Australian women.

Dr Seema Mithrshahi (The University of Queensland)

Presentations:

Validation of self-reported stillbirths using administrative datasets.

Dr Alexis Hure (CREWH21, The University of Queensland)

Characterising longitudinal trajectories of caring by young and mid-aged women.

Dr Leigh Tooth (ALSWH, The University of Queensland)

Self-reported persistent sleeping difficulty and survival among women as they age.

David Fitzgerald (ALSWH, The University of Queensland)

Multimorbidity patterns in elderly women and associations with disability.

Dr Caroline Jackson (CREWH21, The University of Queensland)

Posters:

A life-course perspective on physical functioning.

Dr Geeske Peeters (CREWH21, The University of Queensland)

Prevalence and change of dysmenorrhea and premenstrual syndrome during young adulthood.

Hong Ju (ALSWH, The University of Queensland)

ALSWH SEARCHABLE DATABASE

A searchable database has been developed to optimise access to ALSWH research and outcomes for a range of stakeholders. The database is linked to the ALSWH website (www.alswh.org.au) and contains information relating to all ALSWH research, including the people involved, the projects being conducted, and outcomes produced. In 2013, a search function for Study publications was added to the website, and expansion to facilitate searching additional items from the database is planned for 2014.

Epidemiological and Statistical Methods

Workshop:

Life Course Approach to Health: Theory, Methods and Practicalities

Presenters: Professor Gita Mishra (ALSWH, The University of Queensland), Dr Mark Jones (CREWH21, The University of Queensland)

This half day workshop considered the relevance of life course epidemiology for understanding the causes of adult health and wellbeing. ALSWH data was used to provide a brief overview of the current theory and methods in life course epidemiology, with attendees learning how to:

1. Define the life course approach to the study of the causes of adult health and wellbeing and know how it differs from conventional risk factor epidemiology or the fetal origins of adult disease.
2. Distinguish different life course causal models and use them to identify possible lifetime pathways that link childhood socioeconomic conditions or education to adult health and disease.
3. Outline a method of visualising and estimating transitional distributions in longitudinal studies (such as ALSWH).

Poster:

Visualising change in categorical variables in longitudinal data.

Richard Hockey (ALSWH, The University of Queensland)

Mental Health

Breakfast session:

Mental Health Across the Life Span

Presenters: Professor Jake Najman, Associate Professor Rosa Alati, Dr Deirdre McLaughlin.

In her presentation 'Ageing is generally accompanied by some deficits in physical function, but are these losses reflected in psychological well-being?' Dr Deirdre McLaughlin (ALSWH, The University of Queensland) presented findings from ALSWH and from the Men, Women and Ageing study which challenge some of the commonly held beliefs surrounding mental health and well-being in late adulthood. Aspects of psychological well-being in late adulthood and changes over the lifespan were discussed, as well as implications for policymakers in the context of an ageing Australian population.

Presentations:

Some correlates of depression vary at different life stages during women's early adulthood.

Dr Libby Holden (ALSWH, The University of Queensland)

Subsequent level of depression in young women who binge drink in late adolescence.

Jenny Powers (ALSWH University of Newcastle)

Posters:

Depression, childhood sexual abuse, and the incidence of urinary incontinence symptoms among young Australian women.

Megan Barker (ALSWH, The University of Queensland)

Mental health in older women before, during and after bereavement.

Richard Hockey (ALSWH, The University of Queensland)

Is a simple happiness question an indicator of successful ageing?

Dr Deirdre McLaughlin (ALSWH, The University of Queensland)

CONFERENCE PRESENTATIONS

Alhazmi A, Stojanovski E, McEvoy M & Garg M.
Evaluation of macronutrient intake in relation to type 2 diabetes risk.

7th International DIP symposium: Diabetes, Hypertension, Metabolic syndrome and Pregnancy, Florence, Italy, 13 - 16 March 2013.

Alhazmi A, Stojanovski E, McEvoy M & Garg M.
Dietary fatty acid intake in relation to type 2 diabetes risk.

2nd American Society for Nutrition Middle East Congress, Dubai, UAE, 20 - 22 February 2013.

Alhazmi A, Stojanovski E, McEvoy M & Garg M.
Total carbohydrate intake does not predict type 2 diabetes risk in mid-age women from the Australian Longitudinal Study on Women's Health.

Australian Diabetes Society and Australian Diabetes Educators Association Annual Scientific Meeting, Sydney, NSW, 28 - 30 August 2013.

Alhazmi A, Stojanovski E, McEvoy M & Garg M.
High quality diet associated with a lower risk of type 2 diabetes.

Australian Diabetes Society and Australian Diabetes Educators Association Annual Scientific Meeting, Sydney, NSW, 28 - 30 August 2013.

Alhazmi A, Stojanovski E, McEvoy M & Garg M.
A prospective analysis of diet quality and type 2 diabetes risk.

The World Diabetes Congress, Melbourne, Vic, December, 2013.

Alhazmi A, Stojanovski E, McEvoy M, Brown W & Garg M.
Australian diet quality scores as predictors of type 2 diabetes risk.

The Nutrition Society of Australia and Nutrition Society of New Zealand Joint Annual Scientific Meeting, Brisbane, Qld, December, 2013.

Aljadani H, Patterson A, Sibbritt D & Collins C.
Development of overweight and obesity in mid-age women from the Australian Longitudinal Study on Women's Health.

Australian and New Zealand Obesity Society Conference, Melbourne, Vic, 17- 19 October 2013.

Aljadani H, Patterson A, Sibbritt D & Collins C.
Frequency and variety of fruit and vegetable consumption did not predict 6-year weight change in mid-aged women from the Australian Longitudinal Study on Women's Health.

Australian and New Zealand Obesity Society Conference, Melbourne, Vic, 17- 19 October 2013.



In 2013, ALSWH data was presented at over 47 conferences

Anderson A.
Drinking alcohol during pregnancy: How do women experience information delivery?
First International Conference on the Prevention of Fetal Alcohol Spectrum Disorder, Alberta, Canada, 23 - 25 September 2013.

Anderson A.
Predicting alcohol use during pregnancy among Australian women: A population based prospective cohort study (poster presentation).
First International Conference on the Prevention of Fetal Alcohol Spectrum Disorder, Alberta, Canada, 23 - 25 September 2013.

Anderson A, Hure A, Forder P, Powers J, Kay-Lambkin F & Loxton D.
Predictors of Antenatal Alcohol Consumption in Australia
Australasian Fetal Alcohol Spectrum Disorders Conference, Brisbane, Qld, 19 - 20 November 2013. Brisbane, Qld, 19-20 November 2013

Ball K.
Does psychosocial stress explain socioeconomic inequalities in women's weight trajectory?
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Barker M, Rowlands J, Mishra G & Dobson A.
Depression, childhood sexual abuse and the incidence of urinary incontinence symptoms among young Australian women.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Brown R, Livingston P, McNair R & Hughes T.
Cancer Prevalence and cancer risk factors among Australian sexual minority women.
7th Australian Women's Health Conference, Sydney, NSW, 7 - 10 May 2013.

Bruck D.
Does the simultaneous management of sleep health and mental health improve outcomes?
2013 Inaugural APS Health Psychology Conference, Cairns, Qld, 5 - 6 April 2013.

Bruck D.
Young women with sleep difficulties are at greater risk of subsequent depression.
2013 Inaugural APS Health Psychology Conference,

Cairns, Queensland, 5 - 6 April 2013.

Chojenta C, Anderson A, Gresham E, Harris M & Rich J.
Australian Longitudinal Study on Women's Health: Insights from research higher degree students.
7th Australian Women's Health Conference, Sydney, NSW, 7 - 10 May 2013.

Conrad S.
Neighbourhood cohesion among middle-aged women: The influence of psychosocial factors.
12th National Rural Health Conference, Adelaide, South Australia, 7 - 10 April 2013.

Conrad S.
Neighbourhood safety and self-rated health among women: The effect of psychosocial factors.
Australasian Marce Society Conference, Melbourne, Vic, 11 - 12 October 2013.

Daley C, Patterson A, Sibbritt D & MacDonald-Wicks L.
Unsaturated fat intakes and mental health outcomes in young Australian women.
The Nutrition Society of New Zealand and Nutrition Society of Australia 2013 Joint Annual Scientific Meeting, Brisbane, Qld, 4 - 6 December 2013.

Dillon G, Hussain R, Loxton D & Rahman S.
Rurality, domestic relocation and intimate partner violence in young women (poster presentation).
12th National Rural Health Conference, Adelaide, South Australia, 7 - 10 April 2013.

Dixon S, Herbert D, Loxton D & Lucke J.
"As many options as there are, there are just not enough for me": A qualitative analysis of contraceptive use and barriers to access among Australian women (poster presentation).
First Global Conference on Contraception, Reproductive and Sexual Health, Copenhagen, Denmark, 22 - 25 May 2013.

Dolja-Gore X.
Trends in mental health service utilisation for Australian women.
12th National Rural Health Conference, Adelaide, South Australia, 7 - 10 April 2013.

Fitzgerald D, Byles J & Dobson A.
Self-reported persistent sleeping difficulty and

survival among women as they age.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Flavel J.
Poor Health and Labour Market Disadvantage: The effects of health on form of employment.
9th World Congress on Health Economics, Sydney, NSW, 7 - 10 July 2013.

Frawley J, Adams J, Sibbritt D, Steel A & Broom A.
Self-care practices of women using Complementary and Alternative Medicine (CAM) in pregnancy: A nationally representative sample of 1,835 women (poster presentation).
8th International Congress for Complementary Medicine Research, London, UK, 11 - 13 April 2013.

Frawley J, Adams J, Sibbritt D, Steel A & Broom A.
Young women's use of complementary and alternative medicine (CAM) products for chronic health conditions: results from a nationally representative survey of 8,009 women.
8th International Congress for Complementary Medicine Research, London, UK, 11 - 13 April 2013.

Gresham E.
Does diet quality predict maternal or infant outcomes?
13th International Nutrition and Diagnostics Conference, Olomouc, Czech Republic, 26 - 29th August 2013.

Harding J.
Anthropometric measures and risk of cancer.
Australian and New Zealand Obesity Society Conference, Melbourne, Vic, 17 - 19 October 2013.

Harding J.
Pre-diabetes and incident cancer risk in a pooled Australian cohort.
International Diabetes Epidemiology Group, Melbourne, Vic, 30 November - 2 December 2013.

Herber-Gast GC & Mishra G.
Dietary patterns are associated with the risk of night sweats and hot flushes in midlife.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Hockey R.
Mental health trajectories in three cohorts of women: Are there urban/rural differences?
12th National Rural Health Conference, Adelaide, South Australia, 7 - 10 April 2013.

Hockey R, McLaughlin D & Byles J.
Mental health in older women before, during and after bereavement.
AAG 46th National Conference 2013: Grey Expectations, Ageing in the 21st century. Sydney, 27-29 November

2013.

Holden L, Lee C & Ware R.
Predicting trajectories of mental health in a national cohort of young Australian women.
5th World Congress on Women's Mental Health, Peru, 4 - 7 March 2013.

Holden L, Lee C & Ware R.
The timing of motherhood is associated with poor mental health.
7th Australian Women's Health Conference, Sydney, NSW, 7 - 10 May 2013.

Holden L & Lee C.
Some correlates of depression vary at different life stages during women's early adulthood.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Holowko N.
Education, educational mobility and weight trajectory in young Australian women.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Jackson CA & Mishra GD.
Depression and risk of stroke in mid-age women: a prospective longitudinal study.
European Stroke Conference, London, UK, 13 - 16 May 2013.

Jackson CA, Jones M & Mishra GD.
Educational and homeownership inequalities in the incidence of stroke: a longitudinal study of mid-aged women in Australia.
European Stroke Conference, London, UK, 13 - 16 May 2013.

Jackson CA, Mishra G, Byles J, Tooth L & Dobson A.
Agreement between self-reported stroke and hospital-recorded stroke in two cohorts of Australian women.
European Stroke Conference, London, UK, 13 - 16 May 2013.

Jackson CA, Jones M, Tooth L, Mishra GD, Byles J, Dobson A.
Multimorbidity patterns in elderly women and associations with disability.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Jackson M, Diamond N, Sztendur E & Bruck D.
The role of sleep difficulties in the development of depression and anxiety in a longitudinal study of young Australian women.
25th Annual Scientific Meeting of the Australian Sleep Association, Brisbane, Qld 17 - 19 October 2013.

Jackson M, Diamond N, Sztendur E & Bruck D.
Sleeping difficulties remain chronic over nine years in young Australian women.
25th Annual Scientific Meeting of the Australian Sleep Association, Brisbane, Qld 17 - 19 October 2013.

Jackson CA, Jones M, Tooth L, Mishra GD, Byles J & Dobson A.
Multimorbidity patterns in elderly women and associations with disability.
Australian Association of Gerontology Conference, Sydney, 27-29 Nov 2013.

Joham A, Boyle J, Ranasinha S, Zoungas S & Teede H.
Contraception use and pregnancy outcome in women with Polycystic Ovary Syndrome: Data from the Australian Longitudinal Women's Health Study (poster presentation).
Endocrine Society of Australia Annual Scientific Meeting, Sydney, NSW, 25 - 28 August 2013.

Joham A, Teede H, Ranasinha S, Zounga S & Boyle J.
Infertility and assisted reproductive technology use in women with polycystic ovary syndrome: Data from the Australian Longitudinal Women's Health Study (poster presentation).
The Endocrine Society's 95th Annual Meeting & Expo, San Francisco, USA, 15 - 18 June 2013.

Joham A, Ranasinha S, Zoungas S, Moran L & Teede H.
Gestational Diabetes and Type 2 Diabetes in Reproductive-Aged Women with Polycystic Ovary Syndrome (poster presentation).
World Diabetes Congress, Melbourne, Vic, 2 - 6 December 2013.

Joham A, Boyle J, Zoungas S & Teede H.
Hypertension and Hypertension in Pregnancy in Reproductive-Aged Women with Polycystic Ovary Syndrome (poster presentation).
Monash Health Research Week 2013, Clayton, Vic, 25 - 29 November, 2013.

Ju H.
Prevalence and change of dysmenorrhea and premenstrual syndrome during young adulthood.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Kirby E, Broom A, Adams J & Sibbritt D.
"I'm not a malingerer". Women's experiences of chronic back pain and the challenges to identity and credibility.
8th International Congress for Complementary Medicine Research, London, UK, 11 - 13 April 2013.

Lee C & Holden L.
Mental health and timing of motherhood: Too early, too late, or just right.
European Health Psychology Society Annual Conference, Bordeaux, France, 16-18 July 2013.

Lee C.
Social stratification and women's health in Australia.
International Conference on Social Stratification and Health 2013: Interdisciplinary Research and Action, Tokyo, Japan, 31 August - 1 September 2013.

Leung J, McLaughlin D, McKenzie S, Dobson A & Martin J.
Differences in breast cancer screening patterns between women residing rural and urban areas.
7th Australian Women's Health Conference, Sydney, NSW, 7 - 10 May 2013.

Lo T, Parkinson L, Cunich M & Byles J.
Agreement between self-reported arthritis and measures of joint symptoms.
The 20th IAGG World Congress of Gerontology and Geriatrics, Seoul, Korea 23 - 27 June 2013.

Lo T, Parkinson L, Cunich M & Byles J.
The out-of-pocket costs of arthritis in Australia: a micro-costing approach.
1st ARC Centre of Excellence in Population Ageing Research (CEPAR) International Conference, Sydney, NSW, 2 - 4 July 2013.

Lo T, Parkinson L, Cunich M & Byles J.
The costs of arthritis: A micro-costing approach.
9th World Congress on Health Economics, Sydney, NSW, 7 - 10 July 2013.

Lucke J & Herbert D.
Area of residence is associated with Australian women's uptake of long-acting contraception (poster presentation).
First Global Conference on Contraception, Reproductive and Sexual Health, Copenhagen, Denmark, 22 - 25 May 2013.

Lucke J.
As many options as there are, there are just not enough for me": A qualitative analysis of contraceptive use and barriers to access among Australian women.
7th Australian Women's Health Conference, Sydney, NSW, 7 - 10 May 2013.

McLaughlin D.
Mental health in older rural Australian women.
12th National Rural Health Conference, Adelaide, South Australia, 7 - 10 April 2013.

McLaughlin D & Hockey R.
Is a Simple Happiness Question an Indicator of Successful Ageing?
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

McLaughlin D.
Mental health across the lifespan: Late adulthood.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22

October 2013.

McLaughlin D, Hockey R.
Is a Simple Happiness Question an Indicator of Successful Ageing?
AAG 46th National Conference 2013: Grey Expectations, Ageing in the 21st century, Sydney, NSW, 27-29 November 2013.

Mihrshahi S.
Fruit consumption is associated with a lower risk of depression in mid age women.
20th International Congress of Nutrition, Granada, Spain, 15 - 20 September 2013.

Mihrshahi S.
Are depressive symptoms associated with low fruit and vegetable intake in Australian women?
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Mishra G.
Inter LACE: International collaboration on Life course approach to reproductive health and Chronic disease Events.
The Fifth Scientific Meeting of the Asia Pacific Menopause Federation, Tokyo, Japan, 18 - 20 October 2013.

Moran L, Ranasinha S, Zoungas S, McNaughton S, Brown W & Teeded H.
The contribution of diet, physical activity and sedentary behaviour to body mass index in women with and without polycystic ovary syndrome (poster presentation).
American Society for Reproductive Medicine Conference, Boston, USA, 12 - 17 October 2013.

Murthy V, Sibbritt D, Adams J & Broom A.
Health care utilisation by back pain sufferers who consult herbalists: a study from a nationally representative sample of 1,310 Australian women.
8th International Congress for Complementary Medicine Research, London, UK, 11 - 13 April 2013.

Nanayakkara N, Joham A, Zoungas S, Loxton D & Teede H.
Breastfeeding in women with Polycystic Ovary Syndrome: Data from the Australian Longitudinal Women's Health Study.
Endocrine Society of Australia Annual Scientific Meeting, Sydney, NSW, 25 - 28 August 2013.

Parkinson L.
Arthritis and comorbidities: Interplay and impact on management (symposium contribution).
The 20th IAGG World Congress of Gerontology and Geriatrics, Seoul, Korea 23 - 27 June 2013.

Parkinson L, Brilleman S & Byles J.
Opioid use and health in older women from the Australian Longitudinal Study on Women's Health.
The 20th IAGG World Congress of Gerontology and

Geriatrics, Seoul, Korea 23 - 27 June 2013.

Parkinson L, Brilleman S, Byles J, Blyth F, Hayes C, Higgins I & Robertson J.
Opioid use and health in older Australian women.
College of Problems of Drug Dependence 75th Annual Meeting, San Diego, USA, 15 - 20 June 2013.

Parkinson L.
Arthritis and comorbidities: Interplay and impact on management (symposium contribution).
The 20th IAGG World Congress of Gerontology and Geriatrics, Seoul, Korea 23 - 27 June 2013.

Peeters G, Dobson A, Deeg D & Brown W.
A life-course perspective on physical functioning.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Peeters G, Tett S, Duncan E, Mishra G & Dobson A.
Patterns of osteoporosis medication dispensing for older Australian women from 2002 to 2010: influences of publications, guidelines, marketing activities and policy (poster presentation).
European League Against Rheumatism (EULAR) Congress 2013, Madrid, Spain, 12 - 15 June 2013.

Powers J & Loxton D.
Subsequent level of depression in young women who binge drink in late adolescence.
AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

Reilly N, Harris S, Loxton D, Chojenta C, Forder P, Milgrom J & Austin M-P.
Referral for management of emotional health issues during the perinatal period: Does mental health assessment make a difference?
PHAA 42nd Annual Conference, Melbourne, Vic 16 - 18 September 2013.

Reilly N, Harris S, Loxton D, Chojenta C, Forder P, Milgrom J & Austin M-P.
The impact of mental health assessment on help seeking during the perinatal period: A national survey of women in Australia.
Australasian Marce Society Conference, Melbourne, Vic, 11 - 12 October 2013.

Reilly N, Harris S, Loxton D, Chojenta C, Forder P, Milgrom J & Austin M-P.
Disparities in reported psychosocial assessment across public and private maternity settings.
PHAA 42nd Annual Conference, Melbourne, Vic 16 - 18 September 2013.

Forder P, Rich J, Harris S, Reilly N, Chojenta C, Austin M-P, Loxton D.
The issue of honesty during perinatal screening for depression and anxiety.
Australasian Marce Society Conference, Melbourne, Vic, 11 - 12 October 2013.

Rich J, Loxton D & Wright S.
Three generations of Australian women ageing in drought.

7th Australian Women's Health Conference, Sydney, NSW, 7 - 10 May 2013.

Rich J, Loxton D & Wright S.
Three generations of Australian women ageing in drought.

National Rural Women's Conference 2013, Canberra, ACT, 18 - 20 February 2013.

Rich J, Loxton D & Wright S.
Ageing in drought - A longitudinal thematic analysis of older women's experiences of drought in Australia.

International and Interdisciplinary Conference on Emotional Geography, Groningen, The Netherlands 1 - 3 July 2013.

Schoenaker D, Dobson A & Mishra G.
Opportunity for encouraging pregnant women to comply with food-based dietary recommendation: Results from a national prospective cohort study.

7th International DIP symposium: Diabetes, Hypertension, Metabolic syndrome and Pregnancy, Florence, Italy, 13 - 16 March 2013.

Sibbritt D, Adams J, Murthy V & Peng P.
Australian women's use of complementary and alternative medicines (CAM) for mental health: a focus on diagnosed depression and anxiety.

8th International Congress for Complementary Medicine Research, London, UK, 11 - 13 April 2013.

Sibbritt D.
Using public health methods for naturopathic research: Examples from the field.

International Congress on Naturopathic Medicine, Paris, France, 7 - 9 July 2013.

Spencer, E., Ferguson, A., Craig, H. & Colyvas, K.
Propositional Idea Density in written descriptions of health: Potential clinical applications.

Clinical Aphasiology Conference 2013, Arizona, USA, 28 May - 02 June 2013.

Tooth L, Mishra G.
Characterising longitudinal trajectories of caring by young and mid-aged women.

AEA Annual Scientific Meeting 2013: Life Course Approach to Health and Wellbeing, Brisbane, Qld, 20 - 22 October 2013.

SEMINARS & WORKSHOPS

Austin M-P.
Perinatal mental health assessment

Bupa Health Foundation Maternal Mental Health Breakfast, Sydney, NSW, 24 September 2013.

Conrad S.
Neighbourhood cohesion among middle-aged women: The influence of psychosocial factors
ALSWH University of Queensland Seminars, Brisbane, Qld, 4 April 2013.

Fitzgerald D.
Analysing longitudinal and correlated data.
ALSWH University of Queensland Seminars, Brisbane, Qld, 21 March 2013.

Fitzgerald D.
Self-reported persistent sleeping difficulty and survival among women as they age.
ALSWH University of Queensland Seminars, Brisbane, Qld, 17 October 2013.

Flavel J.
Investigating Cumulative Effects of Health Related Labour Market Disadvantage.

Australian Association of Gerontology Emerging Researchers Seminar, Adelaide, SA, 23 March 2013.

Herber-Gast G.
Dietary patterns are associated with the risk of night sweats and hot flushes in midlife.
ALSWH University of Queensland Seminars, Brisbane, Qld, 17 October 2013.

Holden L.
Some correlates of depression vary at different life stages during women's early adulthood.
ALSWH University of Queensland Seminars, Brisbane, Qld, 17 October 2013.

Holowko N.
Education, educational mobility and body weight trajectory in a longitudinal study of young Australian women.
ALSWH University of Queensland Seminars, Brisbane, Qld, 17 October 2013.

Jackson C.
Multimorbidity patterns in elderly women and associations with disability.
ALSWH University of Queensland Seminars, Brisbane, Qld 17 October 2013.

Jackson C.
Depression and risk of stroke in Australian mid-aged women: a longitudinal study
ALSWH University of Queensland Seminars, Brisbane, Qld, 16 May 2013.

Ju H.
Epidemiology and impact of dysmenorrhea and premenstrual syndrome
ALSWH University of Queensland Seminars, Brisbane, Qld, 22 May 2013.

Parkinson L.
Arthritis and pain
Adamstown Lions Club, Newcastle, NSW, September 2012.

Parkinson L.
Examples of research into translation of evidence for ageing and health.
AAG NHMRC Workshop on Research Translation, Brisbane, Qld, 20th November 2012.

Reeves A.
Calculating haem iron intake and its association with iron status for women in the young cohort of the ALSWH.
The University of Newcastle Seminar, Newcastle, NSW, 8 October 2013.

Reeves A.
Haem iron intake for ALSWH women in the young cohort (research plan),
The University of Newcastle Seminar, Newcastle, NSW, 23 May 2013.

Tooth L.
Characterising longitudinal trajectories of caring by young and mid-aged women.
ALSWH University of Queensland Seminars, Brisbane, Qld, 17 October 2013.

Van den Berg J.
Menopausal symptoms and risk of breast cancer.
ALSWH University of Queensland Seminars, Brisbane, Qld, 7 February 2013.

Van der Hoorn M.
Proton pump inhibitor use and subsequent prescribing of anti-osteoporosis medication.
ALSWH University of Queensland Seminars, Brisbane, Qld, 20 March 2013.

Vile M.
Language and ageing: A Systemic Functional Approach.
University of Newcastle Speech Pathology Research Symposium, Newcastle, NSW, 29 November 2012.

Yee C.
Higher unprocessed red meat, chicken, and fish intake is associated with a higher vegetable intake in young-aged non-vegetarian women.
University of Newcastle HLSC4310 Oral Presentation, Callaghan, NSW 8 October.

COMPLETED STUDENT PROJECTS

When life's a pain: Perceived stress and psychosocial factors in women with arthritis transitioning from midlife to older age

Candidate: Melissa Harris

Degree: PhD

University: The University of Newcastle, Faculty of Health and Medicine

Supervisors: A/Professor Deborah Loxton and Professor Julie Byles

Arthritis represents an ongoing public health challenge. This disease contributes substantially to global healthcare expenditure and is a major cause of disability, limited mobility and chronic pain. The overarching aim of this thesis was to examine the contribution of perceived stress and associated psychosocial factors to the burden of arthritis and disease onset in a cohort of women transitioning from midlife to older age. In order to achieve these aims, a multi-method approach was applied.

Women from the 1946-1951 cohort of the Australian Longitudinal Study on Women's Health (ALSWH) provided the sampling frame for all analyses contained within this thesis. Specifically, the first study aimed to determine the relative importance of psychosocial factors in arthritis diagnosis. This study focused on 10,509 women who responded to questions on arthritis in the fifth survey of the ALSWH conducted in 2007. Findings from this analysis indicated that arthritis was characterised by widespread psychosocial concerns, particularly relating to chronic stress and poor mental health. Following the adjustment for behavioural, demographic and health-related characteristics, anxiety was the only psychosocial factor associated with arthritis (OR=1.4, 95% CI=1.2, 1.7; p<0.001).

The second quantitative analysis aimed to examine the role of perceived stress as a risk factor for arthritis development. This analysis focused on 12,202 women from the 1946-1951 cohort who completed at least one ALSWH survey in either 2001, 2004 or 2007. Longitudinal analyses were modelled using Generalised Estimating Equations, with and without a time lag. Findings from these analyses indicate that perceived stress is a strong risk factor for arthritis, with both minimal (OR=1.7, 95%CI=1.5, 2.0; p<0.001) and moderate/high (OR=2.4, 95%CI=2.0, 2.9; p<0.001) levels of perceived stress contributing to the onset of arthritis three years later.

In order to provide a holistic view, the psychosocial experience of women with arthritis was qualitatively explored. This method provided a complementary approach to the quantitative analyses and allowed for the expansion and clarification of pertinent issues and provided the scope to examine factors that were not able to be examined at an epidemiological level. In-depth semi-structured telephone interviews using a realist-oriented framework were conducted with a sub-sample of the 1946-1951 cohort (n=19).

The aim of the first qualitative analysis was to explore the lived psychosocial experience of women with arthritis paying particular attention to identifying and clarifying psychosocial challenges to, and resources that facilitate, the adjustment to arthritis, including coping perceptions. The findings indicated that the emotional burden of arthritis is considerable, and the process of psychological adjustment complex. Importantly, women transitioning from midlife to older age have psychological difficulties associated with pain and functional impairment. Coping with pain and limitation involved the implementation of a myriad of strategies including a strong focus on self-management. Psychological adjustment over time was attributed primarily to cognitive and attitudinal factors. This was a dynamic 'day to day' process involving a constant struggle between grieving physical losses and increasing dependence amidst symptom management.

The second qualitative analysis aimed to extend the quantitative findings regarding perceived stress by exploring the stress appraisal process. The findings indicate that while women transitioning from midlife to older age experienced stressful life events varying in intensity and chronicity over the life course, they attributed particular meanings to the experience of stress and its role in chronic disease. For participants, coping with stress appeared to involve both static attitudinal coping processes developed early in life, coupled with stressor-dependent cognitive and support-based responses. Coping with stress over the life course, however, was complex, with women describing a dualistic process

involving both a reduction in the ability to cope with ongoing stress over time, coupled with a degree of personal growth.

The findings from this multi-method thesis add to the current understanding of the burden associated with arthritis and highlight the important role of psychosocial factors in this process, particularly for women as they transition from midlife to older age. Findings from this thesis also provide the most convincing evidence to date regarding the role of perceived stress in the onset of arthritis. These findings highlight the insufficiencies associated with viewing arthritis within a biomedical model, both in terms of pathophysiology and disease management and have implications for clinical interventions, public health education and policy.

Prevalence, antecedents and perceptions of efficacy of treatments of postnatal depression in Australia

Candidate: Catherine Chojenta

Degree: PhD

University: The University of Newcastle, Faculty of Health and Medicine

Supervisors: A/Professor Deborah Loxton and A/Professor Jayne Lucke

While new motherhood is socially perceived to be a time of great elation and joy, this life stage is also a time of great risk for mental health problems and emotional difficulties. For women, these problems can have long-term impacts including putting them at risk for ongoing mental health problems and dissatisfaction with motherhood. This in turn may reduce infant-mother bonding which can have impacts on the infant's mental health and intelligence even into childhood. The most common form of mental health morbidity in the perinatal period is postnatal depression, affecting between 10-20% of mothers in Australia (National Health and Medical Research Council 2000).

This thesis fills a gap in the current literature by examining both the proximal and distal factors related to postnatal depression in Australia by using longitudinal data collected on a national, broadly representative, sample of women. A longitudinal, multi-methods design was employed to examine the complex associations between risk factors and to also explore the lived experience of new mothers who have experienced postnatal depression.

Prior history of mental health conditions were particularly evident as having a significant impact on risk of postnatal depression, as was long-term experience of stressful life events and lack of social support. In addition health and stressful life events in pregnancy and postpartum such as breastfeeding, emotional distress during labour and sleep deprivation had an impact on the occurrence of postnatal depression. The results indicated that understanding a woman's mental health history is very important in the detection of those who are most vulnerable to postnatal depression. These findings also indicate that treatment and management of depression and anxiety earlier in life may have a positive impact on the incidence of postnatal depression.

ENQUIRIES

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www.alswh.org.au

Data Archiving

The Australian Longitudinal Study on Women's Health has a policy to archive the ALSWH data with the Australian Social Sciences Data Archive (ASSDA) at the Australian National University on an annual basis. To date, data have been archived for Surveys 1, 2, 3, 4, 5 and 6 of the 1921-26 and 1946-51 cohorts. Data from Surveys 1, 2, 3, 4 and 5 have been archived for the 1973-78 cohort.

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A detailed description of the background, aims, themes, methods, representativeness of the sample and progress of the study is given on the project web page. 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.



in conjunction with

