

women's
health
australia

Australian Longitudinal Study
on Women's Health

Annual Report

2007



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Director's Report



During 2007 the Australian Longitudinal Study on Women's Health has continued to provide evidence to develop and evaluate policies that will lead to better health for all Australians. Now in its twelfth year, the Study is funded by the Australian Government Department of Health and Ageing and involves around 40,000 women from three age cohorts, selected randomly from the Australian population. We expect to follow the women for over twenty years to track changes in health and life circumstances as they move through major life stages.

This year we surveyed the Mid-aged cohort for the fifth time. Many of these women, aged 56-61, are thinking about planning for retirement. We also developed and pilot-tested the fifth survey for the Older

cohort who are now aged 82-87 years.

An important achievement this year has been the completion of a comprehensive report on women's weight, emphasising the growing problem of obesity among Australian women.

The longitudinal data provided by the Study show the rapid increase in weight among Younger women, highlighting a problem that may be underestimated by simple cross-sectional comparisons.

Weight is increasing so rapidly in the Younger women that their weight profiles now resemble those of the Mid-aged cohort at the start of the Study. Unless there is a significant reduction in the rate of weight increase in this Younger cohort, they will have a much higher prevalence of obesity and overweight when they reach 45 years of age.

The report also demonstrated the relationship between overweight and obesity and poorer mental and physical health and higher health care costs. These conditions contribute significantly to poor health among women in

Australia. There is potential for considerable cost savings, at a population level, if trends in overweight and obesity could be reversed.

We have continued to work on data quality and documentation, and to produce scientific papers and conference presentations on all aspects of women's health. In addition to the main survey work, there are a number of additional projects underway. This year has seen the completion of work for the Department of Health and Ageing on caring and employment, and work for the Department of Families, Community Services and Indigenous Affairs on physical activity.

Thanks to the Australian Government Department of Health and Ageing for their continuing support of this study. I would particularly like to thank the many women who are giving their time over many years to participate in this research and contribute to improving the health of future Australians.

Annette Dobson

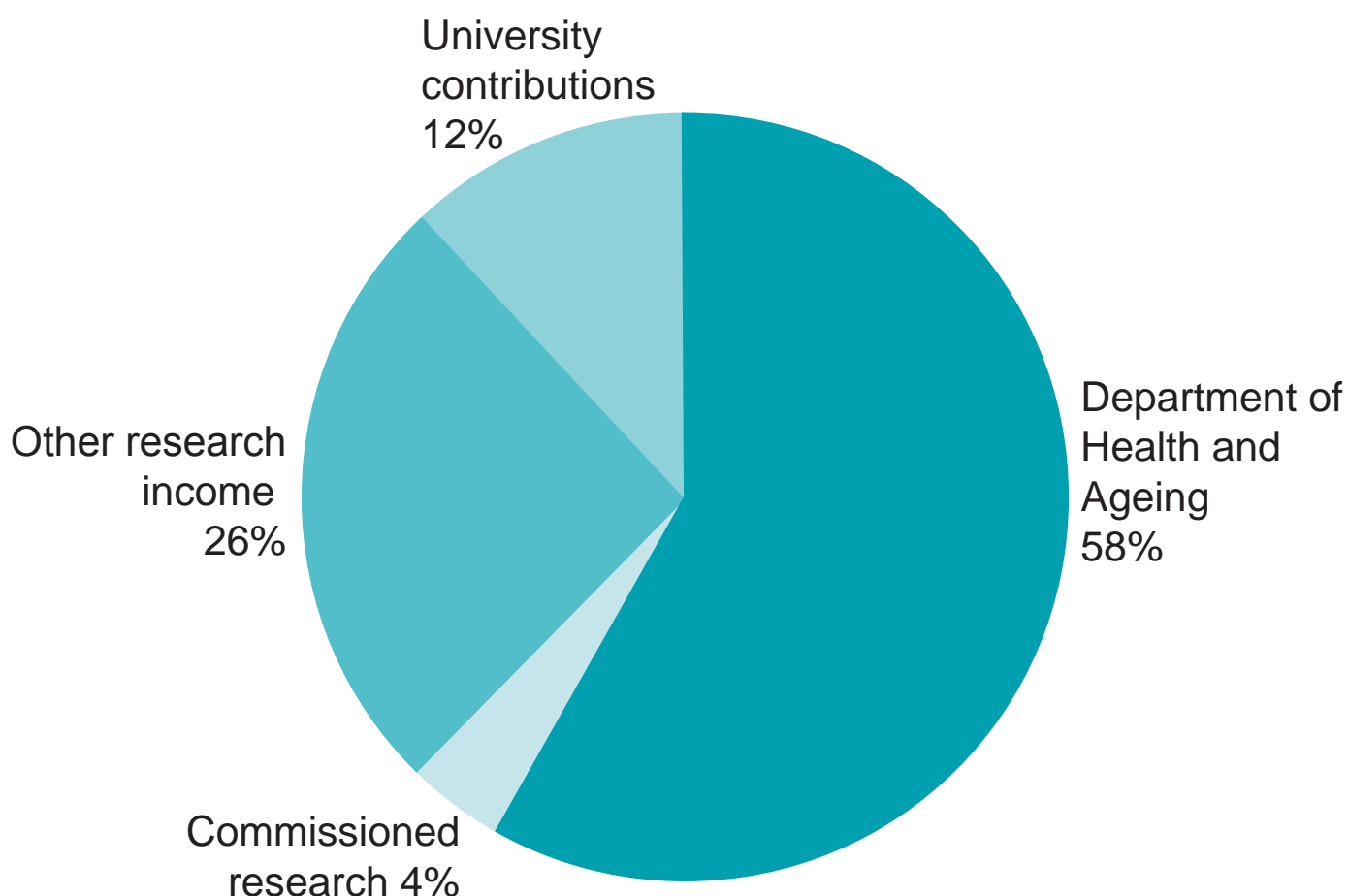
Annette Dobson

Study Director

Finance Report

ALSWH Income 2006-7

The largest proportion of ALSWH income is provided by the Australian Government Department of Health and Ageing at \$1.54 million for the financial year 2006-2007. The ALSWH received additional income from the Universities of Newcastle and Queensland, commissioned research projects and other research income (competitive grants). The relative contribution of each of these to the ALSWH income is described in the pie chart below.



Research Steering Committee

Professor Annette Dobson



BSc, MSc, GCert Mngt, PhD, AStat

Director, Australian Longitudinal Study on Women's Health

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School of Human Movement Studies

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BMed, PhD

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Collaborators & Investigators

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.

Dr Jon Adams

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Professor Jill Astbury

School of Psychology, Victoria University

Professor Peter Brown

Centre For Work, Leisure & Community Research, Griffith University

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Professor Catherine D'Este

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Dr John Germov

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Dr Peter Gibson

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Professor Graham Giles

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Dept of Psychology, University of Melbourne

Professor Sue Richardson

National Institute of Labour Studies, Flinders University

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Mr Christopher Stevenson

Australian Institute of Health and Welfare

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Mother and Child Health Research, La Trobe University

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School of Human Movement Studies, University of Queensland

Dr Tracey Wade

School of Psychology, Flinders University

Dr Edith Weisberg

FPA Health, Family Planning NSW

Dr Lauren Williams

Nutrition and Dietetics, University of Newcastle

Professor Andrew Wilson

Queensland Health

Current Students

PhD Students

Steven Bowe

University of Newcastle
Supervisors: Dr Anne Young &
Dr David Sibbritt

Catherine Chojenta

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Supervisors: Dr Deborah Loxton
& Dr Jayne Lucke

Cate France

University of Newcastle
Supervisors: Professor Christina
Lee & Dr Sue Outram

Leanne Fray

University of Newcastle
Supervisors: Dr Penny Warner-
Smith & Dr Kevin Lyons

Lisa Hallsworth

Flinders University
Supervisors: Dr Tracey Wade

Melissa Harris

University of Newcastle
Supervisors: Dr Deborah Loxton,
Dr David Sibbritt & Professor Julie
Byles

Danielle Herbert

University of Queensland
Supervisors: Professor Annette
Dobson & Dr Jayne Lucke

Lindy Humphreyes-Reid

University of Queensland
Supervisors: Professor Annette
Dobson & Professor Andrew
Wilson

Alexis Hure

University of Newcastle
Supervisors: A/Professor Clare
Collins, Dr Anne Young &
Professor Roger Smith

Melissa Johnstone

University of Queensland
Supervisors: Professor Christina
Lee & A/Professor Nancy
Pachana

Rosemary Korda

Australian National University
Supervisors: Professor Jim Butler,
Dr Mark Clements & Dr Emily
Banks

Beverley Lloyd

University of Sydney
Supervisors: A/Professor Susan
Quine & Professor Christina Lee

Heather Mckay

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Supervisors: A/Professor Jane
Fisher & Professor Christina Lee

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Byles

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Siobhan O'Dwyer

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Supervisors: Professor Wendy
Brown, Dr Yvette Miller &
A/Professor Nancy Pachana

Ingrid Rowlands

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Supervisors: Professor Christina
Lee & A/Professor Nancy
Pachana

Nadine Smith

University of Queensland
Supervisors: Professor Annette
Dobson & A/Professor Nancy
Pachana

Doctorate of Psychology Students

Leah Collins

University of Melbourne
Supervisors: Dr Prasuna Reddy,
Dr Steven Bunker & Ms Jane
Fletcher

Toni Lindsay

University of Newcastle
Supervisors: A/Professor Jenny
Bowman & Dr Deborah Loxton

Masters of Science Student

Cara Evans

University of Liverpool
Supervisor: Dr Craig Roberts

Masters of Clinical Epidemiology Student

Nur Hafidha Hikmayani

University of Newcastle
Supervisor: Dr Jane Robertson

Doctor of Philosophy (Economics) Student

Joanne Flavel

Flinders University
Supervisor: Professor Sue
Richardson

Congratulations to our successful graduates for 2007

Liane McDermott

PhD

School of Population Health, University of Queensland

Cigarette smoking among young women

Supervisors: Professor Neville Owen & Professor Annette Dobson

Carmen Tang

Doctorate of Psychology

School of Psychology, University of Queensland

Supervisors: A/Professor Nancy Pachana & Professor Christina Lee



Project Staff

University of Queensland



Project Director

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Senior Research Fellows / Project Coordinators

Dr Jayne Lucke

Dr Leigh Tooth

Research Fellow

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Senior Project Officer

Ms Anne Russell

Data Manager - Surveys

Mr David Fitzgerald

Research Assistants / Statisticians

Mr Paul Chang

Ms Danielle Herbert

Mr Richard Hockey

Ms Eliza Fraser

Ms Melanie Spallek

Ms Melanie Watson

Research Project Officer

Ms Bree Waters

Administrative Assistant

Ms Leonie Gemmell

University of Newcastle



Co-Director ALSWH / RCGHA Director

Professor Julie Byles

Project Manager

Dr Deborah Loxton

Statistician

Ms Jenny Powers

Data Manager - Cohorts

Mrs Anna Graves

Data Assistant - Cohorts

Mr Daniel Odd

Publicity Officer/Executive Officer

Mrs Lyn Adamson

Research and Communications Officer

Mrs Catherine Chojenta

Research Assistant

Ms Jenny Helman

Administrative Assistant

Ms Melanie Moonen

Casual Project Assistants

Ms Hannah Bourke

Ms Penne Cappas

Ms Elizabeth Kent

Ms Monica O'Neill

Ms Clare Rooney

Ms Amy Sales

Ms Jackie Sales

Ms Lauren Thoroughgood

Ms Claire Wilkinson

Women's weight: A growing concern

Increasing levels of overweight and obesity have been of concern in Australia for some time. The Australian Longitudinal Study on Women's Health is able to track women's weight change over time and provide information about the important factors that may influence weight gain.

Changes in women's weight over the last ten years

In 1996 most Younger women (69%) had a healthy body mass index (BMI) compared with around half of Mid-aged women (53%) and Older women (51%).

Figure 1 shows how the proportion of women within a healthy BMI range has decreased among Younger and Mid-aged women. For example, for the Mid-aged women 4 in 10 were overweight or obese in 1996 increasing to almost 6 in 10 by Survey 4 in 2004. Older women on the other hand have maintained a relatively stable average BMI, with a slight decrease in both weight and height over four surveys.

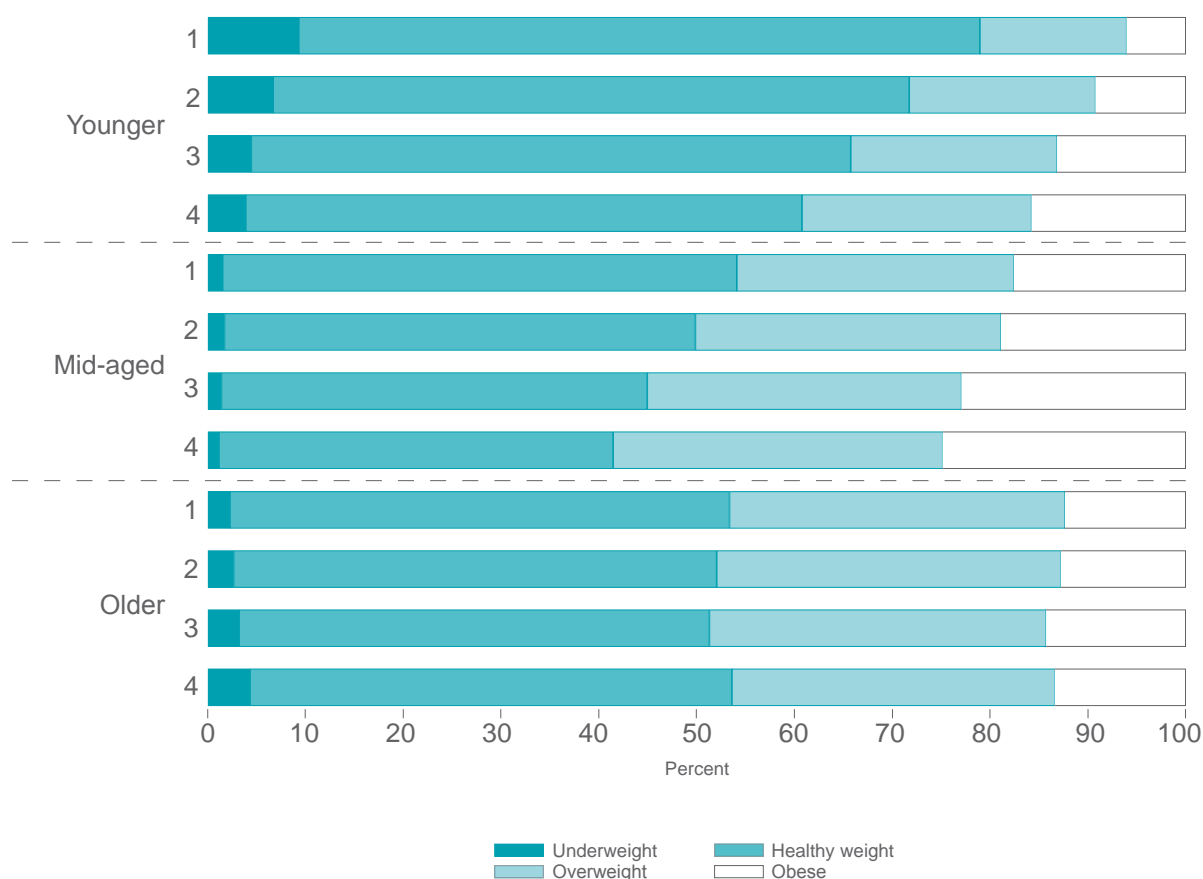


Figure 1: Proportions of women in each of the BMI categories based on self-reported height and weight for each age cohort for Surveys 1, 2, 3 and 4 from 1996 to 2006.

Weight gain among Younger women

BMI (Body Mass Index)

Calculated as:

$$\frac{\text{Weight (kg)}}{\text{Height (cm)}^2}$$

BMI Categories

<18.5	underweight
18.5 - 25	healthy weight
>25 - 30	overweight
>30	obese

Weight gain is particularly rapid among Younger women. At Survey 1 only 15% were considered overweight and 6% were considered obese. Ten years later at Survey 4 almost 1 in 4 (24%) were overweight and 16% were obese. The average BMI for Younger women at Survey 4 was 25.03, just high enough to be classified as overweight.

The startling fact is that the proportion of Younger women who are overweight or obese at age 28-33 is only slightly less than the proportion of Mid-aged women who were overweight or obese when they were aged 45-50. If Younger women continue to gain weight at the same rate they will be much heavier in middle age than the Mid-aged cohort were at the same age.

Factors influencing weight gain

There are many factors that influence weight gain. Time spent sitting per day and physical activity are two such factors that have been examined in detail by ALSWH researchers.

Time spent sitting leads to weight gain

Women who spend a lot of time sitting down each day are likely to weigh more. Specifically, women who sit for more than 8 hours per day have a greater average weight than women who sit for 3 hours a day or less. This difference is on average an extra 3.4kg for Younger women, 5.9kg for Mid-aged women and 5.6kg for Older women. Another analysis showed that for each extra hour spent sitting at Survey 3, Younger women increased their weight by 227 grams per year, and Mid-aged women increased their weight by 747 grams per year.

Less physical activity leads to weight gain

Physical activity is an important predictor of weight change. At least 30 minutes of moderate activity on most days of the week is recommended in the national physical activity guidelines for adults. Women who did less than this recommended level of activity were more likely to gain weight than women who were more active.



Physical activity levels differ between the age cohorts

MET.mins

Physical activity is reported in MET.mins which is a measure of energy expenditure.

600 MET.mins is equivalent to 150 minutes of moderate intensity physical activity per week

It is concerning that Younger women have decreased their activity levels over 10 years. Figure 2 shows that the proportion of Younger women who are doing moderate or high levels of activity has decreased between Survey 3 and 4 for women of all BMI groups. However, the pattern is particularly evident for women who were overweight to start with.

In contrast, there is emerging evidence that Mid-aged women are increasing their physical activity levels. Over half (54%) met or exceeded recommended levels when last surveyed in 2004 compared with 45% in 2001 (Figure 3).

Unsurprisingly, Older women have decreased the amount of physical activity they do, regardless of their BMI category (see Figure 4) and this is undoubtedly due to increasing frailty and disability in this cohort, now aged in their 80s.

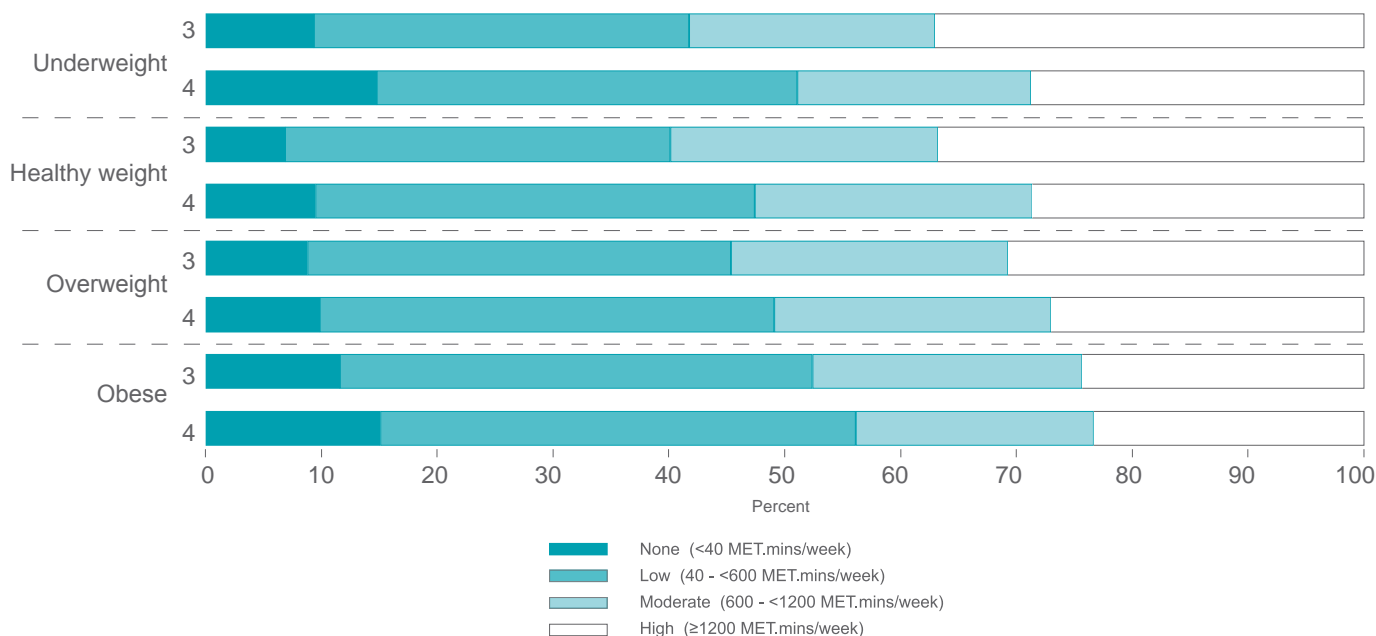


Figure 2: Physical activity categories for Younger women at Surveys 3 and 4, by BMI category at Survey 3.

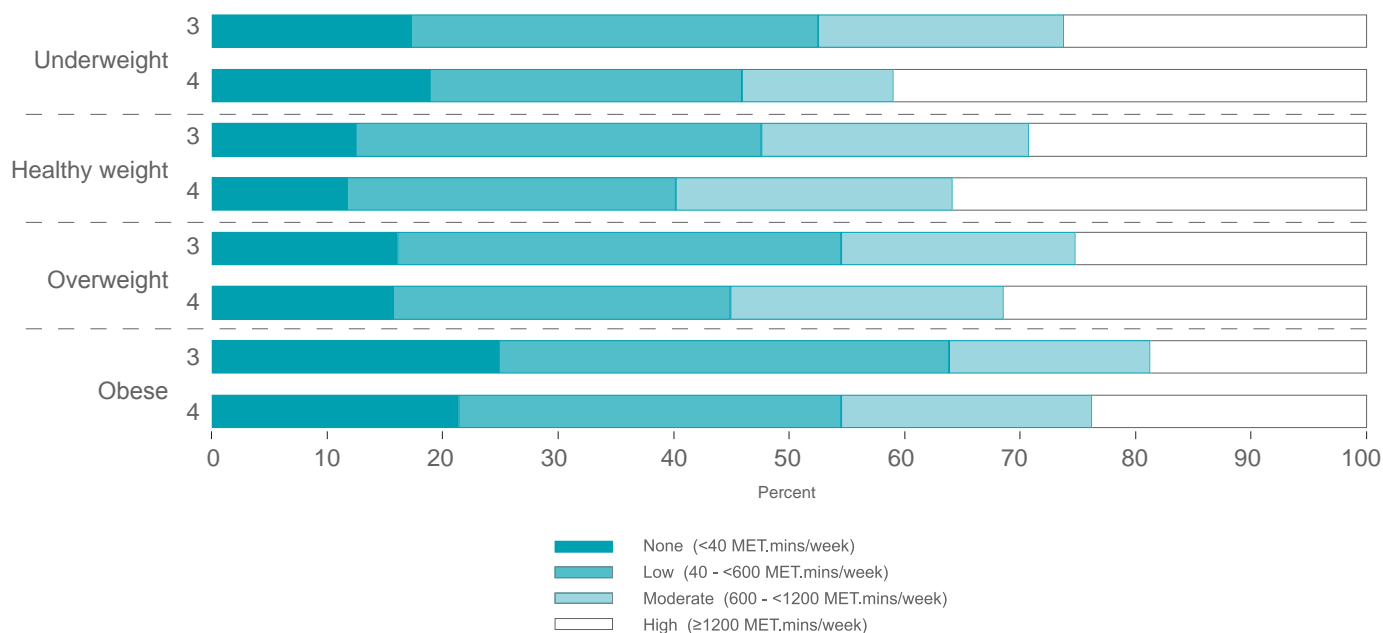


Figure 3: Physical activity categories for Mid-aged women at Surveys 3 and 4, by BMI category at Survey 3.

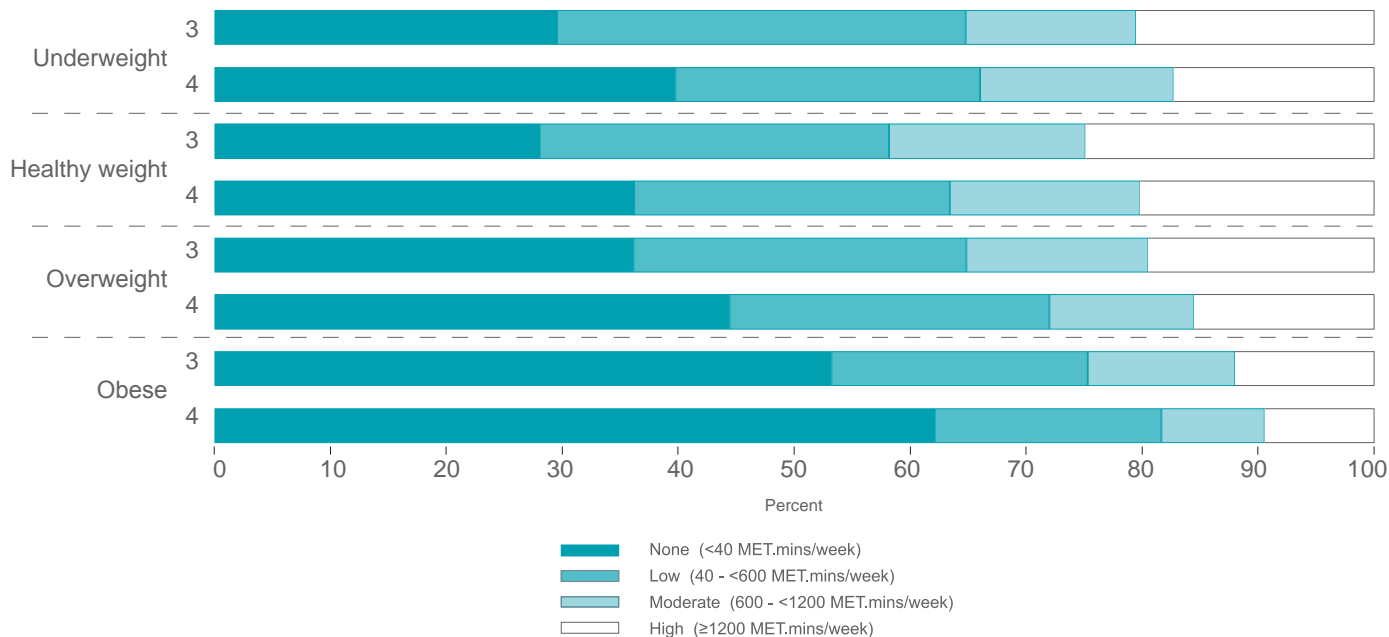


Figure 4: Physical activity categories for Older women at Surveys 3 and 4, by BMI category at Survey 3.

The impact of weight gain on women's health

Why weight matters: Physical health

Weight has important consequences for physical health. In addition to increasing risk of chronic conditions such as diabetes, self rated health provides a sensitive measure of health changes. Self rated physical health has deteriorated over time for women in all three cohorts. However, women who were underweight or who had a healthy weight, started off with better physical health than women who were overweight or obese.

For Younger women, those who experienced most weight gain had the poorest health. For the Mid-aged women, weight loss resulted in improving self-rated physical health. Older women with stable weight had better physical health at Survey 1 but still experienced decline over time in physical health.



Why weight matters: Mental health

Women's self rated mental health is also related to their weight with underweight women at Survey 1 having the poorest mental health. Over time mental health improved for both Mid-aged and Younger women in all BMI groups. Weight stability is an important factor for mental health, with a stable weight over time being associated with higher mental health scores in all age groups of women.

Why weight matters: Chronic conditions

Being overweight or obese is associated with greater risk of various chronic conditions, including cardiovascular disease, diabetes, hypertension, bone and joint conditions, and asthma. For example, Mid-aged women categorised in the very obese group (BMI>35) had 10.9% prevalence of diabetes compared with 1.3% prevalence for women who had a healthy weight. In terms of changing weight, BMI at the initial survey was found to be a much stronger predictor for a subsequent diagnosis of diabetes than weight change over time for the Mid-aged women.



In conclusion

There is a growing problem of overweight and obesity in Australian women. Among participants in the ALSWH, women in all age cohorts are gaining weight.

As Younger women age, their weight is increasing rapidly. Their weight profiles are approaching those of the Mid-aged cohort in 1996. Unless the rate of weight increase can be slowed, Younger women will have a much higher prevalence of obesity and overweight when they reach mid-age.

In contrast, there is some evidence of increasing physical activity among Mid-aged women. More physical activity and less time spent sitting can help slow weight gain and should be promoted as part of a comprehensive campaign to promote healthy weight maintenance.

Footnote:

This report is summarised from:

- Adamson L, Brown W, Byles J, Chojenta C, Dobson A, Fitzgerald D, Hockey R, Loxton D, Powers J, Spallek M, Waters B & Watson M. *Women's Weight - Findings from the Australian Longitudinal Study on Women's Health*. Report prepared for the Department of Health and Ageing, June 2007.
- Brown WJ, Burton N & Heesch K. *Physical Activity and Health in Mid-age and Older Women*. Report prepared for The Office for Women, Department of Families, Community Service and Indigenous Affairs, September 2007.
- Mishra G, Carrigan G, Brown W, Barnett A & Dobson A. Short-term weight change and the incidence of diabetes in midlife: results from the Australian Longitudinal Study on Women's Health. *Diabetes Care*, in press.
- Lucke JC, Waters B, Hockey R, Spallek M, Gibson R, Byles J & Dobson A. Trends in women's risk factors and chronic conditions: Findings from the Australian Longitudinal Study on Women's Health. *Women's Health*, 2007, 3(4), 423-432.

Publications

The investigators and staff of the ALSWH have collaborated to write a practical guide to the development and successful management of longitudinal research. While specifics of research methods are well covered in academic and course work texts, methods of meeting the day-to-day practical challenges of running a long term study have not been presented in a single volume. This series fills this gap in the literature from the unique perspective of the people who have been meeting such challenges for the past ten years. The book is currently available in electronic format as a special edition of the *Journal of Multiple Research Approaches* and will be published in hard copy in 2008.

Conducting longitudinal research: Practical lessons from the Australian Longitudinal Study on Women's Health.

Editors: Deborah Loxton, Julie Ellen Byles, Annette Dobson & Wendy J Brown

Byles J, Dobson A, Bryson L & Brown WJ. **Getting started: 'Preparing the ground' and 'planting the vines' for longitudinal research.**

This paper provides a brief overview of some of the practical issues to consider when establishing a longitudinal study. The discussion draws on the experiences of some of the initial investigators of the Australian Longitudinal Study on Women's Health and sets the scene for the subsequent papers in this series. The investigators reflect on the processes of establishing the research team, conceptualising and planning the research, and gaining and maintaining the funding for the study. Their discussion considers the many disciplinary perspectives that have been integrated into the study, and how these came together. They also highlight some fundamental principles and decisions that must underpin longitudinal studies from the outset.

Warner-Smith P, Loxton D & Brown WJ. **Human resources for longitudinal studies: Matching people to skills and tasks.**

This paper describes the practical tasks that longitudinal studies involve, the skills necessary to complete those tasks, and the organisational issues that are pertinent to conducting longitudinal research. We first focus on the decision about whether to conduct the study in-house, or to out-source part or all of the work. We discuss the desirable qualities of the people responsible for carrying out the project tasks, and the importance of creatively matching the work to the skills and experience of the people in the organisation. The critical issues of continuity and succession planning are then addressed before we finish with a brief discussion of organisational structure.

Throughout the paper, examples from the Australian Longitudinal Study on Women's Health (ALSWH) are used to illustrate the issues at hand. The paper is one of a suite of eleven papers which address the practicalities of running a longitudinal study.

Chojenta C, Mooney R & Warner-Smith P. **Accessing and disseminating longitudinal data: Protocols and policies.**

The development of clear rules and regulations around the access to and publication of data is imperative to the ongoing integrity of a longitudinal study. Careful planning of policies and protocols should be undertaken at the commencement of the study, and refined over time to incorporate the growing availability of data, and increasing numbers of external collaborators. In this paper we draw on the experience of developing data access protocols for the Australian Longitudinal Study on Women's Health. We discuss the development of these policies and the organisational structure that manages them. We also discuss the record keeping practices implemented by the ALSWH and how the information stored can be used for both the review of study themes and also the production of research summaries and reports.

Loxton D & Young A. **Longitudinal survey development and design.**

Many longitudinal studies collect data through self-report or administered surveys, either as the main source of data or as one of a set of data collection methods. Longitudinal studies offer special challenges for survey design including meeting diverse needs of investigators and stakeholders, developing consistent surveys that meet current

and future needs, obtaining sensitive information in an ethical way, and producing a survey that is economically sound, easy to complete and has longitudinal integrity. This paper draws on the experiences of the Australian Longitudinal Study on Women's Health to provide some insight into the practical aspects of designing longitudinal surveys, including modes of administration, and the development of baseline and follow-up surveys. The ingredients for successfully conducting a longitudinal survey include extensive consultation, striving for balance between competing interests, review and documentation of all items and justification of new research questions. The commitment of an ever-evolving research team to these tenets contributes to the production of quality outputs which justify the ongoing contribution of the participants.

Adamson L, Young A & Byles J.
Recruiting for a longitudinal study: Who to choose, how to choose and how to enhance participation?

There are many methods for establishing and recruiting participants for longitudinal studies. Mostly, the participants will be sampled from a population, and the study will need some list or methods for identifying and selecting the people to be invited to take part in the study. The choice of methods for selecting and recruiting participants will depend on the nature of the research question and the data to be gathered and on practical considerations such as cost and feasibility. In this paper we consider various sampling frames and methods, and we describe in detail the strategies used to contact women from the Australian Longitudinal Study on Women's Health (ALSWH) sample and to encourage their participation in the study.

Adamson L & Chojenta C.
Developing relationships and retaining participants in a longitudinal study.

The strength and success of any research project lies in the participant's belief, that their time and contribution is valued and worthwhile. Developing and maintaining relationships with participants in longitudinal research projects are crucial elements to ensuring the project will meet its aims and objectives. Investing time and resources in the maintenance of the cohort will reward the project with motivated participants; encourage high response rates, lower attrition rates and a representative sample. This paper outlines the methods used in one longitudinal cohort study to develop sustainable relationships with participants.

Adamson L & Graves A.
Cohort management: Developing and maintaining participant databases in longitudinal studies.

Creating databases that will support longitudinal cohort studies over extended periods of time is a challenge. The need to record and archive all current and historical activities for each participant can result in large databases. Effectively managing these databases is a key component of achieving successful outcomes for longitudinal studies. This paper describes the methods that have been employed by one longitudinal cohort study to develop functional and flexible databases that will stand the test of time. While not exhaustive these principles provide guidelines that will assist in the creation and maintenance of databases to support a longitudinal cohort study.

Graves A, Ball J & Fraser E.
Data management: The building blocks of clean, accurate and reliable longitudinal datasets.

Data management involves the planning, management and production of data in a format suitable for researchers to use. The products of longitudinal studies are the datasets. Efficient and careful data management will result in datasets that are as accurate and as complete as possible. In addition, effective data management can reduce missing data and minimize data entry error. The final dataset must be in a form that is easy to understand and to use with a variety of statistical packages. Most importantly, data management processes and manipulations must be reproducible and well documented. This paper aims to provide some insight into data management procedures, using the Australian Longitudinal Study on Women's Health (ALSWH) as an example.

Young A, Powers J & Whewey V.
Working with longitudinal data: Attrition and retention, data quality, measures of change and other analytical issues.

Longitudinal studies are important because they can help provide answers to questions about cause and effect, although their complexity leads to a number of challenges for the researcher. By their very nature longitudinal studies may continue over a long period of time and/or have many data points and therefore good documentation of procedures is essential. In addition, it is important to develop dynamic databases that reflect the current status of participants in the project and to develop protocols for dealing with inconsistent or missing responses over time. This paper provides some guidance

about these issues as well as information about longitudinal data structure and ways to summarise and display the information obtained from longitudinal studies.

Helman J, Loxton D, Adamson L, Graves A & Powers J.
Conducting substudies.

Longitudinal studies often include substudies which involve the collection of specific and more detailed data from subsets of study participants. The longitudinal study framework adds methodological strength to these substudies through enabling sampling of individuals with exposures or outcomes of interest, and through retrospective and prospective access to longitudinal data. However, while there are many advantages to these studies, there are also a number of potential disadvantages. Here we describe some of the considerations to be applied when designing and approving a substudy and some of the procedures to be applied to ensure that the substudy runs well and has minimal impact on study participants.

Chojenta C, Byles J, Loxton D & Mooney R.
Communication and dissemination of longitudinal study findings.

Communication of the results is one of the most important outputs of a longitudinal study. The findings may be disseminated to fellow researchers, through conference presentations and journal articles, to funding bodies through reports, and to the general public through mass media interviews. In each case, a different style of communication is required that is suitable to the audience as well as to the purpose of the study. In this paper, we discuss some of these different communication channels and describe some important distinctions in writing for different audiences.

Adams J, Sibbritt D & Young AF.
Consultations with a naturopath or herbalist: The prevalence of use and profile of users amongst mid-aged women in Australia.

Public Health, 2007; 121(12): 954-957.

No abstract.

Anstey K, Butterworth P, Booth H, Windsor T, Burns R, Simons L, Sargent-Cox K, Byles J, Luszcz M, Gibson R, von Sanden C, Christensen H, Shaw J, Broe G, Browning C, Mitchell P, Cumming R & Kendig H.
The value of comparing health outcomes in cohort studies: An example of self-rated health in seven studies including 79653 participants.

Australasian Journal on Ageing, 2007; 26(4): 194-200.

Objective: To demonstrate the value of comparing data from multiple cohort studies using the example of self-rated health (SRH).

Methods: Seven Australian cohort studies including comparable data on SRH were identified. Comparisons of the distributions of SRH were conducted, and logistic regression was used to evaluate age, sex and education effects within studies. A nationally representative survey was used as a statistical reference to determine how studies differed from the Australian population in frequencies of responses.

Results: Ratings of SRH declined with increasing age. Low education was associated with higher frequencies of fair/poor SRH even in young adulthood but there were no sex differences. Results for smaller studies did not necessarily differ from nationally representative studies.

Conclusion: Collaborative re analysis of Australian cohort permits analysis of health outcomes from a large numbers of participants. Health outcomes and their sociodemographic determinants may be more comprehensively evaluated through such collaborative projects.

Baines S, Powers J & Brown WJ.
How does the health and well-being of young Australian vegetarian and semi-vegetarian women compare with non-vegetarians?

Public Health Nutrition, 2007; 10(5): 436-442.

Objective: To compare the sociodemographic characteristics, health status and health service use of vegetarians, semi-vegetarians and non-vegetarians.

Design: In cross-sectional data analyses of the Australian Longitudinal Study on Women's Health in 2000, 9113 women (aged 22–27 years) were defined as non-vegetarians if they reported including red meat in their diet, as semi-vegetarians if they excluded red meat and as vegetarians if they excluded meat, poultry and fish from their diet.

Results: The estimated prevalence was 3% and 10% for vegetarian and semi-vegetarian young women. Compared with non-vegetarians, vegetarians and semi-vegetarians were more likely to live in urban areas and to not be married. Vegetarians and semi-vegetarians had lower body mass index (mean (95% confidence interval): 22.2 (21.7–22.7) and 23.0 (22.7–23.3) kgm²) than non-vegetarians (23.7 (23.6–23.8) kgm²) and tended to exercise more. Semi-vegetarians and vegetarians had poorer mental health, with 21–22% reporting depression compared with 15% of non-vegetarians ($P \leq 0.001$). Low iron levels and menstrual symptoms were also more common in both vegetarian groups. Vegetarian and semi-vegetarian women were more likely to consult alternative health practitioners and semi-vegetarians reported taking more prescription and non-prescription medications. Compared with non-vegetarians, semi-vegetarians were less likely and vegetarians much less likely to be taking the oral contraceptive pill.

Conclusion: The levels of physical activity and body mass indices of the vegetarian and semi-vegetarian women suggest they are healthier than non-vegetarians. However, the greater reports of menstrual problems and the poorer mental health of these young women may be of clinical significance.

Brown WJ, Hockey R & Dobson A.
Rose revisited: A 'middle road' prevention strategy for reducing non-communicable chronic disease risk.
Bulletin of the World Health Organization, 2007; 85(11): 886-887.

No abstract.

Bryson L, Warner-Smith P, Brown P & Fray L.

Managing the work-life roller-coaster: Private stress or public health issue?
Social Science and Medicine, 2007; 65(6): 1142-1153.

Although research has established the importance for health of a sense of personal control at work, the implications of this for women have not been adequately studied. Using quantitative data from the Australian Longitudinal Study on Women's Health and qualitative data from an associated study, here we examine women's health and sense of control in relation to family and employment commitments. In line with other research, 'demand over-load' is found to be important for sense of control, but both 'over-load' and 'control' prove complex, as illustrated by the finding that good mental health is associated with satisfaction with, rather than actual, hours of employment. In the contemporary western context of longer working hours, increasing time strain, and gender relations shaped within a neo-liberal, individualised social environment, the findings suggest that as life speeds up, 'control' and the health effects of 'busyness', need to be understood not merely as personal matters, but rather as potentially important public health issues.

Byles J.
Fit and Well at 80: Defying the stereotypes of age and illness.
Annals of the New York Academy of Sciences, 2007; 1114: 107-120.

While aging is associated with physical decline and increased risk of illness, older age is not inevitably a time of ill-being. Data from the Australian Longitudinal Study on Women's Health challenge negative stereotypes of aging and illness. While an accelerating decline in average physical health was observed over the first 6 years of the study, an important and large proportion of the women experienced minimal change in their physical health during this period. Also, while chronic disease was a strong risk factor for declining health, many women aged well in spite of longstanding medical conditions. This paper presents trends in health and illness as women age and explores some of the many physical, social, and healthcare factors that mark out those women who remain "fit and well."

Byles J & Feldman S.
The lives of older widowed women.
Just Policy, 2006; 39: 23-28.

No abstract.

Byles J, Young A & Wheway V.
Annual health assessments for older Australian women: Uptake and equity.
Australian and New Zealand Journal of Public Health, 2007; 31(2): 170-173.

Objective: To measure the utilisation of Enhanced Primary Care (EPC) health assessment items for women aged 75 years and over, and to describe health and socio-demographic characteristics of users and non-users.

Method: Analysis of longitudinal survey and Medicare claims data from women in the Australian Longitudinal Study on Women's Health (ALSWH) aged 75 to 78 years when EPC items were introduced and who provided permission to access their Medicare records for the period 1999-2003 (n = 4,646).

Results: There was an increase in uptake of assessments over four years: from November 1999, 12% of eligible women had a health assessment during the following year; by October 2003, 49% had at least one health assessment ever. Few had repeat assessments. Women who visited a GP more often and who were satisfied with the number of GPs available were more likely to have an assessment in the first 12 months, and women who visited a GP more often, those taking more medications, and those caring for another were more likely to have at least one assessment in four years. Women in smaller rural and remote areas were less likely to have an assessment than women in urban areas.

Conclusions: Most women are not having annual assessments and there is some geographic inequity.

Carrigan G, Barnett A, Dobson A & Mishra G.
Compensating for missing data from longitudinal studies using WinBUGS.
Journal of Statistical Software, 2007; 19(7).

Missing data is a common problem in survey based research. There are many packages that compensate for missing data but few can easily compensate for missing longitudinal data. WinBUGS compensates for missing data using multiple imputation, and is able to incorporate longitudinal structure using random effects. We demonstrate the superiority of longitudinal imputation over cross-sectional imputation using WinBUGS. We use example data from the Australian Longitudinal Study on Women's Health. We give a SAS macro that uses WinBUGS to analyse longitudinal models with missing covariate data, and demonstrate its use in a longitudinal study of terminal cancer patients and their carers.

Clemens S, Matthews S, Young AF & Powers J.
Alcohol consumption of Australian women: Results from the Australian Longitudinal Study on Women's Health.
Drug and Alcohol Review, 2007; 26(5): 525-535.

Introduction and Aims: Alcohol misuse is responsible for extensive personal harm and high societal costs. Research related specifically to women's alcohol consumption is important due to gender differences in clinical outcomes and disease progression.

Design and Methods: This study examines longitudinal changes in the patterns of alcohol consumption associated with harm in the long term (chronic) and short term (acute) as defined by the Australian National Health and Medical Research Council. Results are presented for three age cohorts (18-23 years, 45-50 years, and 70-75 years) using data from the Australian Longitudinal Study on Women's Health 1996-2003. Initial response rates for the study were 41%, 54% and 36% for the Younger, Mid-aged and Older cohort, respectively.

Results: The percentages of women that initiated usual weekly consumption in excess of 140g of alcohol, designated as long-term risky or high risk consumption, between surveys 1 and 2 were 2.7%, 2.1% and 1.7% (Younger, Mid-aged and Older cohorts, respectively). Similarly, between surveys 1 and 2, 7.8% of Younger women and 2.5% of mid-aged women initiated consumption of 50g of alcohol on one occasion at least weekly, placing them at risk of alcohol-related harm in the short-term weekly. Examining data across the three time-points in the Younger cohort, 0.3% of women were at risk of alcohol-related harm in the long term across all three time points, and 9.2% were at risk at one or two time points. The percentage of younger women at risk of alcohol-related harm in the short-term at least weekly was 3.4% at risk at all three time points and 24% at risk at one or two time points.

Discussion and Conclusions: This study indicates that there is a small percentage of women who maintain levels of alcohol consumption associated with increased risk of morbidity and mortality over time, but a much larger proportion of women that drink at hazardous levels sporadically during the life course. Prevention efforts may need to target transient high-risk alcohol consumers differently than consistently heavy alcohol consumers. Non-response bias and attrition may have caused the prevalence of both entrenched and episodic heavy consumption to be underestimated.

Duke J, Sibbritt D & Young A.
Is there an association between the use of oral contraception and depressive symptoms in young Australian women?
Contraception, 2007; 75: 27-31.

Purpose: The purpose of this study was to explore the relationship between oral contraceptive pill (OCP) use and the experience of depressive symptoms among a representative sample of young Australian women.

Methods: The study sample comes from the Australian Longitudinal Study on Women's Health. Analysis was confined to women in the youngest cohort who responded to Survey 2, which was conducted in 2000 (n =9688) when they were aged between 22 and 27 years, and to Survey 3, which was conducted in 2003 (n =9081) when they were aged between 25 and 30 years.

Results: After adjusting for potential confounders, the odds of a nonuser experiencing depressive symptoms is not significantly different from that of an OCP user [odds ratio=1.05; 95% confidence interval (95% CI)=0.90–1.21]. Women who used OCP for reasons other than contraception were 1.32 (95% CI=1.07–1.62) times as likely to be depressed than women who used OCP for contraception. The percentage of women who reported experiencing depressive symptoms declined as the number of years of OCP use increased (p=.009).

Conclusions: The results of this study suggest that, after adjusting for confounders, there is no independent effect of OCP use on depressive symptoms in young Australian women.

Everingham C, Stevenson D & Warner-Smith P.
'Things are getting better all the time'? Challenging the narrative of women's progress from a generational perspective.
Sociology, 2007; 41(3): 419-437.

This article addresses the dilemmas associated with continuing to interpret women's experience through the lens of a progress narrative that emerged to represent the aspirations of women during the peak of the women's movement. The central theme of this narrative is that gender will no longer act as a social constraint once women are recognized as workers as well as mothers. Drawing on the theoretical framework of Karl Mannheim and empirical data from in-depth interviews undertaken as part of a generational study of Australian women, the article argues that the progress narrative no longer inspires young women, who take gender equity for granted. Although motherhood continues to shape their working arrangements, the discourses

they use to make sense of the tensions involved are embedded in a new Zeitgeist which prioritizes 'choice', not 'equity'. The implications of this shift for the 'work-life balance' social policy agenda are then considered.

Everingham C, Warner-Smith P & Byles J.
Transforming retirement: Re-thinking models of retirement to accommodate the experiences of women.
Women's Studies International Forum, 2007; 30(6): 512-522.

Like other governments in the Western world, the Australian government is re-thinking its retirement policy in response to the ageing of the population. A 'transitional' model is being encouraged, which has the aim of extending the working life into the retirement period. This article unpacks the meaning of a transitional phase to women in different family and work situations. Drawing on a larger, Australian Research Council funded project, examining the shift in attitudes towards work and retirement in three generations of Australian women, three different models of retirement are developed which enable women's diverse pathways into retirement to be identified and compared, and policy options considered for enhancing women's transition to retirement. The models also highlight the different effects of workplace flexibility on different groups of women, exposing the economic vulnerability of single mothers.

Heesch K, Miller Y & Brown W.
Relationship between physical activity and stiff or painful joints in mid-aged and older women: A 3 year prospective study.
Arthritis Research and Therapy, 2007; 9(2): 1-13.

This prospective study examined the association between physical activity and the incidence of self-reported stiff or painful joints (SPJ) among mid-age women and older women over a 3- year period. Data were collected from cohorts of mid-age (48–55 years at Time 1; n = 4,780) and older women (72–79 years at Time 1; n = 3,970) who completed mailed surveys 3 years apart for the Australian Longitudinal Study on Women's Health. Physical activity was measured with the Active Australia questions and categorized based on metabolic equivalent value minutes per week: none (<40 MET.min/week); very low (40 to <300 MET.min/week); low (300 to <600 MET.min/week); moderate (600 to <1,200 MET.min/week); and high (1,200+ MET.min/week). Cohort-specific logistic regression models were used to examine the association between physical activity at Time 1 and SPJ 'sometimes or often' and separately 'often' at Time 2. Respondents reporting

SPJ 'sometimes or often' at Time 1 were excluded from analysis. In univariate models, the odds of reporting SPJ 'sometimes or often' were lower for mid-age respondents reporting low (odds ratio (OR) = 0.77, 95% confidence interval (CI) = 0.63–0.94), moderate (OR = 0.82, 95% CI = 0.68–0.99), and high (OR = 0.75, 95% CI = 0.62–0.90) physical activity levels and for older respondents who were moderately (OR = 0.80, 95% CI = 0.65–0.98) or highly active (OR = 0.83, 95% CI = 0.69–0.99) than for those who were sedentary. After adjustment for confounders, these associations were no longer statistically significant. The odds of reporting SPJ 'often' were lower for mid-age respondents who were moderately active (OR = 0.71, 95% CI = 0.52–0.97) than for sedentary respondents in univariate but not adjusted models. Older women in the low (OR = 0.72, 95% CI = 0.55–0.96), moderate (OR = 0.54, 95% CI = 0.39–0.76), and high (OR = 0.61, 95% CI = 0.46–0.82) physical activity categories had lower odds of reporting SPJ 'often' at Time 2 than their sedentary counterparts, even after adjustment for confounders. These results are the first to show a dose–response relationship between physical activity and arthritis symptoms in older women. They suggest that advice for older women not currently experiencing SPJ should routinely include counseling on the importance of physical activity for preventing the onset of these symptoms.

Kelaher M, Dunt D & Dodson S.
Unemployment, contraceptive behaviour and reproductive outcomes among young Australian women.
Health Policy, 2007; 82(1): 95-101.

Aims: To examine whether unemployment and partnership affects pregnancy, live births and terminations among young Australian women. Unemployment has conventionally been used in epidemiological studies to examine the health effects of loss of opportunity, material resources and satisfaction associated with work. During welfare reform in the 1990s it was argued that unemployment and associated welfare receipt could influence reproductive choice.

Design: As part of the Australian Longitudinal Study of Women's Health, information on employment, contraceptive use and pregnancy, live births and terminations was obtained at two time points. Information on partnership, age, parental education, and area economic resources was also obtained. The sample included 9683 women aged 18–23 years in 1996 (time 1) and 2000 (time 2).

Analysis: Logistic regressions were conducted to assess the relationship between unemployment and contraceptive use at time 1 and the impact of unemployment at time 1 on pregnancy, live births

and terminations at time 2. Analyses accounted for partnership, significant differences in contraception, age, parental education and area economic resources.

Results: Despite the absence of differences in overall rates of contraceptive use, rates of pregnancy and live births among young unemployed women were higher than rates among employed women. These differences became non-significant when differences in the need to use contraception and oral contraceptive use were taken into account. There were no differences in terminations due to unemployment overall but partnered unemployed women were more likely to have a termination than other women.

Conclusions: The study did not support the notion that being unemployed provided incentives for single motherhood. However excess terminations suggest that unemployment might provide disincentives to continuing pregnancies among partnered and unemployed women. More detailed examination of contraception and partnership may be key in unraveling inconsistencies in past research.

Lee C & Gramotnev H.
Transitions into and out of caregiving: Health and social characteristics of mid-age Australian women.
Psychology and Health, 2007; 22(2): 193-209.

Family caregiving is frequently associated with significant levels of physical, emotional and financial strain. This article examines the health effects of transitions into and out of caregiving in middle age. We conducted a secondary analysis of data from the Australian Longitudinal Study on Women's Health (ALSWH) to examine changes in caregiving status among middle-aged women over a 3-year period, and the correlates and outcomes of these changes. A total of 9,555 middle-aged Australian women were categorised according to caregiving status at two surveys 3 years apart, as Continuing (2.7%); Stopped (4.9%); Started (3.0%); and Never caregivers (89.4%). Analyses at each time point show poorer physical and emotional health, health service use, health behaviours and lower engagement in the paid workforce among all three caregiver groups, indicating that middle-aged women who are, have been, or will become family caregivers are in poorer health than women who do not have these roles. Middle-aged women in poor health tend to be selected into caregiving, probably because they are less engaged with the paid workforce. Poor health and disengagement from the paid workforce continue even when caregiving stops. Health care providers should be particularly conscious of the needs of middle-aged caregivers,

who are likely to be in poor health even before they take on the role.

Lee C & Gramotnev H.
Life Transitions and mental health in a national cohort of young Australian women.

Developmental Psychology, 2007; 43(4): 877-888.

Young adulthood, a time of major life transitions and risk of poor mental health, may affect emotional well-being throughout adult life. This article uses longitudinal survey data to examine young Australian women's transitions across 4 domains: residential independence, relationships, work and study, and motherhood. Changes over 3 years in health-related quality of life, optimism, depressive symptoms, stress, and life satisfaction, were examined in relation to these transitions among 7,619 young adult participants in the nationally representative Australian Longitudinal Study on Women's Health. Positive changes in mental health occurred for women moving into cohabitation and marriage, whereas reductions were observed among those experiencing marital separation or divorce and those taking on or remaining in traditionally "feminine" roles (out of the workforce, motherhood). The data suggest that women cope well with major life changes at this life stage, but reductions in psychological well-being are associated with some transitions. The findings suggest that preventive interventions to improve women's resilience and coping might target women undergoing these transitions and that social structures may not be providing sufficient support for women making traditional life choices.

Lucke J, Waters B, Hockey R, Spallek M, Gibson R, Byles J & Dobson A.
Trends in women's risk factors and chronic conditions: Findings from the Australian Longitudinal Study on Women's Health.

Women's Health, 2007; 3(4): 423-432.

Chronic diseases present a growing challenge to women's health. This paper presents data from the Australian Longitudinal Study on Women's Health to show prevalence and incidence among three cohorts of women of six chronic conditions: hypertension, heart disease, diabetes, asthma, osteoporosis and arthritis. It also examines the role of five important risk factors (body mass index, level of physical activity, smoking, alcohol consumption and level of education) on these chronic conditions. The most striking finding is that being overweight or obese is the most important risk factor for chronic disease for women in all three age groups.

McDermott L, Dobson A & Owen N.
Occasional tobacco use among young adult women: A longitudinal analysis of smoking transitions.

Tobacco Control, 2007; 16(4): 248-254.

Objective: To describe prospective transitions in smoking among young adult women who were occasional smokers, and the factors associated with these transitions, by comparing sociodemographic, lifestyle and psychosocial characteristics of those who changed from occasional smoking to daily smoking, non-daily smoking or non-smoking.

Design: Longitudinal study with mailed questionnaires.

Participants/setting: Women aged 18–23 years in 1996 were randomly selected from the Medicare Australia database, which provides the most complete list of people in Australia.

Main outcome measures: Self-reported smoking status at survey 1 (1996), survey 2 (2000) and survey 3 (2003), for 7510 participants who took part in all three surveys and who had complete data on smoking at survey 1.

Results: At survey 1, 28% (n = 2120) of all respondents reported smoking. Among the smokers, 39% (n = 829) were occasional smokers. Of these occasional smokers, 18% changed to daily smoking at survey 2 and remained daily smokers at survey 3; 12% reported non-daily smoking at surveys 2 and 3; 36% stopped smoking and remained non-smokers; and 33% moved between daily, non-daily and non-smoking over surveys 2 and 3. Over the whole 7-year period, approximately half stopped smoking, one-quarter changed to daily smoking and the remainder reported non-daily smoking. Multivariate analysis identified that a history of daily smoking for ≥6 months at baseline predicted reversion to daily smoking at follow-up. Being single and using illicit drugs were also associated with change to daily or non-daily smoking, whereas alcohol consumption was associated with non-daily smoking only. Compared with stopping smoking, the change to daily smoking was significantly associated with having intermediate educational qualifications. No significant associations with depression and perceived stress were observed in the multivariate analysis.

Conclusions: Interventions to reduce the prevalence of smoking among young women need to take account of occasional smokers, who made up 39% of all smokers in this study. Targeted interventions to prevent the escalation to daily smoking and to promote cessation should allow for the social context of smoking with alcohol and other drugs, and social and environmental influences in vocational education and occupational settings.

Mishra G, Carrigan G, Brown W, Barnett A & Dobson A.

Short-term weight change and the incidence of diabetes in midlife: Results from the Australian Longitudinal Study on Women's Health.

Diabetes Care, 2007; 30(6): 1418-1424.

Objective: Although there is consensus that excess adiposity is strongly associated with type 2 diabetes, its relationship with weight change is less clear. This study investigates the relative impact of BMI at baseline and short-term (2- or 3-year) weight changes on the incidence of diabetes.

Research Design and Methods: Prospective data were collected from a population-based cohort of middle-aged women participating in the Australian Longitudinal Study on Women's Health (n = 7,239 for this report). To date, participants have completed four mailed surveys (S1, 1996; S2, 1998; S3, 2001; and S4, 2004). Generalized estimating equations were used to model binary repeated-measures data to assess the impact of BMI at S1 and weight change (S1 to S2; S2 to S3) on 3-year incidence of diabetes at S3 and S4, respectively, adjusting for sociodemographic and lifestyle factors.

Results: BMI at S1 was strongly associated with the development of diabetes by S3 or S4. Compared with women who had a BMI <25 kg/[m.sup.2], those with BMI [greater than or equal to] 25 kg/[m.sup.2] had higher incidence of diabetes (P < 0.0001), with odd ratios reaching 12.1 (95% CI 7.6-19.3) for women in the very obese group (BMI [greater than or equal to] 35 kg/[m.sup.2]). There was no association between shorter-term weight gain or weight loss on first-reported diagnosis of diabetes (P = 0.08).

Conclusions: Because women's risk of developing type 2 diabetes in midlife is more closely related to their initial BMI (when aged 45-50 years) than to subsequent short-term weight change, public health initiatives should target the prevention of weight gain before and during early adulthood.

Parker G & Lee C.
Relationships among abuse characteristics, coping strategies, and abused women's psychological health: A path model.

Journal of Interpersonal Violence, 2007; 22(9): 1184-1198.

We examined relationships between abuse, coping, and psychological health among 143 women who had experienced abuse in adult relationships.

Measures included characteristics of the abuse, problem-focused and emotion-focused coping,

Sense of Coherence, and four measures of psychological wellbeing - the SF-36 Mental Component Scale, the General Health Questionnaire, Center for Epidemiologic Studies Depression scale, and a measure of perceived negative effects of the abuse. Problem-focused coping was not related to psychological health, and the influence of emotion-focused coping on psychological health was indirect. Sense of coherence had significant direct effects on psychological health. Both emotion-focused coping and sense of coherence were related to aspects of the abusive experience. The concept of sense of coherence has parallels with the recently proposed concept of meaning-focused coping, and the data suggest that finding meaning in adverse events such as abuse is associated with better psychological well-being.

Sibbritt D, Adams J & Young AF.
A profile of middle-aged women who consult a chiropractor or osteopath: Findings from a survey of 11,143 Australian women.

Journal of Manipulative and Physiological Therapeutics, 2006; 29(5): 349-353.

Purpose: The aim of this study is to examine the prevalence of chiropractic and osteopathy use and the profile of chiropractor/osteopath users among middle-aged Australian women.

Methods: This article reports on research conducted as part of the Australian Longitudinal Study on Women's Health. The focus of this article is the middle-aged women who responded to Survey 3 in 2001 when they were between the ages of 50 and 55 years. The demographic characteristics, health status, and health service use of chiropractic/osteopathy users and nonusers were compared using χ^2 tests for categorical variables and *t* tests for continuous variables.

Results: We estimate that 16% of middle-aged women consult with a chiropractor or osteopath (after adjustment for the oversampling of rural women). Area of residence, education, and employment status were all statistically significantly associated with chiropractic and osteopathy use. Specifically, women who live in nonurban areas were more likely to consult a chiropractor or osteopath, compared with women who live in urban areas. Women are significantly more likely to consult with a chiropractor/osteopath if they have had a major personal injury in the previous year, and women who use chiropractic/osteopathy are also high users of 'conventional' health services.

Conclusions: Chiropractic/osteopathy use among women in Australia is substantial and cannot be

ignored by those providing or managing primary health care services for women. It is essential that the interface and communication between chiropractors/osteopaths and other health care providers be highlighted and maximized to establish and maintain effective overall patient coordination and management.

Sibbritt D, Adams J & Young AF.
The characteristics of middle aged Australian women who consult acupuncturists.
Acupuncture in Medicine, 2007; 25(1-2): 22-28.

Background: Although an increase in the use of acupuncture in recent years has been identified, there are few studies that focus attention upon the characteristics of acupuncture users. This survey aimed at providing a first step towards addressing this significant research gap.

Methods: This study was conducted as part of the Australian Longitudinal Study on Women's Health, and examined the characteristics of acupuncture users among middle aged Australian women between 50 and 55 years old. Data were collected on demographic measures, health status and health service use.

Results: The paper reports on 11 202 middle aged women, surveyed in 2001. We estimate that 4.5% of middle aged women consult an acupuncturist. Women who consult an acupuncturist are less likely to be married or living in a de facto relationship, are more likely to have had a major personal illness in the previous year, to have suffered from a variety of symptoms or have significantly lower scores (ie poorer health) on all eight dimensions of the SF-36 health-related quality of life scale. Women who use acupuncture are also higher users of 'conventional' health services.

Conclusion: While the development of a research base and clinical applications for acupuncture are ongoing, health professionals should be aware that acupuncture is currently being used by large numbers of middle aged women. In addition, given the relatively higher prevalence of acupuncture use reported in our study, it is important that further research explores acupuncture use in more detail and the relationship between women's health issues and their use and experience of acupuncture.

Sibbritt D, Byles J & Cockrell D.
Prevalence and characteristics of older Australian women who consult dentists.
Australian Journal of Rural Health, 2007; 15(6): 387-388

No abstract.

Sibbritt D, Byles J & Regan C.
Factors associated with decline in physical functional health in a cohort of older women.
Age & Ageing, 2007; 36(4): 382-388.

Objective: To identify minimum criteria to assist the prediction of decline in physical health-related quality of life in the elderly.

Study Design and Setting: Participants were women from the Australian Longitudinal Study on Women's Health, who responded to three separate Surveys conducted in 1996 (when they were aged 70–75 years), 1999 and 2002. Using data from these Surveys, three categories were generated which described current physical health-related quality of life and future physical decline as measured by the physical component summary score (PCS) of the MOS SF-36 quality of life survey.

Results: Bivariate analyses reported a large number of variables significantly associated with physical decline ($P < 0.001$), including age, falls, number of diagnoses, symptoms, doctor visits and medications, days spent in hospital, body mass index, living arrangements and social support. Multivariate analyses, using decision tree analysis, identified three items which accurately predicted 76% of the women who would exhibit physical decline according to our definition.

Conclusions: This study identified a number of variables that may be useful in clinical screening for vulnerability to physical decline.

Taft A & Watson L.
Termination of pregnancy: Associations with partner violence and other factors in a national cohort of young Australian women.
Australian and New Zealand Journal of Public Health, 2007; 31(2): 135-142.

Objective: To examine the associations between termination and other reproductive events, socio-demographic characteristics and experience of violence among a community-based national sample of young Australian women.

Methods: Using multiple logistic regression, we analysed data from the Younger cohort of the Australian Longitudinal Study on Women's Health comprising 14,776 young women aged 18-23

in survey 1 (1996), of whom 9,683 aged 22-27 also responded to survey 2 (2000). We stratified respondents into those aged below 20 and those who were older at survey 1. We compared the characteristics associated with terminations among teenage women in 1996 (survey 1) with those of women aged over 20 in 1996 who had not then reported a termination and who responded to survey 2 in 2000. Finally, we compared the characteristics of women reporting terminations, births, preterm births and miscarriages.

Results: Women reporting teenage terminations were more likely to be in a de facto relationship (OR=1.94, 95% CI 1.17-3.21), less well educated (OR=2.32, 95% CI 1.44-3.74), have no private health insurance, and be a victim of partner violence (OR=3.11, 95% CI 1.76-5.49). Women reporting later terminations were also more likely to be abused by a partner (OR=3.52, 95% CI 2.14-5.81). The relationship with violence held for the other reproductive events.

Conclusion and Implications: Partner violence is a strong predictor of termination and other reproductive outcomes among young Australian women. Education has a protective effect. Prevention and reduction of partner violence may reduce the rate of unwanted pregnancy.

Vos T, Astbury J, Piers L, Magnus A, Heenan M, Stanley L, Walker L & Webster K.

Measuring the impact of intimate partner violence on the health of women in Victoria, Australia.

Bulletin of the World Health Organization, 2006; 84(9): 739-744.

Objective: Using burden of disease methodology, estimate the health risks of intimate partner violence (IPV) among women in Victoria, Australia.

Methods: We calculated population attributable fractions (from survey data on the prevalence of IPV and the relative risks of associated health problems in Australia) and determined health outcomes by applying them to disability-adjusted life year estimates for the relevant disease and injury categories for Victoria, Australia for 2001.

Findings: For women of all ages IPV accounted for 2.9% (95% uncertainty interval 2.4-3.4%) of the total disease and injury burden. Among women 18-44 years of age, IPV was associated with 7.9% (95% uncertainty interval 6.4-9.5%) of the overall disease burden and was a larger risk to health than risk factors traditionally included in burden of disease studies, such as raised blood pressure, tobacco use and increased body weight. Poor mental health contributed 73% and substance abuse 22% to the

disease burden attributed to IPV.

Conclusion: Our findings suggest that IPV constitutes a significant risk to women's health. Mental health policy-makers and health workers treating common mental health problems need to be aware that IPV is an important risk factor. Future research should concentrate on evaluating effective interventions to prevent women being exposed to violence, and identifying the most appropriate mental health care for victims to reduce short- and long- term disability.

Watson L, Taft A & Lee C. Associations of self-reported violence with age at menarche, first intercourse and first birth among a national population sample of young Australian women.

Women's Health Issues, 2007; 17(5): 281-289.

Objectives: This paper estimates the relation between women's experience of violence and the age of menarche, first sexual intercourse, and first birth.

Methods: The data are from the Younger Cohort of the Australian Longitudinal Study on Women's Health, which includes 9,683 women, aged between 22 and 27 years in 2000, who responded to surveys in both 1996 and 2000.

Results: In 1996, 9% of women reported current or previous partner violence and a further 5% reported it in 2000. Similarly, 11% and 8% reported recent nonpartner violence. Fifteen percent of the women reported first intercourse at <16 years. Early first intercourse was strongly associated with partner violence whereas young age at menarche and teenage birth were only associated with partner violence reported when women were <24 years old. Reported partner and recent nonpartner violence, when prevalent in 1996 or when occurring between 1996 and 2000, were consistently associated with early age at first intercourse; the earlier that age, the stronger the association. Women reporting intercourse before 14 years were the most likely to report partner violence, with odds ratios between 7 and 14 when compared with first intercourse reported by young women ≥17 years.

Conclusions: These data clearly demonstrate a nexus between early intercourse and reported violence and add to the evidence of risks associated with early sexual initiation. These findings substantiate the need to prevent or reduce rates of early sexual abuse, to protect very young women from sexual exposure and to assist and support young women in their sexual decision making. We need to identify young women who have already

experienced abuse or violence and undertake therapeutic interventions to prevent further victimization.

Williams L, Germov J & Young A. Preventing weight gain: A population cohort study of the nature and effectiveness of mid-age women's weight control practices.

International Journal of Obesity, 2007; 31: 978-986.

Objective: To examine women's weight control practices and their effectiveness in preventing weight gain.

Design: Retrospective cohort study of weight control practices and 2-year weight change among mid-age women participating in the Australian Longitudinal Study on Women's Health (ALSWH).

Subjects: 11 589 Australian women (aged 47–52 years).

Measurements: The prevalence and types of self-reported weight control practices used were assessed by a nine-item instrument. Two-year weight change was self-reported and adjusted for baseline body mass index (BMI) and other potential confounders.

Results: Seventy-four per cent of the cohort (N=8556) reported actively trying to control their weight. Dietary modification was used more frequently than exercise. Two-thirds of the weight-controlling women used a combination of practices, the two most common being 'decreased food quantity, cut down on fats/sugars and exercise' (32%, baseline BMI 25.87(0.10)), and 'decreased food quantity and cut down on fats/sugars without exercise' (15.6%, baseline BMI 27.04(0.14)). Potentially health damaging practices (smoking, laxatives, fasting) were relatively uncommon, at 7.9%. Only one combination of practices (decreased food quantity, cut down on fats/sugars, use of a commercial weight loss programme and exercise) prevented mean weight gain (-0.03 kg), whereas the mean (s.d.) weight of the cohort increased (+1.19(4.78)) over the 2-year period.

Conclusions: The majority of mid-age women attempting weight control used practices consistent with public health messages. Despite their efforts, the group was mostly unsuccessful in preventing weight gain. Public health authorities and health practitioners may need to make more quantitative recommendations and emphasize the importance of balancing physical activity with dietary intake to achieve successful weight control for women at this life stage.

Yorkston E, Russell A & Turner C. Longitudinal predictors of changes to illicit drug use among young Australian women.

Addiction, 2007; 102(11): 1798-1803.

Aim: Much information regarding predictors of illicit drug initiation and cessation is drawn from cross-sectional data. This paper aims to determine the longitudinal changes in factors associated with initiation and cessation of illicit drugs by young Australian women over a 3-year period.

Participants: The sample was the cohort of young women moving from their mid- to late 20s, completing the Australian Longitudinal Study on Women's Health (ALSWH) survey in 2000 and 2003, who were either 'new' users or 'quitters' at the 2003 survey.

Measurements: Crude and multivariate associations between changes in predictor variables and the probability of illicit drug initiation or cessation were evaluated. Variables significant in univariate analyses were used to create multivariable logistic regression models which predicted initiation and cessation of illicit drugs.

Findings: All categories of smokers, except ex-smokers and those who adopted and quit smoking between surveys, were less likely to cease the use of illicit drugs. Women who became pregnant were more likely to cease illicit drug use. Women who continued to drink at levels described as long-/short-term risk and women who suffered continuing emotional abuse were less likely to cease use of illicit drugs.

Conclusions: Longitudinal studies that examine factors associated with illicit drug initiation are best conducted in a cohort aged in their late teens to early 20s. Following the current cohort into their late 30s may further explain predictors of illicit drug cessation.

Conference Proceedings

Byles J, Gibson R, Parkinson L & Dobson A. Driving myself: Main forms of transport among older women in rural and remote Australia.

Intouch, Outback (http://9thnrc.ruralhealth.org.au/program/docs/papers/byles_a5.pdf)

Transport is a major concern for older people. For many, driving is not only a means of transport, but also a means of independence and identity. Moreover, alternative forms of transport may not

be acceptable because of difficulties with physical access, availability, convenience or cost. These problems are particularly true in rural areas where subsidised public transport is less frequently available. Among older women in the Australian Longitudinal Study on Women's Health, driving is the major form of transport, especially for those in rural and remote areas. In this paper we will describe the trends in the proportion of women who drive themselves as their main means of transport, what factors are associated with giving up driving, and what alternative transport means older women adopt.

Hure A, Young A, Smith R & Collins C.
Is diet quality higher during pregnancy?
Journal of Paediatrics and Child Health,
 2007, 43(Suppl 1): A43-A44.

Background: Data on the foods and beverages Australian women consume during pregnancy is lacking due to poor representation in National Nutrition Surveys and the shortage of dietary data collected in large epidemiological studies.

Aim: To investigate the diet quality of young Australian women according to pregnancy status, defined as: pregnant, actively trying to conceive, given birth in the previous 12 months, or other/non-pregnant.

Methods: Data collected in 2003 from a nationally representative cross-section of 9,118 women aged 25 to 30 years, who participated in Survey 3 of the Australian Longitudinal Study on Women's Health, were analysed. Diet quality was calculated according to the Australian Recommended Food Score (ARFS) methodology, which generates a summative score based on responses to the Dietary Questionnaire for Epidemiological Studies (1). The maximum ARFS is 72.

Results: A statistically higher mean ARFS was detected for pregnant women and those reporting a birth in the previous 12 months compared to other / non-pregnant women (respective means (95% CI): 29.5 (28.8-30.2); 29.5 (28.9-30.1); 28.4 (28.2-28.7)). The mean ARFS for those trying to conceive and all other groups did not differ.

Conclusions: The large number of subjects within each group provided substantial power to detect even small differences, and yet only minor variations in the nutritional intake of pregnant women compared to their non-pregnant controls were observed. This suggests that Australian women make little adjustment to their diets when pregnant, although recent research indicates that nutrition in pregnancy can influence the timing of birth and the future health of the offspring.

(1) Collins C, Hodge A, Young A. Are you what you eat? Associations between diet quality and health utilisation in mid-aged women from the Australian Longitudinal Study of Women's Health. 23rd National DAA Conference, Perth, 2005.

Young A, Byles J, Lowe J & Dolja-Gore X.
Health care for women with diabetes living in rural areas.
Intouch, Outback (http://9thnrrc.ruralhealth.org.au/program/docs/papers/young_a5_1.pdf)

The provision of equitable access to effective and appropriate health services for people with chronic disease in rural and remote areas is essential. A number of Medicare initiatives have been introduced in recent years to improve the care of people with chronic disease such as diabetes. This paper aims to evaluate the access to quality diabetes care for women living in rural and remote areas across Australia. The Australian Longitudinal Study on Women's Health provides an opportunity to describe the patterns of care provided to women with diabetes and to assess whether the uptake of new treatment and care initiatives has been equitable. Longitudinal self-reported survey data collected since 1996 from a random sample of more than 40 000 women about doctor diagnosed medical conditions, linked with Medicare and Pharmaceutical Benefits Scheme claims data, were used to classify women as having diabetes. The empirical data are supplemented by self-reported access to health care services such as hospitals, specialists, bulk billing and after hours care and also qualitative data from the women. Almost 7000 women aged 79–84 years completed their 4th survey for the study in 2005, including 3809 older women living in rural and remote areas of Australia. The prevalence of diabetes among women in the older cohort was 8% in 1996 when they were aged 70–75 years. By 2005 the prevalence of diabetes among these older women was 15% in Major Cities, 16% in Inner Regional areas, 18% in Outer Regional areas and 19% in Remote/Very Remote areas. This paper will discuss the geographic equity in the health and health service use for these women over time.

Young A & Dolja-Gore X.
Access to health services for mid-aged women in rural Australia: Evidence of improvement?
Intouch, Outback (http://9thnrrc.ruralhealth.org.au/program/docs/papers/young_A5_2.pdf)

There have been several government initiatives in recent years aimed at improving access to health care services for people living in rural and remote areas of Australia. The Australian

Longitudinal Study on Women's Health provides an opportunity to examine whether there is evidence of an improvement in access to health services. Survey data covering a range of health, social and demographic factors have been collected since 1996 from a random sample of more than 40 000 women across Australia in three age groups. More than half of the women surveyed live in rural areas.

The focus of this paper is the cohort of mid-age women in the study, who were aged 47–52 years at Survey 2 in 1998, 50–55 years at Survey 3 in 2001 and 53–58 years by Survey 4 in 2004. Among other matters, the study examined self-reported access to a range of services including hospitals, specialists, after-hours care, female GPs and bulk billed Medicare services. To ensure comparability over time, only women who resided in the same remoteness classification for the whole six-year period were included in the analysis.

The analysis included data for 2935 mid-age women living in 'Major Cities' of Australia, 3331 women in 'Inner Regional' areas, 1675 women in 'Outer Regional' areas and 307 women in 'Remote/Very Remote' areas. As expected, for all types of health services, the women in more remote areas returned lower ratings of their access to services than women in Major Cities and Inner Regional areas. However there were some improvements in access to services for non-urban women over the six-year period. For example, the percentage of women in Outer Regional areas who rated their access to a female GP as "excellent", "very good" or "good" rose from 52% in 1998 to 58% in 2004 (whereas the percentage for women in Major Cities remained stable at 73%). Access to a GP who bulk bills fell in Major Cities over the six-year period (71% to 44%) but remained relatively stable, although lower, in Remote areas (43% to 39%). The longitudinal study is well placed to monitor the effectiveness of new programs aimed at improving the access to health care services of women living in regional and remote areas of Australia.

In press

Bell S & Lee C.

Transitions in emerging adulthood and stress among young Australian women.
International Journal of Behavioral Medicine, in press.

The life stage of emerging adulthood involves major transitions in social roles, which have been theorized to be associated with elevated levels of stress. This paper examines the relationship of stress to the occupancy of adolescent and adult

roles, and to transitions into and out of roles, in four major life domains - residential independence from family of origin, employment status, relationship status, and motherhood status – in a cohort of women who are in the process of making the transitions of young adulthood. A sample of 8,749 young women participating in the Australian Longitudinal Study on Women's Health provided data at Survey 1, when aged 18-23, and Survey 2, when aged 22-27. Significant relationships were found between stress and positions on all life domains, both individually and in combination, and both cross-sectionally and longitudinally. Contrary to expectation, the data indicate that major life transitions in this age group are associated with low levels of stress and with an absence of increasing stress over time. Cross-sectionally, living independently, not being a student, being married, and being a mother were associated with the lowest levels of stress. Normative, "forward" transitions such as moving out of home, moving from studying to work, or becoming a mother, were associated with no increase in stress, while marrying was associated with a significant decrease in stress. Transitions associated with increases in stress fell into three categories: "backward" transitions to more adolescent statuses, remaining in adolescent statuses, and transitions which represented having already achieved the most adult status at an early age. The data suggest that high levels of stress during this transition are associated, not with normative changes, but with reverse changes, delays in changing, or changing earlier than one's peers – in other words, making "off-time" transitions. Thus, this analysis of a large and representative sample of young Australian women suggest that normative transitions in young adulthood, although involving considerable change, are not associated with high levels of stress.

Clemens S & Matthews S.
Comparison of a food-frequency questionnaire method and a quantity-frequency method to classify risky alcohol consumption in women.
Alcohol & Alcoholism, in press.

Aims: Population surveys use a variety of methods to collect data on alcohol consumption. Comparability of results across methods is a prime consideration. Different methods have been demonstrated to be robust in terms of ranking individuals' alcohol use, while results have been mixed regarding comparability in terms of volume of consumption. In Australia, evidence-based guidelines have been developed that identify critical thresholds of consumption that are associated with increased risk of alcohol related morbidity.

This study investigated whether the identification of individuals consuming alcohol above these thresholds was consistent across two methods used to collect data on consumption.

Methods: The Australian Longitudinal Study of Women's Health (ALSWH) incorporated both a quantity-frequency (QF) method and a food-frequency questionnaire (FFQ) to collect data on alcohol consumption. Comparisons were made between these two methods on the ability to classify women consuming alcohol as risky (between 176 and 350 ml of pure alcohol weekly) and at high risk (greater than 350 ml of pure alcohol weekly) levels.

Results: The ranking of individuals was robust across methods. However, concordance in identifying risky/high-risk drinkers varied considerably based on the assumptions underlying the different methods used to calculate drinking volume using the FFQ. Similarly, the sensitivity and specificity of the FFQ methods compared to QF in terms of identifying risky/high-risk consumers were high but variable.

Conclusions: This study indicated that the proportion of respondents exceeding consumption thresholds was sensitive to the instrument used to collect data on alcohol intake. Quantifying such differences is important when making comparisons between surveys that use different methodologies.

Collins C, Young A & Hodge A.
Diet quality is associated with higher nutrition intake and self-rated health in mid-aged women.
Journal of the American College of Nutrition, in press.

Objective: To develop a diet quality score reflecting adherence to national dietary recommendations for the Australian Longitudinal Study on Women's Health (ALSWH) and to compare this against energy standardized nutrient intakes and indices of health.

Design: Cross-sectional survey in a nationally representative sample of mid-aged women participating in a cohort study.

Subjects: Data from 9,895 women aged 50-55 who participated in the 2001 survey and had four or less missing values on their food frequency questionnaires were used to calculate the Australian Recommended Food Score (ARFS) based on adherence to Australian Dietary Guidelines.

Measure of outcome: Correlates of ARFS were investigated including, mean nutrient intakes and indices of self-rated health and health service use. Associations were examined using ANOVA for continuous variables and Chi-squared tests

for categorical variables. Area of residence and educational attainment were used as covariates in all modeling, to adjust for sampling frame and socioeconomic status.

Results: The maximum ARFS was 74, with a mean of 33.0 ± 9.0 and 21% achieving a score > 40. Higher ARFS was associated with indicators of higher socio-economic status, better self-rated health and lower health service use, $p < 0.0001$, higher intakes of micronutrients and lower percentage of energy as total or saturated fat, $p < 0.0001$.

Conclusions: The Australian Recommended Food Score can be used to rank mid-aged women in terms of diet quality and nutrient intake and is associated with indices of self-rated health and health service use. The ARFS can be used to measure future associations with health outcomes and mortality.

Ford J, Spallek M & Dobson A.
Self rated health and healthy lifestyle are the most important predictors of survival in elderly women.
Age and Ageing, in press.

Objective: To test the hypothesis that morbidity and health related behavioural factors are stronger than social factors as predictors of death among older women.

Methods: We used data from 12,422 participants in the Australian Longitudinal Study on Women's Health who were aged 70-75 in 1996. Proportional hazards models of survival up to 31 October 2005 were fitted separately for the whole cohort and those women who were initially in 'good health'.

Results: Among the whole cohort, 18.7% died during the follow up period. The strongest predictor of death was 'poor' or 'fair' self-rated health (with 52.3% and 28.0%, respectively, of women in these categories dying). Among the women in 'good health' at baseline 11.5% died, with current cigarette smoking (hazard ratio HR = 2.19, 95% confidence interval (1.71, 2.81), physical inactivity (HR = 1.45 (1.17, 1.81)), and age (HR = 1.10 (1.04, 1.16) per year) as statistically significant predictors of death.

Discussion: Among older women, current health and health related behaviours are stronger predictors than social factors of relatively early mortality. Adopting a healthier lifestyle, by doing more exercise and not smoking, is beneficial even in old age.

Graham M, James EL, Keleher H & Byles J. Predictors of hysterectomy as a treatment for menstrual symptoms. *Women's Health Issues*, in press.

Background: Hysterectomy is a common procedure in Australia with approximately one in five Australian women undergoing a hysterectomy by the age of 50 for indications such as fibroids, disorders of menstruation (including excessive or irregular menstrual bleeding) and endometriosis. However, little is known about the characteristics of women who have had the procedure, or the predictors of hysterectomy as a treatment for menstrual symptoms. This study of middle-aged Australian women suffering from menstrual symptoms, aimed to identify the health and demographic characteristics that predict hysterectomy for the treatment of these problems.

Methods: A cross-sectional and a prospective cohort study were undertaken as a sub-study of the Australian Longitudinal Study on Women's Health (Women's Health Australia). Women from the mid-aged cohort of the Women's Health Australia study who identified having menstrual problems in the 1996 and 1998 surveys or who had undergone a hysterectomy during that time, were recruited. A self-administered instrument was mailed to the women in 2000. Data were analysed using Backwards Logistic Regression to predict hysterectomy as a treatment for menstrual symptoms.

Results: The predictors of hysterectomy as a treatment for menstrual symptoms were varied. They included the number of menstrual symptoms experienced or conditions diagnosed (such as fibroids or excessive menstrual bleeding), a perception that there was information available about menstrual symptoms, being influenced in the decision making process to elect a treatment option, and dissatisfaction with the other treatments tried prior to hysterectomy.

Conclusions: The lack of information about alternatives to hysterectomy is of concern. Alternatives are available and should be offered in the context of information provision about relief of menstrual symptoms, prior to definitive options such as hysterectomy. The lack of knowledge among health professionals about effective treatments for menstrual symptoms may contribute to their role in influencing women's decision-making process to elect.

Heesch K, Byles J & Brown W. Prospective association between physical activity and falls in community-dwelling older women. *Journal of Epidemiology and Community Health*, in press.

Objective: To explore associations between physical activity and risk of falls and fractured bones in community-dwelling older women.

Method: This was a prospective observational survey with 3- and 6-year follow-ups. The sample included 8188 healthy, community-dwelling women, aged 70-75 years in 1996, who completed surveys as participants in the Australian Longitudinal Study on Women's Health. Women who reported a recent serious injury from falling were excluded. Outcomes were reports of a fall to the ground, injury from a fall, and a fractured bone in 1999 and 2002. The main predictor variable was physical activity level in 1996, categorized based on weekly frequency as none/very low, low, moderate, high, and very high. Covariates were demographic and health-related variables. Logistic regression models were computed separately for each outcome in 1999 and 2002.

Results: In multivariable models, very high physical activity was associated with decreased risk of reporting a fall in 1999 (odds ratio 0.67, 95% CI 0.47 to 0.95) and in 2002 (odds ratio 0.64, 95% CI 0.43 to 0.96). High/very high physical activity was associated with decreased risk of a fractured bone in 2002 (odds ratio 0.53, 95% CI 0.34 to 0.83). No significant association was found between physical activity and injury from a fall.

Conclusions: The results suggest that at least daily moderate- to vigorous-intensity physical activity is required for the primary prevention of falls to the ground and fractured bones in women aged 70-75 years.

Koloski N, Smith N, Pachana N & Dobson A. Performance of the Goldberg Anxiety and Depression Scale in older women. *Age and Ageing*, in press.

No abstract available.

Lowe J, Young A & Dolja-Gore X. Cost of medications for older women. *Australian and New Zealand Journal of Public Health*, in press.

With chronic diseases such as diabetes on the increase the uptake of medications are required for patients to maintain a quality of life, these costs are unfairly incurred by older women. The mean co-payment medication costs to older women

increased by \$25.60 for women without diabetes and \$29.75 for women with diabetes giving an 18% increase between 2004 and 2005 compared to aged pensions which had a 3% CPI increase.

Powers J & Young A.
Longitudinal analysis of alcohol consumption and health of middle-aged women in Australia.

Addiction, in press.

Aims: To assess the prospective association between alcohol consumption and self-rated health. In particular whether there is a relationship between stable alcohol intake and health; whether health is affected by changes in alcohol consumption; whether having a chronic condition alters the relationships between stable and changing alcohol intake and health; and whether the health of longer-term abstainers is different from more recent and intermittent abstainers.

Design: Longitudinal analysis of a prospective, population-based study.

Setting: Australia.

Participants: 13585 randomly selected 45-50 year old women surveyed in 1996, of whom 9396 (69%) were resurveyed in 1998, 2001 and 2004.

Measurements: Estimates for the General Health subscale of the SF-36 for different levels of alcohol intake adjusted for having a chronic condition, depression, smoking and other factors.

Findings: Longitudinal models of consistent alcohol intake showed mean scores for General Health of moderate drinkers were significantly better than that of non-drinkers (mean difference=4.3 SE=0.61), occasional drinkers (mean difference=3.1 SE=0.52), and heavy drinkers (mean difference=2.1 SE=1.00). Among moderate drinkers, a decrease or variation in alcohol consumption was associated with a significant decline of three to four points in General Health. Similar results were obtained when women with an existing chronic condition were excluded from these models. The health of recent abstainers and intermittent drinkers was the same as longer-term abstainers.

Conclusions: Consistent moderate drinkers had the best health even after adjustment for having a chronic condition, depression and lifestyle factors. Poorer health was associated with decreased alcohol intake among occasional and moderate drinkers.

Rowlands I & Lee C.

Correlates of miscarriage among young women in the Australian Longitudinal Study on Women's Health.

Journal of Reproductive and Infant Psychology, in press.

While evidence suggests that miscarrying women experience poor mental health, the research is limited and comparison groups are frequently unrepresentative or lacking altogether. The current study examined the health and wellbeing of miscarrying women in relation to their peers by comparing them on selected relevant sociodemographic, gynaecological, psychological and health behaviour variables. Survey 3 of the Younger cohort of the nationally representative Australian Longitudinal Study on Women's Health was used to identify 998 women aged 24-31 who reported ever having had a miscarriage, and 8083 women who reported never having had a miscarriage. Although univariate analyses indicated that women who had had miscarriages experienced poorer mental health, multivariate analysis indicated that these effects were explained by sociodemographic and lifestyle differences. Stepwise logistic regression showed that miscarrying women were more likely to be married, to have had a child, to be current or ex smokers and to be not using contraception, to have lower levels of education; and to be of low socio-economic status. These results indicate that the strongest correlates of miscarriage among young women are those associated with preparing for, or experiencing, motherhood, and it may be that these factors rather than the miscarriage itself explain any excess of mental health problems in this population.

Schofield M & Khan A.

Australian women who seek counselling: Psychosocial, health behaviour and demographic profiles.

Counselling and Psychotherapy Research, in press.

Despite high rates of psychological distress in the Australian community, particularly among middle-aged women, use of counselling and psychological services is relatively low. This study examined self-reported use of counselling in the past year among a population-based sample of 11,201 Australian women aged 50-55, and describes the profile of women who seek counselling. Using multivariate analyses to control confounding, women who had consulted a Counsellor/Psychologist/Social Worker in the last year (6.9%) were found to have an increased odds of higher stress, life satisfaction and perceived control, and lower optimism. They also had higher odds of experiencing more life events

over the past 12 months, changed health status compared with a year ago, taking more prescribed medications, living in urban versus rural areas, having university vs no formal education, living alone or with others rather than spouse/partner, and have ancillary versus full private health insurance. This multivariate profile is discussed in relation to the delivery, marketing and accessibility of counselling services in the Australian community. The implications for counsellor training and the future development of the profession are also discussed.

Smith M, Russell A & Hodges P.
How common is back pain in women with gastrointestinal problems?
Clinical Journal of Pain, in press.

Objective: This study examined the relationship between back pain and gastrointestinal symptoms in a large scale population study with consideration of possible confounding factors.

Methods: Cross-sectional analysis of survey data from the Australian Longitudinal Study on Women's Health was conducted using multinomial logistic regression to model four frequencies of back pain in relation to number of gastrointestinal symptoms (including constipation, haemorrhoids and other bowel problems). A total of 38,050 women from three age-cohorts were included in analysis.

Results: After adjustment for confounding factors, the number of gastrointestinal symptoms was significantly associated with back pain among all age cohorts. Odds ratios for experiencing back pain "rarely", "sometimes" and "often" increased with the number of gastrointestinal symptoms. Young, mid-age and older women who experience two or three gastrointestinal symptoms had adjusted odds ratios of 3.3 (2.5-4.4), 3.0 (2.5-3.7) and 2.8 (2.3-3.4) respectively for "often" having back pain.

Discussion: This study has identified a strong association between back pain and gastrointestinal symptoms in women. Possible factors that may account for this relationship include referred pain through viscerosomatic convergence, altered pain perception, increased spinal loading when straining during defecation, or reduced support of the abdominal contents and spine secondary to changes in function of the abdominal muscles.

Smith M, Russell A & Hodges P.
Is there a relationship between parity, pregnancy, back pain and incontinence?
International Urogynecology Journal, in press.

The aims of this study were to compare prevalence

of back pain in parous, nulliparous, pregnant and non-pregnant women and to determine whether there is an association between incontinence and back pain in pregnant women. Associations between back pain, pregnancy, parity and incontinence were assessed in 14,779 younger and 14,099 mid-age women using chi-squared analysis. The odds of back pain were modelled with multinomial logistic regression. Back pain was more frequent in parous than nulliparous ($p < 0.001$) and pregnant than non-pregnant ($p < 0.001$) younger women. However, no associations were seen for mid-aged women. Pregnant women who had incontinence had increased odds ratios for 'often' and 'rarely or sometimes' having back pain (8.5 and 3.8, respectively). This study suggests that pregnancy may lead to earlier development of back pain, without affecting long-term prevalence. Incontinence and back pain may be related because of contribution of the trunk muscles to continence and lumbopelvic control.

Tooth L, Hockey R, Byles J & Dobson A.
Weighted multi-morbidity indexes predict mortality, health service use and health-related quality of life in older women.
Journal of Clinical Epidemiology, in press.

Objective: To develop indexes of multi-morbidity, based on self-reported data, to predict mortality, health service use, help with activities of daily living (ADL) and health-related quality of life (HRQOL) in older women.

Study design and setting: Cross sectional survey of 10,434 women, aged from 73-78, in the Australian Longitudinal Study of Women's Health in 1999, with mortality follow-up to 2005. For analysis, the sample was equally split into a development and validation sample. Weighted and unweighted multi-morbidity indexes were developed and tested.

Results: Outcomes ranged from 14% for mortality to 47% for specialist doctor visits. Mortality was predicted by heart disease, stroke, low iron, diabetes, cancer (non-skin), bronchitis/emphysema and Alzheimer's disease. Different patterns of morbidities were associated with the other outcomes. Weighted and unweighted multi-morbidity index scores were linearly related to increasing risk of each outcome. For each outcome, the weighted scores fitted the data better and had a wider range of possible values.

Conclusion: These multi-morbidity indexes predict mortality, health service use, help with ADL, and HRQOL in older women. The indexes could be used as covariates in research with weighted scores having a better chance of discriminating between patient groups than unweighted scores.

Tooth L, Russell A, Lucke J, Byrne G, Lee C, Wilson A & Dobson A.
Impact of cognitive and physical impairment on carer burden and quality of life.

Quality of Life Research, in press.

Background and purpose: How the cognitive and/or physical impairment experienced by care recipients impacts on their carers is not well understood. This study investigated the effect of type of impairment of care recipients on the level of burden and quality of life (QOL) of elderly Australian carers.

Methods: A nested cross-sectional substudy of 276 older women (aged 78-83 years) enrolled in the Australian Longitudinal Study on Women's Health, who indicated they were providing care for someone living with them.

Results: In this nationally representative sample of elderly women carers, 60% were looking after people (predominantly their husbands) who had both cognitive and physical impairments. Carers of people with both types of impairments had higher scores for objective burden of caring than those caring for people with either type of impairment alone. In contrast, scores for limitations on their own lives were higher among women caring for people with cognitive impairments (with or without physical impairments).

Conclusions: The majority of elderly women who are caring for someone else are likely to suffer multifaceted burdens of caring.

van Poppel M & Brown W.
"It's my hormones doctor" – Does physical activity help with menopausal symptoms?

Menopause, in press.

Background: Many women experience health problems when going through menopause, and these health problems may result in a substantial reduction in quality of life. There are some indications that physical activity may play a role in ameliorating menopausal symptoms, but there is conflicting evidence about this.

Objective: To assess the relationship between changes in physical activity and self-reported vasomotor, somatic and psychological symptoms.

Design: Data from the third (2001) and fourth (2004) surveys of the Australian Longitudinal Study on Women's Health (ALSWH) were used. Data from 3,330 mid-age women were included in the analyses. In linear regression models, the relationship between changes in physical activity of at least moderate intensity and total menopausal symptoms, vasomotor, somatic and psychological

symptoms was determined.

Results: Physical activity was not associated with total menopausal symptoms, nor with vasomotor or psychological symptoms. A weak association with somatic symptoms ($B = -0.003$; 95% CI: $-0.005 - -0.001$) was found. Weight gain was associated with increased total, vasomotor and somatic symptoms. Weight loss was associated with a reduction in total and vasomotor symptoms.

Conclusion: Changes in physical activity were not related to vasomotor or psychological symptoms, and only marginally to somatic symptoms. Changes in weight showed a stronger relationship with menopausal symptoms. Relationships between weight change and menopausal symptoms merit further exploration.

Conference Presentations

Brown P, Cerin E & Warner-Smith P.

The 'work/life tensions' project: A perspective on how dual-earner parents experience time in Australia.

Invited presentation to the Eleventh International Congress on Family Education, Coimbra University, 11-14 April 2007, and the Family, Work and Personnel Dynamics Symposium, Porto University, 16 April 2007.

Brown P, Cerin E & Warner-Smith P.

Happiness under pressure: How dual-earner parents experience time in Australia.

Third International Conference on Gross National Happiness, Bangkok, Thailand, 26 - 28 November, 2007.

Brown WJ.

Physical activity data, trends, and their implications.

2007 Active Living Congress, Perth, WA, 21 - 23 March 2007.

Brown WJ.

Trends and changes in physical activity and weight data from the Australian Longitudinal Study of Women's Health.

Invited keynote speaker, at the Ngahuru National Nutrition and Physical Activity Public Health Conference, Rotorua, New Zealand, 23 - 25 May 2007.

Brown WJ.

Trends and changes in physical activity in three cohorts of Australian women 1996-2006. What do prospective data tell us that surveillance data do not?

Sixth National Physical Activity Conference, Adelaide, SA, 13 - 16 October 2007.

Brown WJ.

The relationship between changes in physical activity and changes in weight: lessons from the Australian Longitudinal Study on Women's Health.

Invited presentation to the Fifteenth Annual Scientific Meeting of the Australian Society for the Study of Obesity, Canberra, ACT, 31 August - 2 September 2007.

Brown WJ, Miller YD & Trost S.

Life events and physical activity in young women.

Sixth Annual Conference of the International Society of Behavioral Nutrition and Physical Activity (ISBNPA), Oslo, Norway, 20 - 23 June 2007.

Brown WJ, Heesch K, Burton N & Blair S.

Dose-response relationships between physical activity and health outcomes in women.

Sixth National Physical Activity Conference, Adelaide, SA, 13 - 16 October 2007.

Burton N, Heesch K & Brown W.

Dose-response relationships between physical activity and psychological health outcomes.

Sixth National Physical Activity Conference, Adelaide, SA, 13 - 16 October 2007.

Byles J, Gibson R, Parkinson L & Dobson A.

Driving myself: Main forms of transport among older women in rural and remote Australia.

Ninth National Rural Health Conference, Albury, NSW, 7 - 10 March 2007.

Byles J.

An evidence-based approach to falls reduction in residential aged care facilities - Report of a randomised controlled trial.

Eighth Asia/Oceania Regional Congress of Gerontology and Geriatrics, Beijing, China, 21 - 25 October 2007.

Byles J, Millar C, Sibbritt D & Chiarelli P.

Living with urinary incontinence: A longitudinal study of older women.

Eighth Asia/Oceania Regional Congress of Gerontology and Geriatrics, Beijing, China, 21 - 25 October 2007.

Byles J, Parkinson L, Robinson I, Gibson R, Loxton D & Young A.

Adequacy of treatment for depression among older Australian women.

Eighth Asia/Oceania Regional Congress of Gerontology and Geriatrics, Beijing, China, 21 - 25 October 2007.

Byles J, Robinson I, Gibson R & Gibson P.

Asthma among older women.

Eighth Asia/Oceania Regional Congress of Gerontology and Geriatrics, Beijing, China, 21 - 25 October 2007.

Byles J, Parkinson L, Tavener M, Everingham C, Warner-Smith P & Stevenson D.

Transforming retirement: New definitions of life after work.

AAG Fortieth National Conference, Adelaide, SA, 21 - 23 November 2007.

Byles J.

Healthy ageing and chronic disease: Are the two mutually exclusive?

New Zealand Association of Gerontology Annual Conference, Hamilton, New Zealand, 14 - 16 November 2007.

Chiarelli P, Sibbritt D, Miller C & Byles J.

Older women barriers to exercise: A longitudinal study of urinary incontinence in Australian women.

Gerontology Physiotherapy Group Fourth Biennial Conference: Australian Physiotherapy Association Conference Week, Cairns, Qld, 4 - 8 October 2007.

Dobson A.

Findings from the Australian Longitudinal Study on Women's Health.

Understanding Health and Population Over Time: Strengthening Capacity in Longitudinal Data Collection and Analysis In Asia and the Pacific Region, Bangkok, Thailand, 24 - 25 May 2007.

Dobson A.

Missing data.

The joint Scientific Meeting of the AEA and the IEA Western Pacific Region, Hobart, Tas, 27 - 29 August 2007.

Dolja-Gore X, Byles J & Young A.

Equity in health service costs to women - A longitudinal study.

Thirty Eighth Public Health Association of Australia Annual Conference, Alice Springs, NT, 23-26 September 2007.

Furuya H, Young A, Powers J & Byles J.

Alcohol consumption and physical health-related quality of life accounting for death in elder women.

Forty Second Conference of the Japanese Medical Society of Alcohol and Drug Studies, Otsu City, Shiga Prefecture, Japan, 28 - 29 September 2007.

Heesch K, Brown W & Dobson A.

Is physical activity protective against anxiety and depression among older women?

International Congress on Physical Activity and Public Health, Atlanta, Georgia, USA, April 2006.

Heesch K, Miller Y & Brown WJ.

Does physical activity protect against arthritis in mid-age and older women?

International Congress on Physical Activity and Public Health, Atlanta, Georgia, USA, April 2006.

Heesch K, Byles J, Miller Y & Brown WJ.

Dose-response relationship between physical activity and physical health outcomes.

Sixth National Physical Activity Conference, Adelaide, SA, 13 - 16 October 2007.

Heesch K, Miller YD & Brown WJ.

The impact of changes in physical activity on quality of life among mid age and older women.

Sixth Annual Conference of the International Society of Behavioral Nutrition and Physical Activity (ISBNPA), Oslo, Norway, 20 - 23 June 2007.

Hure A, Young A, Smith R & Collins C.

Is diet quality higher during pregnancy?

Perinatal Society of Australia and New Zealand, Melbourne, Vic, 1 - 4 April 2007.

Johnston A, Astbury J, Kennedy G & Bruck D.

The relationship between sexual assault and sleep problems.

The 5th World Congress of the World Federation of Sleep Research and Sleep Medicine, Cairns, Qld, 2 - 6 September 2007.

Johnston A, Astbury J, Kennedy G & Bruck D.

The relationship between socio demographic variables and sleep problems.

The Fifth World Congress of the World Federation of Sleep Research and Sleep Medicine, Cairns, Qld, 2 - 6 September 2007.

Lowe J, Young A, Byles J & Dolja-Gore X.

Patterns of care for older women in Australia with diabetes.

Australian Society for Psychological Research in Diabetes 7th Annual Conference, Gold Coast, Qld, 21 August 2006.

Loxton D.

The Australian Longitudinal Study on Women's Health - Recent findings.

NSW Women's Health Summit, Sydney, NSW, March 2007.

Lucke J.

Health service needs of older carers: Findings from the Australian Longitudinal Study on Women's Health.

NSW HACC & Community Care Conference, Sydney, NSW, 14 - 15 May 2007.

Lucke J.

How can we help carers to care? An update from the Australian Longitudinal Study on Women's Health.

Carers NSW Conference: Partnerships for Better Health Outcomes: Carers and professionals working together, Sydney, NSW, 8 - 9 March 2007.

Lucke J, Spallek M & Herbert D.

Patterns of contraceptive use after reproductive events: Findings from the Australian Longitudinal Study of Women's Health.

Australasian Sexual Health Conference, Gold Coast, Qld, 8 - 10 October 2007.

McDermott L, Owen N & Dobson A.

Reducing from daily to non-daily smoking predicts cessation among young women.

Third Queensland Tobacco Control Symposium, Brisbane, Qld, 2 August 2007.

Mishra G, McNaughton S, Brown W, Ball K, Giles G & Dobson A.

Dietary patterns among Australian women at different stages of the lifecycle.

Joint New Zealand & Australian Nutrition Societies Conference & Annual Scientific Meeting, Auckland, New Zealand, 5 - 7 December 2007.

Powers J & Young A.

Mental health: What is the effect of heavy drinking?

The joint Scientific Meeting of the AEA and the IEA Western Pacific Region, Hobart, Tas, 27 - 29 August 2007.

Salale V, Doiron D, Fiebig D, Savage E & Young A.

Family formation and the demand for private health insurance.

Sixth World Congress of the International Health Economic Association, Copenhagen, Denmark, 8 - 11 July 2007.

Taylor A.

Letters home and postcards from the edge: Meaning and relationship in the qualitative analysis of comments from the ALSWH surveys.

The Australian Sociological Association / Sociological Association of Aotearoa New Zealand Joint Conference, Auckland, New Zealand, 4 - 7 December 2007.

van Poppel MNM, Miller YD & Brown WJ.

Is physical activity beneficial for menstrual problems? Results from the Australian Longitudinal Study on Women's Health.

Sixth Annual Conference of the International Society of Behavioral Nutrition and Physical Activity (ISBNPA), Oslo, Norway, 20 - 23 June 2007.

Young A, Byles J, Lowe & Dolja-Gore X.

Health care for women with diabetes living in rural areas.

Ninth National Rural Health Conference, Albury, NSW, 7 - 10 March 2007.

Seminars & Workshops

Barnett A.

Bayesian modelling.

ALSWH University of Queensland Seminars, Herston, Qld, 13 September 2007.

Brown WJ.

Lifestage changes and physical activity in Australian women.

Invited presentation to Department of Public Health and British Heart Foundation Research Centre, University of Oxford, Oxford, UK, 11 January, 2007.

Brown WJ.

Physical activity – it's not only about weight loss.

Invited presentation to the Heart Foundation Parliamentary Session: Benefits of Physical Activity and How to Make Parliament a Healthier Environment, Brisbane, Qld, 8 August 2007.

Brown WJ.

Weight and physical activity: Findings from the Australian Longitudinal Study on Women's Health.

Invited presentation to the Australian Government Department of Health and Ageing, Canberra, ACT, 12 November 2007.

Bryson L.

What's involved in achieving a better work/life balance?

Workchoices and the neo-liberal agenda: A regional left renewal discussion, Newcastle, NSW, 26 May 2007.

Byles J.

How can we better manage the health of older women?

Australian Federation of University Women, Central Coast Branch, Central Coast, NSW, 25 September 2007.

Herbert D.

Predictors of pregnancy losses in young Australian women.

ALSWH University of Queensland Seminars, Herston, Qld, 15 November 2007.

Hockey R & Berecki J.

Use of proton-pump inhibitors among Mid and Older women.

ALSWH University of Queensland Seminars, Herston, Qld, 23 August 2007.

Hockey R & Berecki J.

Using PBS data for patterns of medication use and linkage to survey data.

ALSWH University of Queensland Seminars, Herston, Qld, 23 August 2007.

Loxton D, Powers J, Graves A, Adamson L & Chojenta C.

The Australian Longitudinal Study on Women's Health

Invited presentation to the Australian Government Department of Health and Ageing, Canberra, ACT, 13 November 2007.

Loxton D.

The Australian Longitudinal Study on Women's Health.

Australian Women's Health Nurse Association, Professional Update, Camperdown, NSW, February 2007.

Loxton D.

Research findings from the Australian Longitudinal Study on Women's Health and the implications for policy and practice for women's health.

The Benevolent Society Breakfast Seminar, Paddington, NSW, March 2007.

Loxton D.

Findings from the Australian Longitudinal Study on Women's Health.

Women's Health Forum, Erina, NSW, March 2007.

Lucke J & Berecki J.

Changes in Caring Roles and Employment in Mid-life.

ALSWH University of Queensland Seminars, Herston, Qld, 9 August 2007.

Lucke J & Spallek M.

Transitions in contraceptive use.

ALSWH University of Queensland Seminars, Herston, Qld, 6 September 2007.

McLaughlin D.

Social networks in the older cohort of the ALSWH.

ALSWH University of Queensland Seminars, Herston, Qld, 4 October 2007.

Rowlands I & Lee C.

Psychological predictors of miscarriage among young Australian women.

Society for Reproductive and Infant Psychology, Oxford, England, 10 September 2007.

Salale V, Doiron D, Fiebig D, Savage E & Young A.

Family formation and the demand for private health insurance.

Fourth CAER Summer Workshop in Health, UNSW, Sydney, NSW, 1 - 2 February 2007.

van Uffelen J.

Does sitting time cause weight gain?

ALSWH University of Queensland Seminars, Herston, Qld, 29 November 2007.

Young AF.

The Australian Longitudinal Study on Women's Health: Key findings from the first decade.

Women's Health Expo, Sydney, NSW, 7 October 2006.

Young AF.

The Australian Longitudinal Study on Women's Health: Challenges and rewards of longitudinal studies.

Medical Students Outcomes Database and Longitudinal Tracking Project Workshop, Sydney, NSW, 1 December 2006.

Young AF.

The Australian Longitudinal Study on Women's Health

Using the Centre for Health Record Linkage (CHeReL) for research: Longitudinal and cohort studies. Sydney, NSW, 6 December 2006.

Conference Hosting

The University of Newcastle's Priority Research Centre for Gender, Health and Ageing and the Australian Association of Gerontology (NSW Division and Hunter Chapter) in collaboration with the ARC/NHMRC Research Network in Ageing Well (Healthy Ageing Theme) hosted the conference:

Mars and Venus: Does Gender Matter in Ageing?

July 9 - 10 2007

University of Newcastle, NSW

The Mars and Venus conference attracted researchers from all over Australia and overseas. The participants considered ways in which effects of ageing are not equal between men and women, and how these differences might be further exaggerated through interaction with socioeconomic status and background. Issues for homosexual and transgender people were also considered.

The conference featured a number of longitudinal studies of ageing that have given specific attention to the health of men or the health of women and a nested workshop was convened to contrast these studies and their findings. Preferred papers and workshops explored a wider range of gender issues affecting people as they age including; Transgender and ageing, ageing among gay and lesbian communities, gender differences in caring, sexuality in residential aged care. A special workshop provided "an insiders view" on the Australian Longitudinal Study on Women's Health and provided detailed insight into the conduct of a large longitudinal study.

The following is a summary of the presentations that focussed on the Australian Longitudinal Study on Women's Health.

Byles J (facilitator).

Workshop: Men, women and ageing - comparing and contrasting issues, approaches and findings in longitudinal studies of men and women.

Dobson A.

Plenary - The Australian Longitudinal Study on Women's Health.

Flicker L, Dobson A & Byles J.

Plenary - When two studies get hitched: Plans for combined analysis of data from the ALSWH and Perth Men's Study.

Loxton D (facilitator).

Workshop: Insight into ALSWH.

Mishra G.

Childhood cognitive ability or smoking behaviour: Which better explains the links between lifetime socio-economic conditions and premature adult mortality in men and women in a British post war birth cohort?

Tavener M & Everingham C.

It's retirement, Jim, but not as we know it.

Completed Student Project

Cigarette smoking among young women

Candidate: Liane McDermott

University: School of Population Health, University of Queensland

Supervisors: Professors Neville Owen and Annette Dobson (School of Population Health, University of Queensland)

This thesis adopted a life-stage perspective to understand continuity and change in young women's smoking behaviour as they experienced events such as leaving home, employment or going to college or university, romantic relationships and marriage, and parenthood. The main aims of this thesis were to explore in more depth the possible influences on young women's smoking behaviour as they experienced different life-stage transitions; to examine, prospectively, patterns, trends and transitions in smoking behaviour among women during young adulthood; and, to identify the factors associated with continuity and change in smoking behaviour. These aims were achieved through a qualitative study of young women who were participants in the ALSWH, and through analyses of data from the 1996, 2000 and 2003 surveys of ALSWH young women.

Continuity and change in tobacco use among young adult women

This prospective study found that 14% of young women initially aged 18-23 years continued smoking over a seven-year period, 5% remained ex-smokers and 59% were never smokers. There was instability in smoking behaviour for around 21% who either quit, initiated and quit, re-started, or adopted smoking. The most consistent association with continuity and change in smoking behaviour was the recent use of illicit drugs, which was a predictor of current and continued smoking, adoption and experimentation of smoking, and a predictor of re-starting to smoke. The findings also showed that transitions in smoking behaviour among young women were strongly related to major life-stage transitions. Being married or getting married was significantly associated with never smoking and

with quitting smoking. There were also significant associations between parenthood and smoking transitions, however, these relationships were less clear: being a parent was associated with current smoking as well as with quitting smoking. Not working or studying was associated with re-starting smoking and lower educational qualifications were associated with current and continued smoking. Of the psychosocial and demographic variables considered, high levels of perceived stress and living in a rural or remote area were the only other factors strongly associated with smoking.



From partying to parenthood: young women's perceptions of cigarette smoking across life transitions (published paper)

The qualitative study found that the social context of smoking (socialising with other smokers, drinking alcohol and going to bars and clubs) was perceived to be a predominant influence on smoking from

the time young women left home until they settled into a committed relationship or started their own family. Stress was also identified as an important factor as they experienced such lifestyle changes. They reported an increased sensitivity to the negative aspects of smoking after turning 21, and around their mid 20's became concerned about the addictive nature of cigarettes. Motherhood was seen to carry increased responsibilities to protect children from passive smoking and there was a perceived importance of positive role modelling to protect children from becoming smokers themselves.

Occasional tobacco use among young adult women: a longitudinal analysis of smoking transitions (published paper)

This analysis explored prospective transitions in smoking among young adult women who were occasional smokers, and the factors associated with these transitions, by comparing sociodemographic, lifestyle and psychosocial characteristics of those who changed from occasional to daily smoking; non-daily smoking; or non-smoking. The findings revealed that among the smokers, 39% (n=829) were occasional smokers. Of these occasional smokers, 18% changed to daily smoking at Survey 2 and remained daily smokers at Survey 3; 12% reported non-daily smoking; 36% stopped smoking and remained non-smokers; and, 33% moved between daily, non-daily and non-smoking over Surveys 2 and 3. Over the whole seven-year period, approximately half quit smoking, one-quarter progressed to daily smoking and the remainder reported non-daily smoking. Multivariable analysis identified a history of daily smoking for 6 months or more at baseline predicted daily smoking. Being single and using illicit drugs were associated with change to daily or non-daily smoking, while alcohol consumption was associated with non-daily smoking only. The change to daily smoking was also significantly associated with having intermediate educational qualifications. There were no significant associations with depression and perceived stress in the multivariable analysis.

Smoking reduction among young adult women: a seven-year prospective analysis (paper under submission)

This analysis examined prospectively, patterns of smoking behaviour and attributes associated with reductions in daily smoking and subsequent cessation over a seven-year period. Over the seven-year period, one-quarter of daily smokers reduced and maintained a lower level of smoking. Reducers were most likely to have been heavy smokers and to have used illicit drugs, compared to those who stopped smoking. A change from daily to non-daily smoking at Survey 2 was the strongest predictor of cessation at Survey 3 when compared to no change



in baseline smoking rate. Baseline smoking level was not a significant predictor of smoking cessation, while becoming married increased the odds of cessation.

Publications:

McDermott LJ, Dobson AJ & Owen N. Changes in smoking behaviour among young women over life stage transitions. *Australian and New Zealand Journal of Public Health*, 2004; 28(4): 330-335.

McDermott LJ, Dobson AJ & Owen N. From partying to parenthood: Young women's perceptions of cigarette smoking across life transitions. *Health Education Research*, 2006; 21(3): 428-439.

McDermott LJ, Dobson AJ & Owen N. Occasional tobacco use among young adult women: A longitudinal analysis of smoking transitions. *Tobacco Control*, 2007; 16: 239-247.

Enquiries

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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 with the ASSDA for Surveys 1, 2, and 3 of the Younger group, and Surveys 1, 2, 3 and 4 of the Mid-age and Older groups.

www.alswh.org.au

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.

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