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EXECUTIVE SUMMARY

1. This report covers the six-month period from July to December 2007.

2. On 31st August 2007 data collection was finalized for Survey 4 for Young women. The final dataset is now available for analysis.

3. Data collection is continuing for the fifth Survey for Mid-age women with 10,315 surveys returned as of 15th October 2007. Although data collection will not close until August 2008 a response rate of nearly 83% has already been achieved.

4. The pilot Survey for the fifth Survey for Older women was mailed out in August and data collection is nearing completion with 135 returns (72.6%) at 15th October 2007. As the Older women are now aged 82-87 years the number of question items has been reduced by around 15% and the survey has been reduced from 28 pages to 24 pages in large print. Opt-in consent for data linkage is being trialled in this pilot study with good results so far.

5. A number of important methodological issues have been examined. Work has continued on the prevalence of chronic (enduring) conditions. There has been extensive work checking that Young 4 Surveys have been scanned correctly before the hard copies are destroyed. This involved a comparison of Young 4 and Young 3 responses. The accuracy of medications data for the Old 4 Survey has been examined. A comparison of consenters and non-consenters to Medicare and PBS linkage provides important information. With the increasing number of reproductive events in the Young cohort as they enter their 30s, an examination of reproductive history has resulted in a new dataset ensuring consistency over time. Similarly further work has been conducted in issues around the amending of longitudinal data.

6. The Data Management Group met in June at the University of Queensland and heard presentations outlining work in progress. These included an overview of data management procedures for the main study datasets, an update on work on incidence and prevalence of chronic conditions, an update of work on height loss in Older women, and the progress of the pilot study which was conducted to determine the feasibility of a substudy of Mid-age women who are carers.

7. There have been 28 papers published or accepted for publication in national and international scientific journals during the reporting period. Twenty-seven conference papers have been presented to scientific and professional audiences both in Australia and internationally. One PhD student has completed their thesis with another 24 postgraduate students currently working on aspects of the project.

1. COLLABORATIVE RESEARCH ACTIVITIES

1.1 Scientific meetings and teleconferences among the research team

The Steering Committee is responsible for the overall direction of activities and resources to ensure that timelines and deliverables are met. Meetings and teleconferences are conducted at least once a month among the Steering Committee, with agendas, notes and minutes circulated to all investigators. Steering Committee membership is flexible and decided on an annual basis, so that a group of at least six investigators are involved at this level at any one time. Steering Committee members during 2007 were:

- Professor Annette Dobson (Chair)
- Professor Wendy Brown
- Professor Lois Bryson
- Professor Julie Byles
- Professor Christina Lee
- Dr Deborah Loxton
- Dr Penny Warner-Smith
- Dr Anne Young
- Dr Jayne Lucke
- Dr Leigh Tooth

Steering Committee meetings during the reporting period have been held by teleconference on 20th June, 18th July, 22nd August, 19th September, 17th October and 21st November. For minutes of the Steering Committee meetings held during this reporting period see Appendix 1.

The Data Management Group is responsible for all technical issues involving data quality, derivation of variables, checking and cleaning of data sets, linkage, and archiving. The group is chaired by David Fitzgerald (Data Manager – Surveys) with current members including Professor Annette Dobson (Study Director), Professor Julie Byles (Investigator), Deborah Loxton (Project Manger), Jayne Lucke (Senior Research Fellow), Janneke Berecki (Research Fellow), Anna Graves (Data Manager – Cohorts), and project statisticians including Xenia Dolja-Gore, Richard Gibson, Richard Hockey, Jenny Powers, Melanie Spallek, and Melanie Watson.

A monthly update is provided to all investigators, staff, students, collaborators and others with an interest in the progress of the project. Monthly newsletters for this reporting period are shown in Appendix 2.

1.2 New research findings

1.2.1 Projects completed and in progress by ALSWH investigators and collaborators

Project:	Physical activity and bone health in Mid-age women
ALSWH Investigator:	Professor Wendy Brown
Collaborative Investigators:	Dr Kristiann Heesch (School of Human Movement Studies, University of Queensland) and Dr Yvette Miller (School of Psychology, University of Queensland)
Funding Source:	ALSWH, NHMRC program grant

The first study examined the prospective association between physical activity and the incidence of self-reported stiff or painful joints (SPJ) among mid-age and older women over a 3-year period. In univariate models, the odds of reporting SPJ 'sometimes or often' were lower for mid-age respondents reporting low, moderate, and high levels of physical activity levels and for older respondents who were moderately, or highly active 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, than for sedentary respondents in univariate but not adjusted models. Older women in the low, moderate, and high 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 counselling on the importance of physical activity for preventing the onset of these symptoms. This project is now completed and a paper was published in *Arthritis Research & Therapy* in March 2007.

Project:	Physical activity, weight and mental health
ALSWH Investigator:	Professor Wendy Brown
Collaborative Investigators:	Dr Kylie Ball (School of Exercise & Nutrition Sciences, Deakin University) and Dr Nicola Burton (School of Human Movement Studies, University of Queensland)
Funding Source:	None

The aim of this study is to investigate the associations between physical activity, overweight/obesity and depressive symptoms in the Australian Longitudinal Study on Women's Health Young cohort. Overweight and obese women were more likely to develop depressive symptoms than those of healthy weight. Active women were less likely to develop symptoms than those who were sedentary, though this was

significant only for low and high levels of activity after multivariate adjustment. Both an increase and a decrease in Body Mass Index (BMI) over three years were significantly associated with increased risk of symptoms. Sedentary women who increased their activity over three years had a lower risk of symptoms than those who remained sedentary. Increases in activity were protective against depressive symptoms regardless of BMI changes, except for those women who increased BMI by more than 10%, amongst whom risk for depressive symptoms was comparable with those who remained sedentary. A manuscript is under review.

Project:	The validity of self reported height, weight, and physical activity among Mid-age women
ALSWH Investigators:	Professors Wendy Brown and Annette Dobson
Collaborative Investigators:	Dr Nicola Burton, (School of Human Movement Studies, University of Queensland), Dr Yvette Miller (School of Psychology, University of Queensland) and Dr Alison Marshall (School of Public Health, Queensland University of Technology)
Funding Source:	ALSWH, NHMRC program grant, NHMRC capacity building grant

The aim of this study was to compare self-reported height, weight and physical activity (PA) with objective measurements, and to determine the extent of participant misreporting in relation to Body Mass Index (BMI), health status, and sociodemographic characteristics. A secondary aim of the project was to obtain data on key PA indicators, such as the average number of steps per day (weekdays and weekends) taken, frequency of incidental PA, and average time spent sitting per day. This study was limited to Mid-age Australian Longitudinal Study on Women's Health participants living in Brisbane. Recruitment and data collection (telephone recruitment; mail surveys; and individual home visits to deliver PA monitors and logbooks, and assess height and weight; N=159) is complete. Analyses have been completed and manuscripts are being prepared.

Project:	Health costs of inactivity and overweight
ALSWH Investigators:	Professors Wendy Brown and Annette Dobson
Collaborative Investigator:	Mr Richard Hockey (School of Population Health, University of Queensland)
Funding Source:	ALSWH

The aims of this study were to quantify the relationships between physical activity, Body Mass Index (BMI) and Medicare costs in the Mid-age and Older cohorts of women participating in the Australian Longitudinal Study on Women's Health, and to estimate the potential population cost savings of increasing physical activity and decreasing BMI in sedentary women. Cross-sectional analysis of survey and health

service linkage data were conducted, with data from 7004 Mid-age women (50-55 years) and 5161 Older women (73-78 years).

The mean annual costs per woman of Medicare subsidised services were AUD$542 and AUD$714 in the Mid-age and Older women respectively. Costs were 17% higher in obese than in healthy weight women and 24-26% higher in sedentary than in moderately active women. For sedentary obese women, mean costs were 43-44% higher than in healthy weight, moderately active women. Adjusted relative risk of high number of Medicare claims (≥ 15 claims for Mid-age, ≥ 24 claims for Older women) was greater in obese sedentary Mid-age women and Older women than in women with moderate physical activity/healthy weight. For sedentary women, increasing physical activity to between 60 and 150 minutes per week, without concomitant changes in BMI category, would result in Medicare costs in women aged between 40 and 80 years being reduced by AUD$76.2m per annum.

These analyses indicate that lower physical activity and higher BMI are associated with small individual but significant population increases in healthcare costs. At the population level there would be significant cost savings if all sedentary Mid-age and Older women achieved at least low levels of physical activity, even if their BMI did not change. Greater investment by governments in "activating" Mid-age and Older women appears to be a good public health strategy for reducing future healthcare costs.

A paper on the Mid-age results is currently under review. A paper on the data from the Older women is also in preparation.

Project:	Physical activity in Australian women
ALSWH Investigators:	Professors Wendy Brown, Annette Dobson and Julie Byles
Collaborative Investigators:	Dr Kristiann Heesch, Dr Yvette Miller, Dr Nicola Burton (School of Human Movement Studies, University of Queensland) and Mr Richard Hockey (School of Population Health, University of Queensland)
Funding Source:	Office for Women (Department of Families, Community Services and Indigenous Affairs), NHMRC program grant, NHMRC capacity building grant

This project examined the associations between physical activity and health in mid-aged and older women in Australia.

The first stage involved a literature review of the evidence from prospective studies published since 1996 that examined physical activity and health outcomes in women. There was evidence that physical activity provided a protective effect against cardiovascular disease, type 2 diabetes, breast cancer, colon cancer, bladder cancer, endometrial cancer, poor psychological well being, and cognitive decline. There was mixed evidence of an association between physical activity and gestational diabetes,

pancreatic cancer, injury, depressive symptoms, and reproductive health outcomes. There was no evidence of an association between physical activity and renal cell carcinoma, lung cancer, and osteoarthritis.

The review also examined the amount of physical activity required for health benefits in mid-age and older women. While 150 minutes of moderate intensity physical activity per week (600 MET.mins) was associated with a range of health benefits, benefits in some areas (eg diabetes) were also seen in women who reported only 60 minutes per week (240 MET.mins). It may be necessary to accumulate greater amounts of physical activity to prevent some conditions, such as breast and colon cancer. There was little evidence to suggest that mid-age and older women will gain additional health benefits from vigorous physical activity, above those seen with brisk walking or moderate intensity physical activity, after adjustment for total energy expenditure.

The second stage of this project focussed on new data from the Australian Longitudinal Study on Women's Health, and the proportions of Australian women who are currently achieving sufficient physical activity for health benefit. The proportion of mid-age women meeting or exceeding the National Physical Activity Guidelines (ie active) increased from 2001 (45%) to 2004 (54%); this was primarily attributable to walking. Between 2001 and 2004, approximately one third were consistently active, 18% decreased their physical activity, and 26% increased their physical activity. The proportion of active older women declined from 34 to 30% between 1999 (when they were 73-78 years old) and 2005 (when they were 79-84 years old). The proportion of those who were sedentary increased from 31 to 44%. During this same period, 26% decreased their activity, and 16% increased their physical activity.

The final stage included new analyses from the ALSWH data on the relationships between physical activity and selected health outcomes in mid-age and older women. Changes in physical activity were not related to menopausal symptoms in mid-age women. Among the older women, very low, low, moderate and high levels of activity (75+ mins/week) were associated with lower anxiety and depression scores. Memory complaints were slightly less likely among older women who reported high levels of activity (ie 60+ mins/day). High levels of physical activity were associated with reduced risk of falls, and of broken or fractured bones in older women who had not had a previous serious fall injury. Overall physical and mental well-being scores were significantly higher in mid-age and older women who were consistently active than in those who were consistently sedentary. Physical activity was inversely associated with healthcare costs in both mid-age and older women, with the greatest differences being between sedentary women and those doing low levels of activity.

The final report for this project was submitted to the Federal Office for Women in September 2007. A manuscript focusing on the review of the evidence relating PA to cardiovascular disease, cancer and diabetes has been accepted by the *American Journal of Preventive Medicine*, and will be published in October. Several other papers will emanate from this work in due course. This project is now completed.

One paper arising out of the analysis is an examination of the association between physical activity and depression and anxiety in the older women. Both the impact of physical activity and changes in physical activity on depression and anxiety were

found to decrease odds of reporting depressive and anxiety symptoms. The paper entitled "Physical activity 'dose' for reducing anxiety and depression symptoms in older women" was submitted in October.

A paper that examines the association between physical activity and the incidence of self-reported arthritis over a 6-year period in the Older cohort is being prepared for submission.

Project:	Exploratory analyses of relationships between physical activity and reproductive health and reproductive health symptoms in Young and Mid-age women
ALSWH Investigator:	Professor Wendy Brown
Collaborative Investigators:	Dr Yvette Miller (School of Psychology, University of Queensland) and Dr Mireille van Poppel (Department of Public and Occupational Health, Free University Amsterdam Medical School)
Funding Source:	None

The first study aimed to assess the relationship between changes in physical activity and self-reported menopause related vasomotor, somatic and psychological symptoms. Data were used from the third (2001) and fourth (2004) Surveys of Mid-age women (N=3,330). In linear regression models, the relationships between changes in physical activity and total menopausal symptoms, vasomotor, somatic and psychological symptoms were determined. Results indicated that physical activity was not associated with total menopausal symptoms, nor with vasomotor or psychological symptoms. A weak association with somatic symptoms 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. It was concluded that 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. The results of this study are to be published in *Menopause - Journal of the North American Menopause Society*.

A second study is underway and is examining the association between physical activity and menstrual symptoms in young women.

Project:	Health costs of poor psychological health and inactivity
ALSWH Investigators:	Professors Wendy Brown and Annette Dobson
Collaborative Investigators:	Dr Nicola Burton (School of Human Movement Studies, University of Queensland), Dr Kylie Ball (School of Exercise and Nutrition Sciences, Deakin University) and Mr Richard Hockey (School of Population Health, University of Queensland)
Funding Source:	None

The aims of this study are to quantify the relationships between physical activity, poor psychological health and Medicare costs in the Mid-age and Older cohorts of women participating in Australian Longitudinal Study on Women's Health, and to estimate the potential population cost savings of increasing physical activity and decreasing poor psychological health in sedentary women.

Preliminary examination of the data required for this study has commenced.

Project:	Gestational diabetes: risk factors and consequences
ALSWH Investigators:	Professors Wendy Brown and Annette Dobson
Collaborative Investigators:	Dr Mireille van Poppel (Department of Public and Occupational Health, Free University Amsterdam Medical School), Dr Yvette Miller (School of Psychology, University of Queensland), Dr Nicola Burton (School of Human Movement Studies, University of Queensland), Professor Adrian Bauman (School of Community Medicine, University of New South Wales) and Dr Hidde van der Ploeg (School of Public Health, University of Sydney)
Funding Source:	None

The goal of this project is to explore and quantify relationships between lifestyle and health factors and the incidence of gestational diabetes. The study will also explore the consequences of having had gestational diabetes on other health outcomes and lifestyle behaviours. The two main research questions are:

- What factors are predictive of the development of gestational diabetes (eg Body Mass Index, physical activity, ethnicity, etc)?
- Do women who have had gestational diabetes differ from other women who gave birth with regard to physical and mental health and lifestyle behaviours?

Analyses will commence in October 2007.

Project:	Weekend warriors: Frequency of physical activity and selected health outcomes in mid-age and older women
ALSWH Investigator:	Professor Wendy Brown
Collaborative Investigators:	Dr Kristi Heesch and Mr Paul Chang (School of Human Movement Studies, University of Queensland)
Funding Source:	None

The aims of this study were to examine the association between frequency of physical activity and both hypertension and diabetes in mid-age and older women. Initial analyses have been conducted and work is continuing with the data from the Mid-age cohort. Plans to work with data from the Older women have been abandoned.

Project:	Changes in prevalence estimates for physical inactivity and smoking over a 10 year period and associated impact on estimates of population attributable risk from these behaviours
ALSWH Investigator:	Professor Wendy Brown
Collaborative Investigators:	Dr Kristi Heesch and Mr Paul Chang (School of Human Movement Studies, University of Queensland), Professor Adrian Bauman (School of Community Medicine, University of New South Wales)
Funding Source:	NHMRC program grant

The aim of this study is to assess changes in the prevalence of physical activity and smoking over time in the Young and Mid-age women, in order to assess the changing population attributable risk of these behaviours over a ten year period. Preliminary consideration of the data required for this study has commenced.

Project:	Does sitting cause weight gain?
ALSWH Investigators:	Professors Wendy Brown and Annette Dobson
Collaborative Investigators:	Ms Melanie Watson (School of Population Health, University of Queensland) and Dr Jannique van Uffelen (School of Human Movement Studies, University of Queensland)
Funding Source:	NHMRC program grant

Previous analyses in the Australian Longitudinal Study on Women's Health cohort have shown that sitting time is a predictor of weight gain in the Mid-age women. The objectives of the present study are to further examine the relationships between -

changes in - sitting time and weight, using both cross sectional and prospective analyses. Exploratory analyses in the Mid-age women have been completed using data from Survey 3 and Survey 4. Unadjusted analyses show that there is a cross-sectional association between weight and sitting time at both surveys. There are also associations between increases in sitting time and increases in weight. Further analyses will be stratified for initial Body Mass Index category, weight change (weight losers, stable weight, weight gainers) and will be adjusted for significant covariates. The literature search and review for this manuscript has been conducted and the manuscript will be drafted for submission beginning 2008.

Project:	Asthma amongst elderly women
ALSWH Investigator:	Professor Julie Byles
Collaborative Investigators:	Dr Peter Gibson (Hunter Medical Research Institute), Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle) and Mr Ian Robinson (Research Centre for Gender and Health, University of Newcastle)
Funding Source:	None

The aim of this study was to quantify the extent to which older women with asthma are affected by health and social factors that may impinge on their asthma management. A secondary aim was to compare the health and social circumstances for older women who do and do not have asthma, and to identify the differences in survival and quality of life for these women as they age.

At Survey 1, 2475 (21%) women reported they had breathing problems "sometimes" or "often", 1607 (13%) women had ever been told by a doctor that they have asthma, and 2109 (17%) had bronchitis or emphysema. Survival analyses indicate that these women were significantly more likely to die between Survey 1 and Survey 4. After adjustment for potential confounding factors (number of comorbidities, education, area, of residence, smoking and Body Mass Index)[1], the relative risk of death for women reporting asthma was 1.13 (95% CI: 1.01 – 1.25) and the relative risk of death for women reporting bronchitis/emphysema was 1.15 (95% CI: 1.05-1.26).

Of those women who completed Survey 4, 17% reported having been diagnosed with asthma at any survey. These women with asthma were similar to other women in the cohort: they were likely to be single, and over 20% were likely to be providing care for another person either living with them or living elsewhere. Women with asthma were more likely than other women to report difficulty managing on their income ($P<0.0001$).

Smoking was not associated with asthma status, but women with asthma were more likely to be sedentary, and they were less likely to be underweight and more likely to be overweight than other women in the cohort. Women with asthma were also more

[1] High rates of missing data on BMI resulted in reduced sample size for these analyses and so analyses were repeated with and without BMI. There was no impact on the relative risk estimate.

likely to report their health as fair or poor, and less likely to report their health as good, very good or excellent. Women with asthma had lower values on all subscales (except Mental Health) and at all surveys (except Survey 2 for Role Emotional). They were more likely to have high anxiety and depression scores than other women, more likely to have two or more comorbid diagnoses (other than asthma and bronchitis/emphysema).

Women with asthma had higher health service and medication use. Compared to other women, they had more visits to GPs, were more likely to see a specialist, more likely to take five or more medications for conditions other than their asthma, and more likely to be vaccinated for influenza or pneumonia. However, only 42% of the women with asthma were currently taking medications for asthma, and the most common medication classes were beta-2 adrenoreceptor agonists, adrenergics, and anticholinergics.

These analyses indicate the burden of illness associated with asthma for older women. They also indicate that many of the women reporting asthma are not being treated for this condition.

A manuscript will be drafted for submission to *Chest*. A presentation was given at the 8th Asia/Oceania Regional Congress of Gerontology and Geriatrics in Beijing, China, in October.

Project:	Volunteering and older women
ALSWH Investigator:	Professor Julie Byles
Collaborative Investigators:	Dr Lynne Parkinson, Dr David Sibbritt, Mr Richard Gibson, (Research Centre for Gender and Health, University of Newcastle) and Dr Jeni Warburton (Australasian Centre on Ageing, University of Queensland)
Funding Source:	None

A recent review of the international literature proposed that a number of health indicators such as morbidity rates, functional health indices, self-reported health and life satisfaction may be affected by social involvement, such as volunteering. This evidence suggests that volunteering may be associated with better health. While it is very difficult to assert a causal relationship, there are suggestions that being active in the community through volunteering helps keep people healthy psychologically and even physically. This may be particularly important for older women, who benefit from the social aspects associated with volunteering, and who are more likely to have a long term commitment as volunteers. However, some recent Australian evidence has suggested that volunteering might actually be bad for your health because it can be a stressful, time-consuming activity. Therefore the broad aim of this research was to explore the relationship between health and volunteering in older women, from a secondary analysis of Australian Longitudinal Study on Women's Health data, across three survey periods.

A ‘volunteer’ was defined as those who undertook regular community or organizational volunteering (eg fundraising, community welfare, church activities, organising groups or classes), every day, every week, or every month. Those who undertook this type of activity less than every month or never were defined as not volunteers. Thirty-seven percent of women reported volunteering (2% every day, 20% every week and 15% every month). Volunteers were more likely to live in another rural or remote area than in an urban area. Volunteers were also more likely to be younger, more educated, Australian born, to live alone, have private health insurance, be of English speaking background, to have income besides the pension, and to report managing on their income, than non volunteers. Volunteers rated their health as excellent to very good more often than did non-volunteers. Volunteers were also more likely to be healthier than non volunteers on a variety of physical measures (health problems in last 12 months, GP visits in last 12 months, satisfaction with physical ability, eyesight, exercise level and alcohol intake) and psychosocial measures (depression, major personal illness or injury in last 12 months, major decline in health of spouse or partner in last 12 months, major life events last 12 months, social connections).

Transitions in volunteering from Survey 2 to Survey 4 have been analysed, and a classification which included ongoing volunteers, intermittent volunteers, new volunteers and non-volunteers has been developed. All cross-sectional and univariate analyses have now been completed. Multivariate longitudinal analyses are in progress.

A paper will be submitted by the end of 2007.

Project:	Women and arthritis: The burden of suffering by older Australian women
ALSWH Investigator:	Professor Julie Byles
Collaborative Investigators:	Dr Lynne Parkinson, Dr David Sibbritt and Mr Ian Robinson (School of Medicine and Public Health, University of Newcastle)
Funding Source:	Small grant from Arthritis Australia Small grant from Hunter Medical Research Institute

Arthritis is Australia’s major cause of disability and chronic pain, and more than 60% of all people with Arthritis are women. In 2004, there were 3.4 million Australians with Arthritis: 18.4% were women. The broad aim of this research was to explore the burden of suffering (physical, mental and social) associated with Arthritis and musculoskeletal symptoms in older women, and the medication management used for these conditions over time, from a secondary analysis of data from the Older cohort of the Australian Longitudinal Study on Women’s Health (ALSWH).

Sixty-four percent of women in the latest national ALSWH Older cohort Survey reported having Arthritis. The prevalence of Arthritis increased with age, as expected, however, the proportion of new cases declined from 23% at Survey 3 (when women were 74 to 82 years) to 12% at Survey 4 (when women were 77-85 years).

The demographic differences between those women who reported Arthritis as a health issue and those women who did not were only small, with no obvious differences according to region of residence.

Women who reported Arthritis as a health issue were more likely to be overweight or obese and to exercise less than women who did not report Arthritis. However, it is not possible to say whether these health risks preceded the Arthritis.

Physical quality of life, measured by the SF-36, declined quickly for new cases of Arthritis and was on average lower for those with new or existing Arthritis compared with those reporting no Arthritis. A similar trend was seen for the SF-36 pain index. For social function, however, all groups began with a similar level of social function, but both Arthritis groups declined more over time. Mental function over time was similar across all groups.

More women with Arthritis had used Anilide, Oxicam, and Coxib medications at all times. The pattern of use of different medications varied over time, but some of this variation would have been due to changing availability of medications, particularly the Coxibs. About 60% of women with Arthritis reported taking at least one Arthritis medication in 12 months, while about 40% each year reported not using any Arthritis medications. Transitions between medications were common for this group of women with Arthritis, with 200-300 women starting and stopping Arthritis medications each year. On average over 12 months, three quarters of women taking Arthritis medications were taking only one Arthritis medication, while about one quarter were using more than one Arthritis medication.

Arthritis is common amongst older women and is associated with significant burden of illness, in terms of physical and social functioning. While the majority of women with Arthritis used at least one Arthritis medication, there was still a significant proportion who did not. A large proportion of those using medications were using more than one Arthritis medication. Both the conditions of no Arthritis medication use and multiple Arthritis medication use described here could be an indicator that quality use of Arthritis medicines is not being practiced, and warrants further investigation. A paper is being prepared for publication in a peer reviewed journal.

Project:	Utilisation of oral health care services by women
ALSWH Investigator:	Professor Julie Byles
Collaborative Investigators:	Dr David Sibbritt and Associate Professor Deborah Cockrell (School of Medicine and Public Health, University of Newcastle)
Funding Source:	None

The aims of this research were to report the prevalence of consultation with a dentist by Australian women and to identify factors associated with consultation with a dentist. Women in this study were participants in the ALSWH. The analysis was conducted on information obtained from the Second Survey of 12,338 Mid-age women (47-52 years) and 10,434 Older women (73-78 years), in 1998 and 1999

respectively. Women in the Mid-age cohort were more likely to have consulted a dentist in the previous year (57%) than women in the Older cohort (35%). In both age groups, those who consulted a dentist were more likely to live in an urban area, be better educated, have a greater ability to manage on their income, and be in better physical health. They also tended to be higher uses of both traditional and alternative health services. This study has highlighted not only the association between oral health care and other aspects of good health, but also a major source of inequity in the community. Given the breadth of evidence to support the importance of regular dental care in protecting other aspects of health, the under use of dental services by certain socio-economic groups may be a major factor in health inequity.

Project:	Further research on incontinence among women in Australia
ALSWH Investigator:	Professor Julie Byles
Collaborative Investigators:	Dr David Sibbritt, Ms Cynthia Miller (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle) and Dr Pauline Chiarelli (School of Health Sciences, University of Newcastle)
Funding Source:	None

Urinary incontinence is a common and under-enumerated problem in our community. It is estimated that almost two million community-dwelling women in Australia have problems with urinary incontinence. This problem poses a major social burden for many of these women, and also carries considerable costs for the health care system.

In the 1996 baseline Surveys of the Australian Longitudinal Study on Women's Health (ALSWH), around 20% of women in the Mid-age (45-50) and Older cohorts (70-75) reported leaking urine sometimes or often. More in-depth surveys of these women have identified cross-sectional associations between incontinence severity and Body Mass Index, other urinary symptoms, smoking, hormone replacement therapy, and hysterectomy[1]. The study also found that many women who had incontinence were employing methods to prevent incontinence that may have other detrimental health outcomes. For example, many women reduced their fluid intake[2] and many avoided physical activity[3] in an attempt to reduce their symptoms.

While these findings emphasise the importance of the problem of incontinence in our community, because they are cross-sectional in nature they provide little details on the incidence, natural history, risks and adverse health outcomes associated with the problem of incontinence. Since these findings have been published more data have been gathered on the three cohorts of women participating in the ALSWH. These data provide an opportunity to explore longitudinal changes among women with

[1] Miller YD, Brown WJ, Smith N, Chiarelli P. Managing urinary incontinence across the lifespan. International Journal of Behavioural Medicine in Sport, 2003, 10(2), 143-161.
[2] High rates of missing data on BMI resulted in reduced sample size for these analyses and so analyses were repeated with and without BMI. There was no impact on the relative risk estimate.
[3] Brown WJ, Miller YD. Too wet to exercise? Leaking urine as a barrier to physical activity in women. Journal of Science and Medicine in Sport, 2002, 4(4), 373-378.

incontinence and to explore those factors that place women at greatest risk of developing incontinence.

At Survey 1, 2475 (21%) of the Older women reported they had experienced leaking urine "sometimes" or "often". The proportion reporting this problem among surviving respondents at Surveys 2, 3 & 4 was 14%, 19% and 27% respectively. A large number of women, 1066 (41%), who reported leaking urine at Survey 1 reported that they experience this problem "rarely" or "never" at Survey 2. For this reason, Survey 1 prevalence of incontinence was considered to be anomalous and was not used in the definition of caseness.

According to responses to Surveys 2, 3 and 4, 881 (11%) women were classified as having prevalent incontinence at Survey 2, 237 (3%) women were classified as having intermittent incontinence that was present at Survey 2 but not later, and 1554 (19%) women were classified as having incident incontinence that was not reported at Survey 2 but reported at either Survey 3 or Survey 4. A total of 5656 (68%) women never reported leaking urine sometimes or often at any of the three surveys (classified as never incontinent).

There were no associations between incontinence classification and marital status, caring for children, providing care for others, or undertaking unpaid voluntary work. There was a weak association between incontinence and tertiary education.

Women with incontinence have lower scores than other women on SF-36 sub-scales for physical and social functioning at all time points. Importantly, women with incident incontinence had lower SF-36 sub-scale scores even before they reported incontinence indicating that some factor that preceded their incontinence may have contributed to their poorer social and physical functioning.

In the longitudinal model, the prevalence of incontinence increased with time. At Survey 4 women were almost twice as likely to report incontinence as they were at Survey 2. Incontinence was not associated with area of residence, diabetes or smoking. Incontinence was strongly associated ($P<0.005$) with physical conditions such as stroke, dementia, physical ability, falls and five or more General Practitioner visits in 12 months.

Parity was not strongly associated with incontinence among these Older women, but other factors in the gynaecological history including prolapse, prolapse repair, and hysterectomy were.

Some final analyses are being completed and a manuscript is being prepared for peer review and publication.

Presentations were given at the 8th Asia/Oceania Regional Congress of Gerontology and Geriatrics in Beijing, China in October.

Project:	Self-rated health, age and gender in longitudinal studies in Australia
ALSWH Investigators:	Professors Julie Byles and Annette Dobson
Collaborative Investigator:	Dr Kaarin Anstey (Centre for Mental Health Research, Australian National University)
Funding Source:	Ageing Well Ageing Productively NHMRC grant

There is now a large amount of data collected on ageing from Australian studies, providing potential for collaborative re-analysis projects that will greatly advance our knowledge of Ageing in Australia. The present study investigates self-rated health in seven Australian longitudinal studies, to demonstrate the value of bringing these valuable data sources together and to document some of the factors that need to be considered when conducting this type of research. The specific research questions to be addressed were:

1. What is the distribution of excellent or very good, average and fair or poor self-rated health over adulthood in Australia;
2. How does the distribution differ according to gender, and education;
3. How do studies conducted within a state, city or territory compare with a nationally representative sample on the distribution of self-rated health?

Descriptive comparison of the distributions of self-rated health showed decreases with increasing age. Low education was associated with higher frequencies of fair/poor health even in young adulthood but there were no gender differences. Two nationally representative studies did not consistently show the same relative frequencies of self-rated health and geographically specific studies did not necessarily differ from the population in their distribution of self-rated health. The distribution of self-rated health in Australian Longitudinal Study on Women's Health (ALSWH) was similar to other studies and compared well with other national studies.

This research demonstrates how collaborative re-analysis of Australian cohort studies can allow for analysis of health outcomes from a very large numbers of participants. Of particular relevance to ALSWH, the collaborative analysis allows for comparison with studies involving men. A range of health outcomes and their sociodemographic determinants may be more comprehensively evaluated through such collaborative projects.

This research provided the basis for the successful grant application:

NMHRC Ageing Well Ageing Productively Research Program (ID 410 215). Using health outcome data from pooled longitudinal studies of Ageing to develop statistical and microsimulation models to determine how to best compress morbidity and optimise healthy and productive ageing. Anstey K, Byles J, Harding A, Luszcz M, Mitchell P, et al.

A paper from this study is in press with the *Australasian Journal on Ageing.*

Project:	Adequacy and equity of treatment for depression among older Australian women
ALSWH Investigators:	Professor Julie Byles and Dr Deborah Loxton
Funding Source:	Hunter Medical Research Institute grant

By using data collected from the Australian Longitudinal Study on Women's Health and linking it with Medicare and Pharmaceutical Benefits Scheme data for the years 2002-2005, this project allowed for detailed prospective analyses of the health services and medications used by older women with depression, and the outcomes of these treatments. These analyses provide national data on treatment for depression among older women in the population.

In each of the four surveys, around 7% of women reported they had been told by a doctor that they had depression (in the past three years). Analysis of symptoms of depression suggests that the problem of depression may be higher than diagnosed, reported and/or treated. For instance, at Survey 4 10% of the women reported that they "felt hopeless", 15% reported they had "lost interest in things", and 20-40% of women were classified as depressed on standard screening instruments.

A large proportion of women who reported they had ever been diagnosed with depression did not receive appropriate medications for this condition. Twenty-five percent of women with depression did not use any medications for depression during the three years of the study. In any year, around 30% of the women with depression were treated with Selective Serotonin Reuptake inhibitors which are the drug of choice for older people, around 20% of women with depression were treated with Tricyclic antidepressants which are recommended to be used with caution among older people, and around 20% of women with depression were treated with anxiolytic medications which are considered to be potentially inappropriate for older people. Around 25% of women with depression were treated with hypnotic medications which are considered to be potentially inappropriate for older people.

Some (but not all) women who were treated with depression medications showed improved mental health related quality of life. Sixty percent of women with depression were taking medications at the start of the observation (Survey 3, 2002) or prior to Survey 4. Of these women:

- 65% ceased these medications by the end of the period of observation. On average these women had an improvement in scores on the Mental Health subscale over the three years. These are the women who appear to benefit from depression medications.
- 35% were taking medications at the start and at the end of the three years. The average Mental Health subscale scores for these women did not change. These women do not appear to benefit from the medications.
- 14% of women with depression were not taking medications at the start but were by the end. Average Mental health Scores for these women became worse over the three years. There was also a significant increase in the depression scores for these women over the three years of observation. This is consistent with commencing medication as symptoms worsen.

- Average Mental Health scores for women who did not take depression medications at all over the three year period did not change.

This research highlights the problem of depression for older women. Many women with depression are untreated, and more may be undiagnosed. It also appears that a large proportion of women are inappropriately treated with anxiolytic medications and/or hypnotics. A proportion of women who are treated appear to benefit.

A final report of this project has been provided to the Hunter Medical Research Institute and a paper is being prepared for peer review and publication.

A presentation was given at the 8th Asia/Oceania Regional Congress of Gerontology and Geriatrics in Beijing, China in October.

Project:	Use of enhanced primary care services by older Australian women
ALSWH Investigators:	Professor Julie Byles and Dr Anne Young
Collaborative Investigators:	Associate Professor Catherine D'este (Centre for Military and Veterans' Health, University of Queensland) and Dr Virginia Wheway (Research Centre for Gender and Health, University of Newcastle)
Funding Source:	None

In November 1999, the Australian government introduced Medical Benefits Schedule item numbers for enhanced primary care (EPC) services. These services included case conferencing and complex care plans, and health assessments for those aged 75 years and over. The health assessment items (Medical Benefits Schedule items 700, 702, 704, 706) were the most rapidly adopted items and one of the questions surrounding the introduction of these health assessments was how well, and how equitably, they would be taken up by older people in the community.

The Australian Longitudinal Study on Women's Health includes 4646 women who were aged 75 to 78 years when the EPC items were introduced and who provided permission to access their Medicare records. Survey data on socio-demographic variables, access to care and health service use were linked to Medicare records to measure the uptake of health assessments and to describe the health and sociodemographic characteristics of users and non-users. Among these women there was an increase in uptake of assessments over four years: in November 1999 12% of eligible women had a health assessment during the following year; by October 2003, 49% had at least one Health Assessment. 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 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.

Project:	Change in health status and healthcare use for women who have not had health assessments
ALSWH Investigators:	Professor Julie Byles and Dr Anne Young
Funding Source:	None

This research will explore whether there are differences in health outcomes for women who do and do not have health assessments. Survival and health-related quality of life will be compared for women who had health assessments in the first year following the introduction of these items, women who had a health assessment later, and those who never had a health assessment. Analysis is underway and findings will be included in the Major Report on the Use of Medications and Other Health Care Resources to be delivered in 2008.

Project:	Regulatory and community response to discredited drugs
ALSWH Investigators:	Professor Julie Byles, Dr Anne Young and Dr Lynne Parkinson
Collaborative Investigators:	Professor David Henry (School of Health Sciences, University of Newcastle), Ms Xenia Dolja-Gore, Mr Richard Gibson (Research Centre for Gender, health & Ageing, University of Newcastle), Associate Professor Kichu Nair (Division of Geriatric Medicine, John Hunter Hospital) and Dr Evan Doran (School of Medicine and Public Health, University of Newcastle)
Funding Source:	NHMRC project grant

This study aims:

1. to explore the impacts of discrediting medicines, on consumer health outcomes, on risk-benefit perceptions of consumers, prescribers and pharmacists and on regulatory process; and

2. to provide an understanding of how public safety concerns with medicines should be managed and communicated in future such events. The main hypothesis is that the benefit of discrediting a medicine is not higher than the harm ensuing, in terms of health outcomes and quality of life of the consumer, and effect on perceptions of safety of medicines overall.

A grant was recently awarded by NHMRC. Preliminary analysis shows dramatic effects on the use of these medications and their alternatives following publicity on adverse events and/or changes to their regulation. More detailed analyses will be undertaken in 2008.

Project:	Intake of fruit and vegetables and its association with socioeconomic status and health outcomes
ALSWH Investigator:	Professor Julie Byles
Collaborative Investigator:	Dr Zumin Shi (Research Centre for Gender, Health and Ageing, University of Newcastle)
Funding Source:	NSW Health fellowship (NIPH-HMRI)

Fruits and vegetables are essential components of a healthy diet. However, only limited information is available about the fruit and vegetable intake of older women. This study describes the socio-demographic and health correlates of intake of fruit and vegetables among two large cohorts of Australian women – one group aged 50-55 years and one aged 79-84 years. Almost all women ate some amount of fruit and vegetables each day. In each cohort, around 8-9% of the women ate five or more serves of vegetables each day, and 30% ate four or more serves each day. In the Mid-age cohort, around 60% of the women ate two or more serves of fruit each day, and the corresponding proportion for the Older cohort was 70%. Around 7-8% of each cohort could be considered to eat the national recommended intake of two serves of fruit and five serves of vegetables. Eating higher levels of fruit and vegetables was associated with country of birth, education, marital status, and with functional abilities and oral health. Longitudinal analyses describe trends in BMI, health-related quality of life and survival according to women's fruit and vegetable intakes.

An invited book chapter from this work has been accepted.

Project:	Longitudinal study of sleeping difficulty and medication use among older women
ALSWH Investigators:	Professor Julie Byles and Associate Professor Gita Mishra
Funding Source:	None

This work will extend our previous research into insomnia and the impact of sleeping difficulty on women's quality of life. The analysis will involve three main tasks:

1. to obtain more data on medication use and data on longer-term health outcomes (survival, SF-36) and sleeping medication and undertake longitudinal analysis of differences in survival and quality of life for women with sleeping difficulties and women using sleeping medications.

2. to analyse qualitative data on sleeping medications and sleep

Project:	Survival analysis of older women
ALSWH Investigator:	Professor Annette Dobson
Collaborative Investigators:	Ms Jess Ford (School of Human Movement Studies, University of Queensland) and Melanie Spallek (School of Population Health, University of Queensland)
Funding Source:	None

The objective of this project was to test the hypothesis that morbidity and health-related behavioural factors are stronger than social factors as predictors of death among older women. The project is ongoing however recent results suggest:

- The strongest predictors of early mortality among older women are current health and health related behaviours.
- The differences in social factors are less predictive of mortality among people who survive to older ages.
- Adopting a healthier lifestyle, by doing more exercise and not smoking, is beneficial even in old age.

Project:	Employed carers in Mid-Life: Findings from the Australian Longitudinal Study on Women's Health
ALSWH Investigators:	Professor Annette Dobson, Dr Jayne Lucke and Dr Leigh Tooth
Collaborative Investigator:	Mr Richard Hockey (School of Population Health, University of Queensland)
Funding Source:	Commonwealth Department of Health & Ageing

This research was commissioned by the Australian Government Department of Health and Ageing to provide information to support policy development for the Employed Carers Innovative Project (ECIP) and also to provide a good base from which to build more focused research questions on employed carers and carers generally.

The research consisted of three stages, all of which have been completed.

Stage 1: The first report examined paid employment and responsibilities for caring for another person with a long-term illness, disability or frailty among 10,905 women aged 53 to 58 who participated in the forth Australian Longitudinal Study on Women's Health Survey for Mid-age women. The report showed that carers, particularly live-in carers, had less involvement in the workforce, more involvement with caring for children, less social support, and more negative outcomes in terms of mental health, optimism, stress, sleep problems and physical symptoms. Live-in carers were also heavy users of health services.

Stage 2: The second report examined changes in caring roles and employment. The report identified patterns of caring and employment, focusing on transitions in caring, that is, women who took up caring between Surveys 3 and 4 or those who stopped caring, compared to those who are carers or non-carers at both surveys. The findings of this report suggested that women who were non-carers at both surveys were more likely to work full-time, while carers at both surveys were more likely not to work, or to work part-time compared with non-carers; and that women who started caring were more likely to cut down on their hours of work than those who did not start caring, while women who stopped caring were more likely to increase working than those who did not.

Stage 3: A pilot sub-study was conducted during 2007 in preparation for a full sub-study (which may be funded under a separate contract). The pilot sub-study is discussed further in this section under the project "Service utilisation and caregiving among mid-age women" with investigators Dr Jayne Lucke, Associate Professor Nancy Pachana and Professor Annette Dobson.

Project:	Comparisons of the associations between socioeconomic position and hysterectomy among mid-age and older Australian and British Women
ALSWH Investigator:	Professor Annette Dobson
Collaborative Investigators:	Dr Jayne Lucke (School of Population Health, University of Queensland), Mr Paul Chang (School of Human Movement Studies, University of Queensland), Professor Debbie Lawlor (Department of Social Medicine, University of Bristol), Associate Professor Gita Mishra (University College London) and Professor Diana Kuh (Medical Research Council and University College London)
Funding Source:	None

The objective was to examine the associations between indicators of socioeconomic position (SEP) and hysterectomy in two Australian and two British cohorts. The study population was **w**omen participating in the Australian Longitudinal Study on Women's Health (ALSWH), born 1921-1926 and 1946-1951, and two cohorts of British women, the British Women's Heart and Health Study and the MRC National Survey of Health and Development, born at similar times (1919 to 1940 and 1946, respectively) and surveyed at similar ages to the ALSWH cohorts.

Relative indices of inequality were derived for own and head of household occupational class, educational level attained and age at leaving school. Logistic regression was used to test the associations between these indicators of SEP and self-reported hysterectomy and/or oophorectomy. Inverse associations between indicators of SEP and hysterectomy in both the Australian and British cohorts of women born in the 1940s were found. There was also evidence of inverse associations between education and hysterectomy in the Older Australian cohort. However, the

associations in this Older cohort were weaker than those found in the Mid-age Australian cohort. In the Older British cohort, born in the 1920s and 1930s, little evidence of association between SEP in adulthood and hysterectomy was found. These results suggest that inverse associations between indicators of SEP and hysterectomy are stronger in Younger compared to Older cohorts in both Australia and the UK. They provide further evidence of the dynamic nature of the association between indicators of SEP and hysterectomy.

The paper from this project has been submitted.

Project:	How well do health and community services help older people with neurodegenerative disorders and their family caregivers?
ALSWH Investigators:	Professor Annette Dobson, Professor Christina Lee and Ms Anne Russell
Collaborative Investigators:	Professor Andrew Wilson, Dr Leigh Tooth, Dr Jayne Lucke (School of Population Health, University of Queensland) and Associate Professor Gerard Byrne (Psychiatry Department, University of Queensland)
Funding Source:	NHMRC Healthy Ageing Research Program

This is the second paper from this study (the first paper was described in the June 2007 Technical Report and is currently under journal review).

The aim was to examine perceived adequacy of access to information and services, and perceived quality of health and community services, among older female carers across rural and urban areas throughout Australia. Primary data were collected as part of the Australian Longitudinal Study on Women's Health. Over 40,000 women were randomly selected from the Australian Medicare database in 1996, with intentional over-sampling in rural and remote areas. The design was a nested cross-sectional substudy of 306 older women (aged 78-83 years), who indicated they were providing care for someone with a long term illness, disability or frailty. In contrast to previous studies, there were few reported differences between urban and rural older carers in their access to health and community services for the people they cared for. Further research is needed to develop a more complete picture of the resources drawn on by caregivers who do not have access to appropriate services or who choose not to use those which are available.

The paper from this project has been submitted to a journal.

Project:	Use and quality use of medicines for cardiovascular disease
ALSWH Investigator:	Professor Annette Dobson
Collaborative Investigators:	Mr Christopher Stevenson, Ms Lynelle Moon, Ms Susana Senes, Ms Sharon Leigh, Ms Sushma Mathur and Ms Elizabeth Penm (Cardiovascular Disease and Diabetes Unit, Australian Institute of Health and Welfare)
Funding Source:	Department of Health and Ageing

This analysis was originally planned for the 2007 Australian Institute of Health and Welfare (AIHW) report "Medicines for cardiovascular health: are they used appropriately?" Due to time and other constraints AIHW did not use the Australian Longitudinal Study on Women's Health data in that report. However there are plans to undertake further analyses of cardiovascular disease medicines by geographical area using the Australian Longitudinal Study on Women's Health data.

Project:	To what extent does having babies contribute to weight gain in Young women?
ALSWH Investigators:	Professors Annette Dobson and Wendy Brown
Collaborative Investigators:	Dr Yvette Miller (School of Psychology, University of Queensland) and Mr Richard Hockey (School of Population Health, University of Queensland)
Funding Source:	NHMRC Capacity Building Grant in Public Health

A paper "Does having a child increase weight gain in young women? Findings over seven years from the Australian Longitudinal Study on Women's Health" is being prepared.

The aims of this study were to investigate the relative impact of childbearing patterns and behavioural and demographic variables on weight gain among young women over a seven year period, and to estimate the relative rate of weight gain associated with each significant determinant of weight gain. Participants were 14,779 women in the Australian Longitudinal Study on Women's Health, aged 18-23 years when recruited from the national Medicare database in 1996. Consenting women completed surveys about demographics, health behaviours, and health outcomes in 1996 (Survey 1), 2000 (Survey 2) and 2003 (Survey 3). A random effects model was used to estimate average annual percentage weight change (kgs) in women who did and did not have their first child between Survey 1 and Survey 2, and between Survey 2 and Survey 3, after adjustment for other statistically significant determinants of weight change (education, physical activity, sitting time, and energy intake). Patterns of childbirth and physical activity were significantly associated with average annual percentage weight change between Survey 1 and Survey 2, and between Survey 2 and Survey 3.

Sitting time, energy intake and education were significantly associated with average annual percentage weight change between Survey 1 and Survey 3. After adjustment for all other variables associated with rate of weight gain, women who had their first baby between Survey 1 and Survey 2 had higher mean annual weight gain (1.78%, 95% CI 1.51-2.05; approximately 1.2 kgs) than those who had never given birth (0.79%, 95% CI 0.70-0.88; approximately 0.5 kgs). Those who had their first baby between Survey 2 and Survey 3 had higher annual weight gain in that period (1.89%, 95% CI 1.62-2.16; approximately 1.4 kgs) than those who had never given birth (1.0%, 95% CI 0.91-1.09; approximately 0.7 kgs) or had their first child between Survey 1 and Survey 2 (0.39%, 95% CI 0.11-0.68; approximately 0.3 kgs), and higher weight gain compared with their previous nulliparous period (0.95%; 95% CI 0.69-1.21; approximately 0.6 kgs).

In conclusion, having a first baby resulted in an increased rate of weight gain compared with ageing-related weight gain among women who do not have children or had their first child previously. Weight gain prevention for young women should concentrate on promoting increased physical activity, reduced sitting time and reduced energy intake during and immediately after first pregnancy.

Project:	Men, women and ageing: Predictors of ageing well in the Australian Longitudinal Study on Women's Health and the Perth Health in Men Study ("MWA")
ALSWH Investigator:	Professor Annette Dobson
Collaborative Investigators:	Professor Konrad Jamrozik, Dr Deirdre McLaughlin, Dr Dimitris Vagenas, Dr Jon Adams (School of Population Health, University of Queensland), Professor Wendy Brown (School of Human Movement Studies, University of Queensland), Associate Professor Nancy Pachana (School of Psychology, University of Queensland), Professor Paul Norman (School of Surgery and Pathology, University of Western Australia), Professor Osvaldo P Almeida (Unit of Geriatric Psychiatry, University of Western Australia), Professor Leon Flicker (Royal Perth Hospital), Professor Graeme Hankey (Department of Neurology, Royal Perth Hospital) and Professor Julie Byles (School of Medicine and Public Health, University of Newcastle)
Funding Source:	NHMRC/ARC Ageing Well, Ageing Productively Program

This large study is pooling data collected from the Australian Longitudinal Study on Women's Health (ALSWH) Older cohort and the Health In Men Study (HIMS) in Perth, WA. The combined study was launched in July, 2007 at the "Mars and Venus:

Does gender matter in Ageing" conference in Newcastle. The study team also presented the project for the AAG conference in Adelaide in November 2007 as part of the 'Ageing Well, Ageing Productively: Research Projects Overview' symposium.

During the year, University of Queensland have employed two research fellows (one a statistician) and the University of Western Australia have recently appointed a part-time statistician and a full time research fellow. Chief Investigators (CIs) and staff have monthly teleconferences and in 2007, the first face to face meeting was held in Brisbane on 26th March, and with another on the 30th November in Adelaide.

A Policy Advisory Group (PAG) has been formed consisting of representatives of State and Federal government departments and a representative of a consumer organization. The aim of the PAG is to ensure that the research program of the study is relevant to the needs of State and Federal Governments and to assist the investigators to interpret and disseminate the findings in a way that will assist evidence-based policy decisions.

Members of the PAG are:

- Peter Brady, General Manager Policy, National Seniors Association
- Melinda Bromley, Assistant Secretary, Office for an Ageing Australia
- Australian Government Department of Health and Ageing
- Gail Milner, Assistant Operations Director, Health Policy and Clinical Reform
- WA Department of Health
- Mr Andrew Mitchell, Strategic Adviser, Pharmaceutical Evaluation,
- Australian Government Department of Health and Ageing
- Professor Andrew Wilson, Executive Director, Policy, Planning and Resourcing Division, Queensland Health.
- Dr Judy Straton, Director, Statewide Policy and Planning, Child and Adolescent Health Service, WA Department of Health

The PAG had their first face to face meeting in Sydney on September 12, 2007 and further annual face to face meetings are planned, to be supplemented by teleconferences each three months.

Data for the project will be held and maintained at UWA, with CIs and staff provided with secure access to enable analyses to be conducted. A data management group consisting of statisticians and other staff from HIMS, ALSWH and MWA will meet to discuss any data issues, processes and maintenance. It has been agreed that the procedure for managing proposed analyses and/or sub-studies will closely follow that adopted by ALSWH. Expressions of Interest will be circulated among all CIs for feedback and approval prior to analysis and publication. The CIs of MWA have each indicated an area of interest in which they will be conducting analyses on the pooled data and it is anticipated that these will commence as soon as a data management program is in place.

The HIMS data includes linkages to WA morbidity and mortality data as well as to Silver Chain, which is the largest provider of aged care in WA. An application for ethical approval has been submitted to the University of Newcastle (UN) to allow for

linkage to the same data for the ALSWH Older cohort who are residents of WA. An additional ethical application has been submitted to UN for linkage to HACC data in WA for the Older cohort.

A website for the project has been developed and is accessible at:
www.menwomenandageing.org

Project:	Use of ALSWH data to illustrate methodology for analysing longitudinal data
ALSWH Investigators:	Professor Annette Dobson and Associate Professor Gita Mishra
Collaborative Investigators:	Dr Adrian Barnett (Institute of Health & Biomedical Innovation, Queensland University of Technology), Dr Jolieke Van der pols, Dr Leigh Tooth and Dr Robert Ware (School of Population Health, University of Queensland)
Funding Source:	NHMRC Capacity Building Grant in Public Health

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. Superiority of longitudinal imputation is demonstrated over cross-sectional imputation using WinBUGS. Example data is used from the Australian Longitudinal Study on Women's Health.

Project:	Health related outcomes of weight change in Mid-age women
ALSWH Investigators:	Professor Annette Dobson, Professor Wendy Brown and Associate Professor Gita Mishra
Collaborative Investigators:	Dr Yvette Miller (School of Psychology, University of Queensland) and Dr Adrian Barnett (Institute of Health & Biomedical Innovation, Queensland University of Technology)
Funding Source:	None

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 Body Mass Index (BMI) at baseline and short-term (2- or 3-year) weight changes on the incidence of diabetes.

Prospective data were collected from a population-based cohort of Mid-age 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 (Survey 1, 1996; Survey 2, 1998; Survey 3, 2001; and Survey 4, 2004). Generalized estimating equations were used to model binary repeated-measures data to assess the impact of BMI at Survey 1 and weight change (Survey 1 to Survey 2; Survey 2 to Survey 3) on 3-year incidence of diabetes at Survey 3 and Survey 4, respectively, adjusting for sociodemographic and lifestyle factors.

BMI at Survey 1 was strongly associated with the development of diabetes by Survey 3 or Survey 4. Compared with women who had a BMI <25 kg/[m.sup.2], those with BMI ≥ 25 kg/[m.sup.2] had higher incidence of diabetes (P < 0.0001), with odd ratios reaching 12.1 (95% C1 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).

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.

Work is now in progress using similar methodology for analyses of other chronic conditions.

Project:	Which comes first: weight gain or hysterectomy – a nested matched case-control study from the Australian Longitudinal Study on Women's Health
ALSWH Investigators:	Professor Annette Dobson, Professor Wendy Brown and Associate Professor Gita Mishra
Collaborative Investigator:	Dr Janneke Berecki and Mr David Fitzgerald (School of Population Health, University of Queensland)
Funding Source:	None

The aim was to investigate whether overweight women are more likely to have a hysterectomy and whether hysterectomy leads to increased weight gain. A cohort analysis and a nested case control analysis design was used. Survey data from Mid-age women participating in the Australian Longitudinal Study on Women's Health including self reported height, weight and hysterectomy. Women who responded to surveys in 1996 (n=13125), 1998 (n=10612), 2001 (n=10293) and 2004 (n=9309) were included. First, we applied a cohort analysis to compare the Body Mass Index (BMI) of women categorised according to hysterectomy status. Second, we applied a nested case control analysis to compare weight gain for women after hysterectomy to weight gain for women who did not have a hysterectomy, matched for height, pre-hysterectomy weight and educational level. At Survey 1, mean BMI of women who subsequently had a hysterectomy was greater than that of women who did not have a hysterectomy by Survey 2, with a difference of 1.1 $kg.m^{-2}$ [95% CI 0.4 to 1.8]). We found similar results for Surveys 2 to 3, with a BMI difference of 0.8 $kg.m^{-2}$ [95% CI 0.1 to 1.5]). For Surveys 3 to 4 the difference in mean BMI between new cases and

women without hysterectomy was not statistically significant (0.8 $kg.m^{-2}$ [95% CI -0.1 to 1.6]). Weight gain over the 3 or 6 years following hysterectomy (OR 1.0 [95% CI 1.0 to 1.0]) was not associated with having a hysterectomy. In conclusion, hysterectomy did not lead to greater weight gain, but was more likely to be performed in women who were heavier and at risk for a higher rate of weight gain.

Project:	Height loss in elderly women
ALSWH Investigator:	Professor Annette Dobson
Collaborative Investigators:	Ms Melanie Spallek and Dr Janneke Berecki (School of Population Health, University of Queensland)
Funding Source:	None

The present study analyses changes in self-reported height of elderly women participating in the Australian Longitudinal Study on Women's Health. The aims are first to identify baseline factors associated with height loss in older women which might serve as prognostic parameters of height loss and second to determine outcome variables related to physical and mental wellbeing. To firstly identify risk factors for height loss, a general linear model was fitted including several variables from the questionnaire at Survey 1 based on previous associations with height loss were selected, covering socio-demographics, health status and lifestyle factors. Secondly, symptoms which could be associated with height loss were analysed, using logistic regressions, with the consequences of height loss as outcome variables and height loss as the main explanatory variable, controlling for possible confounders.

Results from univariate analyses showed significant associations between height loss and osteoporosis ($F=11.33$, $p<0.01$), BMI ($F=7.57$, $p<0.01$) and country of birth ($F=4.43$, $p<0.01$), with women who lost most in height having osteoporosis, being underweight and having a country of birth categorised as 'Other' as opposed to Asia, Europe, Australia or other English speaking countries. From selected consequences of height loss, indigestion and back pain were strongly associated with more than 3cm height loss, OR=1.21 [1.06;1.39], OR=1.19 [1.03;1.37] respectively, after controlling for confounders such as smoking status and BMI. In conclusion, having osteoporosis, being underweight and being born in Europe as opposed to Australia or any other English speaking countries are risk factors for height loss in older women living in Australia. Consequences of height loss are indigestion, back pain and faster decline in physical health scores. The aging of Australia's population will continue therefore more emphasis should be put on prevention of osteoporosis, including nutritional risk factors in early decades of life, as well as early detection and treatment of symptoms and decline in wellbeing related to height loss.

Project:	Comparison of non-heterosexual women with heterosexual women on a range of health measures
ALSWH Investigator:	Professor Christina Lee
Collaborative Investigators:	Dr Ruth McNair (Department of General Practice, University of Melbourne), Associate Professor Anne Kavanagh (Key Centre for Women's Health in Society, University of Melbourne). Professor Marion Pitts, Dr Lynne Hillier, Dr Philomena Horsley and Associate Professor Anne Mitchell (Australian Research Centre in Sex, Health and Society, La Trobe University)
Funding Source:	Faculty Grant through La Trobe University in 2004

The project has compared health outcomes according to sexual orientation in data from the 2nd Young Women's Survey and the Mid-age 3rd Survey. These women were asked "Which of these most closely describes your sexual orientation: exclusively heterosexual, mainly heterosexual, bisexual, mainly lesbian or exclusively lesbian".

We have been interested in examining how sexual orientation is associated with various health outcomes including mental health, licit and illicit drug use, health service use, overweight and obesity and the intersection of socio-economic determinants and sexual orientation and mental and physical health. Analysis and publication has already occurred from data in Young 2 and Mid 3 Surveys in the areas of mental health and substance use. In 2006, further analysis was carried out looking at the association between Body Mass Index (BMI), body image and sexual orientation, and this is to be submitted for publication in 2007.

In 2008, we plan to commence new analysis with a team from the USA including Professor Tonda Hughes and Assistant Professor Laura Szalacha from the University of Illinois at Chicago, and Professor Sharon Wilsnack from the University of North Dakota. This will compare data from the Young 2 Australian Longitudinal Study on Women's Health Survey with two other longitudinal datasets, the Chicago Health and Life Experiences of Women study (CHLEW), and the National Study of Health and Life Experiences of Women (NSHLEW). The NSHLEW is a 20-year longitudinal study of drinking behaviours and related risk factors among women in the U.S. general population and the CHLEW is a five-year longitudinal study of self-identified lesbians designed to replicate and extend the NSHLEW. Our primary objective is to examine and compare prevalence rates of health status indicators (e.g., depression, BMI), health risk behaviours (e.g., smoking, alcohol use, cancer screening), and barriers to health care (e.g., current health insurance status, regular source of medical care) among women in five sexual identity categories to determine which groups are at greatest health risk. A secondary, more exploratory, objective is to examine changes in sexual identity at two time points and to determine whether changes in sexual identity are associated with changes in health risk. This will use data from Young 2 and Young 3 datasets.

Project:	The impacts of caesarean section in Australian women
ALSWH Investigators:	Dr Deborah Loxton and Professor Julie Byles
Collaborative Investigators:	Associate Professor Pauline Chiarelli, Mr Michael K Drew (School of Health Sciences, University of Newcastle) and Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)
Funding Source:	None

This study aimed to examine whether mid-age women who have had a caesarean section (CS) are at a higher risk of developing back problems over the longer term. In view of the fact that delivery by CS has steadily increased to 29.4% in 2004 with higher rates among older, privately insured mothers it seems reasonable to explore the impacts of such deliveries on health issues over the longer term.

The pelvic floor muscles diaphragm have dual roles involving postural and respiratory functions. During situations where demand for one of these functions is increased the muscle activity is altered. These alterations in muscle activity have been proposed to precipitate lower back pain (LBP). With similar rationale, we hypothesized that trauma to the abdominal wall (such as occurs during caesarean section) might predispose women to LBP over the longer term. Such injury may precipitate LBP through biomechanical dysfunction arising from reduced muscle force capabilities with secondary deconditioning from pain inhibition during the postoperative period.

The study showed that while parity may be associated with onset of LBP in younger women, it does not appear to be associated with back pain over the longer term and neither is CS.

The fact that LBP is associated with urinary incontinence and breathing disorders is supported by this study. Women's place of residence, education, menopause, arthritis, asthma, osteoporosis, stiff and painful joints, breathing disorders, urinary incontinence and smoking status all had a statistically significant association with back pain, however delivery by caesarean section did not increase the likelihood of self-reported back pain over the longer term in mid-aged women.

Project:	An investigation into the psychological, physical and behavioural factors associated with sleep problems in victims/survivors of sexual violence
ALSWH Investigator:	Dr Deborah Loxton
Collaborative Investigators:	Professor Jill Astbury and Dr Gerard Kennedy (School of Psychology, Victoria University)
Funding Source:	Victoria University Collaborative Research Grant

The aim of this project is to explore the complex relationships between sexual violence, sleep problems and other health problems. The primary hypothesis to be explored is that women who reported sexual violence would also report poorer health outcomes overall, including sleep problems, mental health problems, and higher use of medications, alcohol and illicit drugs when compared to women who did not report sexual violence.

Comparisons were firstly made between women who reported each form of abuse (sexual abuse, physical abuse and/or severe physical violence, harassment and emotional abuse) and women without a history of abuse in order to assess differences in sleep disturbances. Comparisons were also made between women with and without a history of abuse to explore alcohol use behaviours, and strong relationships were observed between a history of abuse and alcohol use. These results were reported on in the previous technical report.

Following the findings that most women experienced a combination of abuses rather than sexual abuse in isolation in the last three years, women with and without "any kind" of abuse history in the last three years were also compared on all sleep-related variables. Finally, women who reported two or more other kinds of abuse with sexual abuse were compared to women with no abuse history on all sleep-related variables, in order to explore the effect of multiple abuses.

When women with *any kind* of abuse history in the last three years were compared to women who reported no abuse in the last three years, the results showed that there were significant differences between groups for all investigated sleep problems. When women who reported two or more other kinds of abuse with sexual abuse were compared to women who reported no abuse in the last three years, these differences became larger still. In particular, women who reported two or more other kinds of abuse with sexual abuse (multiple abuses including sexual abuse) were 3.95 times more likely to report often having difficulty sleeping, and 5.6 times more likely to report use of prescription medication for sleep, when compared to women who reported no abuse in the last three years. These results showed that there was a significant relationship between multiple abuses (including sexual abuse) and sleep disturbances, and a particularly strong relationship between multiple abuses and the use of prescription medications for sleep.

It was hypothesized that sleep variables would also be significantly associated with socio-demographic variables in this sample of young women. Relative risk analyses were conducted by creating dichotomous variables from all sleep and socio-demographic variables. The results of relative risk analyses showed that women with

no university qualifications, women with weekly income less than $999, women with a lower occupational status, un-partnered (single, separated, divorced or widowed) women, and women with one or more children were at significantly greater risk of experiencing a number of sleep disturbances. Overall, it appeared that all investigated SES and demographic variables were significantly related to sleep measures.

A multinomial logistic regression procedure was then performed using four of the sleep variables (representing different sleep constructs with low level inter-correlations) and the covariates of personal income, education, marital status and number of children. Women with no violence history were compared to women who experienced non-sexual violence, and to women who experienced sexual violence with or without other non-sexual violence. The likelihood ratio tests showed that the four covariates and the four sleep-related variables each made a significant contribution to the model.

The results showed that women with lower incomes were more likely to experience sexual violence than no violence, whereas women with one or more children were more likely to experience non-sexual violence than no violence. Unpartnered women and women with less educational qualifications were more likely to experience non-sexual violence and sexual violence than no violence. All odds ratios and confidence intervals were calculated after adjustment for average gross weekly personal income, educational qualifications, relationship status and number of children.

The results thus far have shown the relationships between sleep problems and several forms of abuse, between alcohol use and several forms of abuse, and between several socio-demographic variables and sleep problems. Regression procedures were also used to compare women with no violence history to women who experienced non-sexual violence, and to compare women who experienced sexual violence with or without other non-sexual violence, whilst controlling for the effect of several socio-demographic variables. Analyses are now concentrating on the relationships between abuse/violence and alcohol use among women with difficulties sleeping, in order to determine if women with difficulty sleeping and a history of abuse are more likely to have an alcohol problem than women without a history of abuse who have difficulty sleeping. Once these relationships are better understood, the analysis will focus on how other mental health problems are related to the observed relationships between sleep problems, socio-demographic variables, abuse, alcohol and nicotine use.

Project:	Preliminary analyses of qualitative data, coding into commonwealth priority themes and study material related to childbirth
ALSWH Investigator:	Dr Deborah Loxton
Collaborative Investigator:	Dr Ann Taylor (School of Social Sciences, University of Newcastle)
Funding Source:	University of Newcastle equity fellowship

Progress on this project has been delayed due to external factors. It is intended to resume analysis of the data which has been coded in N6 and to publish reports on qualitative themes and frequencies.

A paper based on comments by women responding to the Young 3 Survey has been accepted into the refereed section of the 2007 joint conference of TASA (Australian Sociological Association) and SAANZ (Sociology Association of Aotearoa/New Zealand).

Project:	Young women's changes in use of contraception after reproductive life events
ALSWH Investigator:	Dr Jayne Lucke
Collaborative Investigators:	Ms Melanie Spallek and Ms Danielle Herbert (School of Population Health, University of Queensland)
Funding Source:	None

This ongoing project examines changes in young women's contraceptive use over ten years in relation to a range of reproductive life events using longitudinal data from the Australian Longitudinal Study on Women's Health (ALSWH). A journal article is in progress and the results were presented at the Australasian Sexual Health Conference on the Gold Coast held 8-10 October 2007.

Little previous research has examined changes in young women's contraceptive use after significant reproductive or health life events. Some research has examined the reasons that women might discontinue contraceptive use in general and there has been some work investigating contraceptive use after the birth of a child and after the termination of a pregnancy. However other events may also cause a woman to re-evaluate her contraception, for example, the diagnosis of a sexually-transmitted infection, or having an abnormal pap test.

The analysis includes 8910 women who completed a self-report survey in 1996 when they were aged 18-23, and again in 2000, 2003 and 2006. Multinomial analysis has been used to explore patterns of contraceptive use before and after events related to pregnancy and birth (pregnancy, live birth, miscarriage and termination of pregnancy) and health (diagnosis with a sexually-transmitted infection and abnormal Pap test) and the factors associated with changes in contraceptive use.

The results show that the majority of women change their contraceptive method at least once and that reproductive events are important triggers for contraceptive change. The ALSWH provides an exciting opportunity to examine patterns of contraceptive use over time among women of reproductive age.

Project:	Service utilisation and caregiving among mid-age women
ALSWH Investigators:	Dr Jayne Lucke, Associate Professor Nancy Pachana and Professor Annette Dobson
Collaborative Investigators:	Mr Richard Hockey, Ms Melanie Watson and Ms Bree Waters (School of Population Health, University of Queensland)
Funding Source:	Department of Health and Ageing

The pilot study was the final stage of research commissioned by the Australian Government Department of Health and Ageing, as described in this section under the project "Employed Carers in Mid-Life: Findings from the Australian Longitudinal Study on Women's Health" with investigators Professor Annette Dobson, Dr Jayne Lucke and Dr Leigh Tooth.

The report presented documentation and results of a pilot sub-study of women's caregiving and employment transitions and the role of health services in lessening the negative impact of caregiving on women's lives. All 355 women in the Mid-age pilot sample for the Australian Longitudinal Study on Women's Health (ALSWH) were contacted by mail and invited to participate. Data collection was conducted over three months and 296 completed surveys were returned (response rate 83.9%).

The survey instrument was designed to allow the full sub-study to answer four research questions:

1. What is the broad impact of caring on women's lives?
2. How do women manage the transition to caring, particularly in relation to their labour force participation?
3. What services do women currently use?
4. What services lessen the negative impact of caring on the lives of carers?

Levels of missing data were not high and the majority of participants did not find the questions difficult to answer, difficult to understand, irrelevant or too personal. There were 23 specific recommendations made for the how a full sub-study of 1,500 Mid-age women could proceed. These included:

Recommendation 1

- That the MOS 6-item measure of social support is used in the full sub-study in preference to the DSSI.

Recommendation 4

- That consideration is given in the full sub-study to the format of questions asking about health service use and access in order to minimise missing data.

Recommendation 5

- That arthritis, Parkinson's disease and hearing impairment be added to the list of conditions in Question 48.

Recommendation 16

- That the full sub-study includes a question about receipt of carers pension or carers allowance.

Recommendation 17

- That the questions about carer status are clarified for the full sub-study in order to minimise confusion about the definition of a carer.

Recommendation 19

- That the sample size selected for the full sub-study be increased by 10% to take into account possible misclassification of carers and non-carers.

Recommendation 20

- That a sample of 1,500 should be randomly selected from participants in the fifth survey for Mid-age women, comprising
    - 500 carers who live with the person they care for
    - 500 carers who do not live with the person they care for
    - 500 women who do not provide care

Recommendation 21

- That the recruitment strategy remains unchanged for the full sub-study.

Recommendation 22

- That the full sub-study be conducted over 15 months during 2008 or 2009.

Recommendation 23

- That the full sub-study be funded to the level of $97,767.96.

Project:	Major dietary patterns of Young and Mid-age Australian women
ALSWH Investigators:	Associate Professor Gita Mishra, Professor Annette Dobson and Professor Wendy Brown
Collaborative Investigators:	Dr Sarah McNaughton (School of Nutrition and Exercise Sciences, Deakin University) and Professor Graham Giles (Cancer Control Research Institute, The Cancer Council Victoria)
Funding Source:	ALSWH and NSHD operating funds, NHRMC travelling grant

The aim is to assess the major dietary patterns among two age cohorts of Australian women using factor analysis of FFQ data.

The main research questions:

1. Are there clearly distinctive dietary patterns among Australian women, which can be identified by factor analysis of FFQ data obtained at Survey 3 for the

Younger and Mid-age cohorts of the Australian Longitudinal Study on Women's Health?

2. If there are clear patterns then what are the nutritional characteristics associated with these patterns?
3. How do these patterns relate to the sociodemographic characteristics of the women and selected behavioural risk factors?
4. To what extent do the patterns differ for the two cohorts?

This work is ongoing.

Project:	Trajectories of weight change in relation to dietary patterns among Mid-age women in Australia
ALSWH Investigators:	Associate Professor Gita Mishra, Professor Annette Dobson and Professor Wendy Brown
Collaborative Investigators:	Dr Sarah McNaughton (School of Nutrition and Exercise Sciences, Deakin University) and Professor Graham Giles (Cancer Control Research Institute, The Cancer Council Victoria)
Funding Source:	ALSWH & NSHD operating funds, NHRMC travelling grant

The aim of this project is to examine patterns of weight change in relation to dietary patterns among Mid-age women in Australia. It is hypothesized that women with different levels of Body Mass Index and different patterns of weight change will also have different dietary patterns.

This project is in the initial stages of planning and analysis.

Project:	Overweight, obesity and urinary incontinence: the effects of modest weight change: results from the ALSWH
ALSWH Investigators:	Associate Professor Gita Mishra, Professor Annette Dobson and Professor Wendy Brown
Funding Source:	None

While there are well-established associations between being overweight or obese and urinary incontinence, its relationship with weight change is less clear. The aim of the study is to investigate the relative impact of Body Mass Index (BMI) at baseline and a short-term (three year) weight change on the incidence of urinary incontinence. Prospective data were collected from a population-based cohort of Mid-age women participating in the Australian Longitudinal Study on Women's Health. In this paper data from three mailed surveys (Survey 1, 1996; Survey 2, 1998; Survey 3, 2001) will be used. Polytomous logistic regression will be used to assess the impact of BMI at Survey 1, and weight change (Survey 1 to 2), on three year incidence of urinary

incontinence between Survey 2 and 3; adjusting for sociodemographic and lifestyle factors.

The first hypothesis is that women who were overweight or obese at baseline were at a higher risk of developing urinary incontinence between Survey 2 and 3.

The second hypothesis is that women who gained weight were more likely to develop urinary incontinence compared with women whose weight remained stable between Survey 1 and 2.

Project:	The impact of stressful life events and anxiety symptoms on health status, mood state, quality of life and health care utilisation among older women: analysis of epidemiological data from the Australian Longitudinal Study on Women's Health
ALSWH Investigator:	Associate Professor Nancy Pachana
Collaborative Investigator:	Dr Natasha Koloski (School of Psychology, University of Queensland)
Funding Source:	NHMRC postdoctoral fellowship grant

Despite firm evidence that stressful life events are related to depression in the elderly, the relationship between stressful life events and anxiety in this population is under-researched. This study aims to examine the relationship between stressful life events and anxiety symptoms over time using validated measures, some of which have been specifically developed for use with this population. Data from the Older cohort of the Australian Longitudinal Study on Women's Health will be analysed to identify a cohort of subjects who report a significant number of recent life events and affective symptoms obtained from their responses to the Goldberg Anxiety and Depression Inventory in the 2002 survey. The primary outcome measures will be number of life events and the presence of anxiety symptoms. We will also explore patterns of life events endorsed across three time points (1996, 1999, 2002). Analyses for this study are planned for early 2008.

A secondary aim of this study is to characterise the nature of stressful life events (acute events, chronic difficulties, type of event, severity, duration, degree of threat and goal frustration associated with the event) and their association with anxiety symptoms in a subset of this cohort with high numbers of reported events. To do this we plan to conduct a sub study with women who reported a high number of events in the 2002 survey who are willing to be contacted for a brief telephone interview using a modified version of the Life Events Difficulties Scale (a measure that assesses acute events, chronic difficulties (those lasting longer than 6 months), type of events, degree of threat and goal frustration associated with events) and the Geriatric Anxiety Inventory. The data will be used to explore the relationships between the nature of life events and levels of anxiety symptoms. A sub-study proposal for this component of the study is planned for discussion in early 2008.

Project:	Validation of survey measures of depression, anxiety and cognitive impairment in the older cohort
ALSWH Investigators:	Associate Professor Nancy Pachana and Professor Christina Lee
Collaborative Investigators:	Dr Natasha Koloski, Ms Carmen Tang and Mr Christopher Hart (School of Psychology, University of Queensland)
Funding Source:	Australian Rotary Health Research Fund 'Mental Illness' grant

This sub study was conducted in 2007. There were several aims associated with the study:

1. to assess the feasibility of conducting a telephone interview with older women aged 80-85 years,
2. to determine if self reported measures of cognitive impairment are correlated with a semi structured telephone measure of cognitive status,
3. to determine if self reported measures of anxiety and depression are correlated with a clinical diagnosis and
4. to determine if there is a relationship between anxiety and depression and cognitive impairment.

The results found a high response rate to the mail out survey component to this study but a much lower response rate to telephone interviews with older women of 51%, with non-responders being much more physically and mentally impaired compared with responders, raising concerns about the feasibility of conducting telephone interviews with older people. In terms of the validation of the self-report measures of psychological distress and cognitive status we found that self report measures of memory (MAC-Q) are not necessarily reflective of a more objective indicator (TICS). However self report scales of anxiety (GADS) are reflective of a gold standard measure (SCID), however replication is needed with more depressive people. Finally, we found that anxiety and depression are associated with cognitive decline in people with memory problems, although future research should control for confounders and explore other cognitive domains. Two manuscripts based on these findings are currently being written and will be submitted to a journal in early 2008.

Project:	Size and structure of social networks in older women: Changes over time
ALSWH Investigators:	Associate Professor Nancy Pachana and Professor Annette Dobson
Collaborative Investigator:	Ms Melanie Watson (School of Population Health, University of Queensland)
Funding Source:	None

An abbreviated form of the Duke Social Support Index as used in a large longitudinal study of older Australian women was examined with respect to factors that might be expected to affect social support for older women over time. Two sub-scales were used: one describing the size and structure of the social network (four items) and the other perceived satisfaction with social support (six items). Over a three year period the network score increased among women whose life circumstances meant that they were likely to receive more support (e.g., recent widowhood). Likewise those women at risk of becoming more socially isolated (e.g., those with sensory loss) became less satisfied with their social support. Changes in both measures were tempered by women's mental health and optimism. Thus, although these sub-scales do not fully reflect the complexity of social support, they are responsive to changes in the lives of older women and can be recommended for use in community-based epidemiological studies.

Project:	The association of memory with chronic illness, physical and mental health and caregiver status in older women
ALSWH Investigators:	Associate Professor Nancy Pachana and Professor Annette Dobson
Funding Source:	None

This project is now complete.

It was the aim of this research project to investigate the health of Australian women aged 70 years and over who are caring for someone ill or disabled at home. This sample of women was drawn from the Australian Longitudinal Study on Women's Health which is a large population-based mail-out survey examining aspects of health in these women. Study one was cross-sectional in nature. Results of independent t-tests indicated that caregivers (N= 851) reported poorer mental health as compared to demographically similar non-caregivers (N = 9 583), and no differences between groups were found for self-reported physical health. There were few observed differences between these groups on measures of social support, stress and personality traits. Results of hierarchical multiple regression analyses indicated that health-related hardiness (HRH), physical activity, social support, neighbourhood satisfaction and income are important in fostering positive ratings of mental health. Higher stress and the occurrence of more than one major life event in recent years were not helpful for caregiver mental or physical health. HRH, physical activity and income were

important in fostering positive outcomes for self-reported physical health. There was no support for any interactive or moderating relationships. Study two aimed to investigate caregiver health over time where continuous non-caregivers were compared to caregiving groups via linear mixed models analyses. While the means for mental health for all caregiving trends fell within the average range for Australian norms, statistical analysis suggested a downward trend over time for caregiver mental health. There was a lack of definitive support for the adaptation hypothesis as it stands at present, and there was no support for improvement in mental health following cessation of the caregiving role. Caregiving was not associated with declines in self-reported physical health. However, age was associated with declines in this domain, where over time, all caregiving groups and the non-caregivers reported worse physical health. Implications for future caregiving research and for social and health care policy are discussed.

Project:	Transitions in alcohol consumption among Mid-age Australian women and longitudinal changes in general health
ALSWH Investigators:	Ms Jennifer Powers and Dr Anne Young
Funding Source:	None

Moderate alcohol consumption is associated with a lower risk of total mortality but the relationship between alcohol intake and total morbidity and health is unclear. This study explores the impact of alcohol consumption on health over time. Data come from 13,585 women aged 45-50 years in 1996, of whom 9317 were resurveyed in 1998, 2001 and 2004. Longitudinal models were used to examine changes in self-reported general health by alcohol consumption, adjusted for socio-demographic and health factors, smoking status and having a chronic condition.

General health for women with consistent alcohol intake was better among moderate than non-drinkers, occasional drinkers and heavy drinkers. Among occasional and moderate drinkers, a decrease or variation in alcohol consumption was associated with a decline in general health. Exclusion of women with an existing chronic condition at Survey 1 did not alter these findings. Recent abstainers and intermittent drinkers were not found to be significantly less healthy than longer-term abstainers.

This paper is currently under review.

Project:	Predictors of change in illicit drug use in young women
ALSWH Investigator:	Ms Anne Russell
Collaborative Investigators:	Associate Professor Cathy Turner and Ms Emily Yorkston (School of Nursing, University of Queensland)
Funding Source:	None

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.

The sample was the cohort of Young women moving from their mid- to late 20s, completing the 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.

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.

In conclusion, 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.

This project is now complete with a paper published in *Addiction*.

Project:	Prevalence of back pain in Australian women and its relationship to incontinence and respiratory disease
ALSWH Investigators:	Ms Anne Russell and Professor Christina Lee
Collaborative Investigators:	Ms Michelle Smith and Dr Paul Hodges (School of Health and Rehabilitation Sciences, University of Queensland)
Funding Source:	National Health and Medical Research Council

Although the mechanism for the development of low back pain is not well understood, it has been extensively argued that it is associated with changes in control of the trunk muscles. Many trunk muscles, such as the diaphragm, transversus

abdominis, and pelvic floor muscles, contribute to postural stability, but are also essential for respiration and continence. Altered function of these muscles in people with incontinence and respiratory disease may interfere with the physiology of spinal control, and provide a link to back pain. The aim of this project was to establish the association between back pain and disorders of continence and respiration in women.

Our initial cross-sectional analysis of Survey 1 data has been published in the *Australian Journal of Physiotherapy*. This study found that disorders of continence and respiration were strongly related to frequent back pain after consideration of possible confounding factors. A secondary finding during this analysis was a strong relationship between gastrointestinal symptoms and back pain. Possible explanations 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. This manuscript has been accepted for publication in the *Clinical Journal of Pain*.

Our second analysis involved calculation of univariate and multivariate prevalence ratios to determine the associations between the development of back pain and change in the presence of incontinence and breathing difficulty between Surveys 1 and 2. This study found that women with pre-existing incontinence and women who developed incontinence or breathing problems were more likely to develop back pain than women without such problems. This provides the first evidence that the presence and/or development of incontinence and breathing problems are associated with the future development of back pain. This paper has been submitted to a journal and is currently under review.

Our final analysis involved division of women in each age cohort into subgroups who had no back pain, incontinence, breathing problems and allergy. Each data subset was analysed to determine the relationship between the development of the absent condition (i.e. back pain, incontinence, breathing problems or allergy) and the presence or development of the other conditions. This study identified that women with pre-existing and/or newly developed incontinence and breathing problems/ allergy had an increase risk for the development of back pain, and women with pre-existing and newly developed back pain were more likely to develop incontinence and breathing problems. This suggests that common factors may contribute to the development of these conditions, at least in some individuals. As the trunk muscles contribute to each of these systems, altered muscular control may contribute to the development of these co-morbidities. This paper has been submitted to a journal and is currently under review.

Project:	The relationship between back pain and incontinence in Australian women during pregnancy and post-partum
ALSWH Investigators:	Ms Anne Russell and Professor Christina Lee
Collaborative Investigators:	Ms Michelle Smith and Dr Paul Hodges (School of Health and Rehabilitation Sciences, University of Queensland)
Funding Source:	National Health and Medical Research Council

Back pain and pregnancy are thought to be related, but studies have not directly compared incidence with non-pregnant or nulliparous women. Urinary incontinence is common during pregnancy, but its relationship with back pain during pregnancy is unknown. The aims of this study were to compare prevalence of back pain in parous and nulliparous, and pregnant and non-pregnant women, and to determine whether there is an association between incontinence and back pain in pregnant women.

This study demonstrated that back pain was more frequent in parous than nulliparous, and pregnant than non-pregnant younger women; however, no associations were seen for mid-age women. This suggests that pregnancy may lead to earlier development of back pain, without affecting long-term prevalence. Data also indicate that incontinence and back pain were related in pregnant women. This may be due to the contribution of the pelvic floor muscles to continence and lumbopelvic control. This project has been completed and has been accepted with an advanced online publication in the *International Urogynecology Journal and Pelvic Floor Dysfunction*.

Project:	Mid-age women's use of counselling services
ALSWH Investigator:	Professor Margot Schofield
Collaborative Investigator:	Dr Asad Khan (Centre for Social Research, University of Queensland)
Funding Source:	None

Four papers have been prepared. The first has been accepted for publication in *Counselling and Psychotherapy Research*. The second is under review. The third and fourth papers are near final draft.

The first paper examined self-reported use of counselling.

In summary: Counsellor training programs are growing rapidly in Australia accompanied by an increasing professionalisation of the counselling profession. Rates of psychological distress in the Australian community are also on the rise. Despite these changes, use of counselling and psychological services is relatively low. This study examines 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.

The second paper examines the pattern of health service use by mid-age women who consulted counsellors, psychologists or social workers in the past year compared with those who did not among a population-based sample of mid-age Australian women. The design was a cross-sectional population-based mail survey. The research was conducted as part of the third Survey of the Mid-aged cohort of the ALSWH conducted in 2001. Participants were 11,201 women aged 50–55. The main study measure was a self-report question asking whether they had consulted a Counsellor/Psychologist/Social Worker in the past year. Only 6.9% of women had consulted a Counsellor/Psychologist/Social Worker in the past year. After controlling for self-reported mental health status, health behaviours and demographic variables in multivariate analysis, having consulted a Counsellor/Psychologist/Social Worker in the past year was significantly and positively associated with consultations with general practitioner (5 or more consultations, OR 4.14, 95% CI 2.35-7.27, P<0.0001), specialist (3 or more consultations, OR 2.09, 95% CI 1.66-2.63, P<0.0001), and hospital doctor (OR 1.35, 95% CI 1.10-1.66, P=0.004). Consultations with other allied and complementary health services were not associated with use of counselling services in multivariate analyses. In conclusion the study found a strong link between use of medical services and using counselling services among mid-aged women. Further research is needed to determine whether the link between use of counselling and medical services is best explained by general practice referral patterns, economic factors, or different help-seeking patterns among women.

This paper is under review.

Two further papers based on the Mid-age Survey 3 are in preparation. One investigates the physical health of women who seek counselling and those who don't, and another paper presents the mental health profiles of women who have sought counselling. Longitudinal analyses will then be examined.

Project:	Use of medication amongst mid-age women: Correlates of use and predicting change
ALSWH Investigator:	Professor Margot Schofield
Collaborative Investigator:	Dr Asad Khan (Centre for Social Research, University of Queensland)
Funding Source:	None

Increasing rates of prescription and use of medication have been noted in the Australian community. This series of analyses aims to examine mid-aged women's use of medication, particularly use of medication for anxiety, depression and stress.

The analyses also aim to determine factors associated with the use of these medications. It will map the demographic profiles and the mental health and physical health of women who do and do not use medications, and examine their use of health services. Analyses are currently underway and two papers are being drafted.

Project:	Women consider retirement: a critical investigation of attitudes towards work, ageing and retirement in three generations of Australian women
ALSWH Investigators:	Dr Penny Warner-Smith and Professor Julie Byles
Collaborative Investigators:	Dr Christine Everingham, Dr Deborah Stevenson (School of Humanities and Social Sciences, University of Newcastle) and Dr Lynne Parkinson (School of Medicine and Public Health, University of Newcastle)
Funding Source:	ARC Discovery Project grant

Final data collection for this study, which takes a generational perspective on women and retirement, has now been completed. In their fourth ALSWH Survey in 2004, the Mid-age cohort, then aged 53-58 years, reported a diversity of work participation patterns as they approached retirement age. Focus groups and interviews with women in the same age as the Mid-age Australian Longitudinal Study on Women's Health group were carried out in 2004 and 2005. The results also suggested that retirement had multiple meanings for these women.

Using these data and data from a series of qualitative interviews and focus groups with similar aged women, three models for women and retirement were developed: Gateway, where retirement is conceptualised in a stereotypically masculine employment trajectory as the end of the working life; Transitional, where retirement is still 'not work' but working life is extended through flexible work practices; and Transformative, which is a lifestyle which may include paid work, but the nature of work is transformed and the work/non-work boundaries are less clear.

In order to test these models, a mail-out survey was conducted with sub samples from two groups of the Mid-age cohort: women who had recently retired at Mid-age Survey 4 and women who said at Mid-age Survey 4 that they were planning to retire in the next 12 months. Final return figures for the survey were 763 completed and returned surveys out of 900 posted out (85% return rate).

Factor analysis of these data reveal five main dimensions of retirement aspirations. A majority of women in this age group aspire to be active in retirement by travelling, engaging in hobbies, staying physically active undertaking voluntary work, and caring for others; and most people plan to have sufficient money to cater to their wants and needs in their retirement years. About a third plan to undertake some amount of paid work after they have retired from their main job. A majority of women see retirement as a time of independence, being able to live life in their own way. Only a minority of women (about 25%), said they see retirement as a time for slowing down and a time of declining health.

The paper from this work has been accepted for publication in Women's Studies International Forum. Presentations have also been given at the Academy of Social Sciences in Australia Workshop at the University of New South Wales, in December 2006, and at the Australian Association of Gerontology 40th National Conference in Adelaide in November.

Project:	Health care for women with diabetes living in rural areas: a longitudinal study of access to care and health outcomes
ALSWH Investigators:	Dr Anne Young and Professor Julie Byles
Collaborative Investigator:	Dr Julia Lowe (School of Medicine and Public Health, University of Newcastle)
Funding Source:	2006 Diabetes Australia Research Trust

This study received funding from the Diabetes Australia Research Trust to investigate the equity of care for women with diabetes across Australia. The provision of equitable access to effective and appropriate health services for people with diabetes in rural and remote areas is essential. The Australian Government has introduced a number of initiatives in recent years to improve the care of people with diabetes. This study aimed to measure the impact of these initiatives on the patterns of care provided to women with diabetes, to assess whether the uptake has been equitable in urban and rural areas and to test for a divergence in health outcomes for women with diabetes who do and do not have access to optimal care.

Longitudinal self-reported survey data from the Australian Longitudinal Study on Women's Health (ALSWH), collected since 1996, were linked with Medicare and Pharmaceutical Benefits Scheme claims (PBS) data to provide a rich longitudinal dataset for analysis. The survey data provided information on 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 7,000 women aged 79-84 years completed their 4th Survey for the ALSWH study in 2005, including 3,809 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.

Women with diabetes living in Major Cities receive a greater mean number of Medicare-funded health services and prescriptions than women living in Inner Regional areas or Outer Regional and Remote/Very Remote areas of Australia. The number of GP consultations for women with diabetes was lower for all areas of residence compared with women living in the Major Cities and the difference persisted as the women aged over the period of observation. The average number of specialist consultations for women with diabetes was also lower as remoteness increased. The percentage of women completing an annual cycle of diabetes care was more equitable, particularly in the more recent years, perhaps indicating that although service use is lower in regional and remote areas, there is some geographic equity in use of new incentives for the care of people with chronic disease. However the rates of use of this new item were still relatively low among these Older women, with less than one-quarter of the women having completed the recommended cycle of care in 2004. Very few older women were having a Medicare-funded Medication Management Review and around 25% were having an Enhanced Primary Care health assessment. There was an increase in uptake of health assessments over time but women in regional and remote areas were less likely to have an assessment than women in urban areas.

A presentation was given at the Public Health Association Conference in Alice Springs in September.

Project:	Weight control practices of mid-age women: social determinants and health Impacts
ALSWH Investigator:	Dr Anne Young
Collaborative Investigators:	Dr Lauren Williams (School of Health Sciences, University of Newcastle) and Dr John Germov (School of Humanities and Social Science, University of Newcastle)
Funding Source:	2005 RGC, University of Newcastle

In the second stage of this study, we are examining the associations between self-defined class, socioeconomic factors (ability to manage on income, education, occupation, area of residence) and weight control practices among women in the Mid-age cohort. The associations between social class, weight gain and obesity are relatively well established. However this study is the first in Australia to use a representative population sample to examine the relationships between socio-demographic factors and the weight control practices used by mid-age women. The findings enhance our understanding of the social origins of diet-related behaviour in the context of weight control. Statistical analysis is complete and a paper describing the association between social class and mid-age women's weight control practices is in preparation. The question on weight control practices was updated and included in the Mid 5 Survey conducted during 2007. Plans are underway to examine

longitudinal changes in strategies for maintaining and controlling weight. Approval has been received to extend the project and analyse the Mid-age data up to and including Survey 5.

Project:	Comparison of self-reported medications and PBS records
ALSWH Investigators:	Dr Anne Young and Professor Julie Byles
Collaborative Investigators:	Professor David Henry and Dr Lynne Parkinson (School of Medicine and Public Health, University of Newcastle)
Funding Source:	University of Newcastle Strategic Pilot Research grant

This project is comparing the self-reported medications collected during 2005 for Old Survey 4 with the PBS data for 2005 (for consenting women) to provide an estimate of the non-subsidised use of medicines among older women as well as the accuracy of self-reported medications (which are eligible for subsidy). This work is the first stage of other projects that can then use the PBS data. Progress to date has involved designing a system for coding both the self-reported medications and the PBS medication item numbers to the ATC coding scheme. The PBS data for 2005 has been compared with self-reported medication use for the same period for several main classes of medications. A full report of this comparison is provided in Section 3 of this technical report.

Project:	Use of the 'polypill' among older women
ALSWH Investigators:	Dr Anne Young and Professor Julie Byles
Collaborative Investigators:	Professor David Henry and Dr Lynne Parkinson (School of Medicine and Public Health, University of Newcastle)
Funding Source:	University of Newcastle Strategic Pilot Research grant

The rapidly increasing cost and complexity of drug treatment is likely to escalate as the population ages. Recent papers have debated the efficacy of a theoretical 'polypill' (a combination of six individual ingredients: thiazide diuretic, angiotensin converting enzyme inhibitor, beta blocker, statin, aspirin, and folic acid) with the assumption being that when combined together, the drugs have a synergistic treatment effect. This study investigated how many older women in Australian Longitudinal Study on Women's Health were taking drug combinations that comprise the theoretical polypill (or subsets of the drugs). Pharmaceutical Benefits Scheme (PBS) claims data for the period 2002-2005 were matched to a file of Anatomical and Therapeutic Classification (ATC) codes and PBS items numbers have been recoded, where possible. In the ATC classification system, the drugs are divided into different groups according to the organ or system on which they act and their chemical, pharmacological and therapeutic properties. Each drug in the combination was found

to be taken by around one-quarter to one-third of the women in the Oldest cohort, except folic acid was only identified for 4% of women. However, folic acid can be purchased as an over the counter medication and will be under-represented in PBS data. The same is also true for aspirin, but 32% of women had a PBS claim for this code.

Among Mid-age women, use of drugs in the polypill combination was much lower. The most common claims were for statins (14%), angiotensin converting enzyme inhibitor (6.7% of Mid-age women) and calcium channel blockers (5.1% of Mid-age women). Mid-age and Older women were more likely to be taking statins if they had diabetes, high blood pressure, previous stroke, or heart disease.

No woman had a claim for all six drugs, and few women had claims for four or more of the drugs in the combination (3.4% of Older women, and 0.3% of Mid-age women). Among Older women, 11% were on three combinations, and 25% were on two combinations. Around one-third of the Older women (32%) were on one drug, and one-third of the women were on none of the six drugs (29%). The most common combinations were statin and aspirin, statin and angiotensin converting enzyme inhibitor, statin and beta-blocker. These combinations were more likely to be taken by women who had diabetes, high blood pressure, previous stroke, or heart disease.

These data show that few women in their 50's are taking drugs or combinations of drugs that might be considered for primary prevention of cardiovascular disease and stroke. In most cases women who take these drugs have other risk factors, or a previous cardiovascular event. There has, however been an increase in use of statins over recent years, which may reflect the increasing age (and risk) of the women as well as changes in prescribing trends.

Project:	Alcohol consumption and poor mental health among mid-age Australian women
ALSWH Investigators:	Dr Anne Young and Ms Jennifer Powers
Funding Source:	Australian Brewers' Foundation Alcohol-related Medical Research Grant Scheme 2006

This study explores the relationship between alcohol consumption and a range of mental health measures over the eight years between 1996 and 2004. The following analysis from this study was presented by Jennifer Powers at the combined Australasian and International Epidemiological Associations conference in Hobart in August 2007.

The effect of change from moderate drinking to heavy drinking on the mental health of Mid-age women who were moderate drinkers in 1996 was investigated. The women were resurveyed in 1998, 2001 and 2004. Based on self-reported usual frequency and quantity of alcohol consumed, women were categorised as moderate drinkers (up to 14 drinks per week) or heavy drinkers (15 or more drinks per week) by Survey 4. Random coefficient models were used to examine the relative effects of increased drinking, change in marital status, ability to manage on income, smoking

status, having a chronic condition and level of exercise on changes in mental health over the four surveys.

Compared with women who remained moderate drinkers, women who became heavy drinkers by 2004 had significantly poorer mental health in 1996 and their mental health remained poorer. The major negative impacts on mental health were having difficulty managing on income, change in marital status and smoking. Over time, mental health declined further among current smokers and women who became separated, divorced or widowed. Having a chronic condition had a negative impact while exercise, increasing age and education had a positive impact on mental health.

After eight years of follow-up the results suggest that worse mental health precedes heavy drinking and other factors have a greater impact on mental health than higher alcohol consumption.

1.2.2 Completed postgraduate thesis

Project:	Cigarette smoking among young women
PhD Candidate:	Ms Liane McDermott (School of Population Health, University of Queensland)
Supervisors:	Professors Neville Owen and Annette Dobson (School of Population Health, University of Queensland)
Funding source:	NHMRC Public Health Postgraduate Research Scholarship and Core Infrastructure Grant to the Cancer Prevention Research Centre from Queensland Health
Expected completion:	Completed August 2008

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.

The publications from this thesis are:

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

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

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

1.2.3 Student projects in progress

Project:	Adjusting for death in longitudinal studies
PhD Candidate:	Mr Steven Bowe (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)
Supervisors:	Dr Anne Young (Quality Assurance and Improvement Academic Division, University of Newcastle) and Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)
Funding Source:	None
Expected Completion:	December 2008

Objectives:

1. To investigate the statistical methods used to account for death in longitudinal studies.
2. To apply the current statistical methods to Australisn Longitudinal Study on Women's Health (ALSWH) data for the Older cohort and evaluate the advantages and disadvantages of the methods.

3. To determine whether there is a need to improve current statistical methods and apply and assess new strategies if applicable.
4. To examine the impact of diabetes on quality of life among Older women - adjusting for deaths by applying the methods developed.

Study design/setting: A literature review was conducted to examine the statistical methods that are currently used to account for dropout due to death. A method proposed by Diehr and colleagues has been applied to ALSWH data. The method transforms the physical component score (PCS) of the SF-36 to a new score which estimates the probability of being healthy at the next time point. A value of zero is assigned to participants at time points when they have missing data due to death.

The transformation derived from the ALSWH data provides evidence that the methodology for transforming the PCS to account for deaths is sound. The three-year equation provided good estimates of the probability of being healthy in three years and the method allowed deaths to be included in an analysis of changes in health over time. Our ALSWH transformation equation has been published in 2006 and the paper has been cited by Selim et al.

Currently, the impact of imputing values for PCS that are missing for reasons other than death is being examined. It has been acknowledged that the previous work transforming the PCS and using a value of zero after death may bias results, as those who die may be given too much weight in the calculations compared to people who have data missing for other reasons. This would be particularly applicable when studying the impact of chronic disease such as diabetes where there is a relatively high death rate and also higher rates of missing data. Imputation methods are currently being applied to produce complete datasets from which to estimate the true change in HR-QOL over time. In order to choose an appropriate imputation method the missing data assumptions such as, Missing at Random (MAR) and Not Missing at Random (NMAR) need to be considered.

Results: At this point in the analysis, we have found that:

1. Observed longitudinal changes in physical health for women with diabetes may be poorly estimated due to loss of data through deaths and other reasons.
2. Analysis of changes in physical health, after including scores for participants who die, indicate poorer and worsening physical health for women with diabetes.
3. Longitudinal analysis including values for death, as well as imputing value missing for other reasons, may provide better estimates.

Currently, comparisons are being made between results from longitudinal imputation approaches where the assumption of MAR and NMAR have been applied. Presently, full Bayesian approaches are being considered for the imputation methods.

Further research will be conducted to determine whether the use of Generalised Estimating Equations (GEEs) or Mixed models are more appropriate approaches to analysing longitudinal data to account for participants who have died.

Project:	Prevalence, antecedents and efficacy of treatments of postnatal depression in Australia
PhD Candidate:	Mrs Catherine Chojenta (School of Medicine and Public Health, University of Newcastle)
Supervisors:	Dr Deborah Loxton (Research Centre for Gender, Health and Ageing, University of Newcastle) and Dr Jayne Lucke (School of Population Health, University of Queensland)
Funding source:	None
Expected completion:	December 2012

Objectives:

- To measure the prevalence of postnatal depression (PND) among Australian women using longitudinal data collected by the Australian Longitudinal Study on Women's Health (ALSWH) over the past 11 years
- To validate and extend an existing psychosocial model of the antecedents of postnatal depression
- To examine the efficacy of treatments of postnatal depression
- To examine the longitudinal psychosocial consequences for women who have suffered from postnatal depression

Study Design/Research Plan:

Phase 1: Analysis of the antecedents of PND using ALSWH survey data
The ALSWH provides a unique opportunity to examine the longitudinal antecedents of postnatal depression among young Australian women. Using a psychosocial model of depression, a model of the predictors of postnatal depression using longitudinal data collected in the ALSWH will be developed. Firstly, the prevalence of postnatal depression will be measured. Secondly, participants will be grouped into categories: those who have never given birth to a child, those who have given birth to a child and have never suffered from PND, and those who have given birth to a child and have suffered from PND. Furthermore, because of the longitudinal nature of the ALSWH, the recurrence of PND over multiple pregnancies can be tracked in the third group.

In order to empirically test and extend the psychosocial model of PND, structural equation modelling will be conducted. In particular, it is suggested from recently published literature that socioeconomic factors, previous life events, social support and social relationships and childbirth experiences will all be contributing factors in the development of PND. Furthermore, the efficacy of treatments and interventions will be examined. In order to elaborate on the model, ALSWH qualitative data will be coded and themes regarding PND will be identified.

Phase 2: Testing and extension of the model using qualitative interviews
In order to validate and build on the results of Phase 1, it is proposed to carry out qualitative focus groups within the community. The target population will be women who have suffered from postnatal depression, residing in a range of rural, regional and metropolitan areas. The qualitative and quantitative analyses proposed in Phase 1 will

guide the direction of research questions in Phase 2. It is intended to not only confirm the results of Phase 1 but also identify additional predictors of postnatal depression. Questions will investigate the life experiences and childbirth experiences of women in the community. The applicability of the PND model can be tested in a broader age range of mothers, including those not currently within the scope of the ALSWH.

- A further aim of this phase of the project is to validate the findings of the ALSWH quantitative analysis of the outcomes for postnatal depression sufferers. Focus group data will be used to determine those experiences that led women to access health services, at what stage services were accessed and why. It will also be possible to investigate the different experiences of women who have accessed psychological and/or pharmacological treatments for PND.

Progress to date: Currently a literature review is underway, as is an exploratory cross-sectional data analysis of Younger 1 to 4 datasets.

Project:	Children's structured leisure activities: Three generations of change
PhD Candidate:	Ms Leanne Fray (School of Economics, Politics and Tourism, University of Newcastle)
Supervisors:	Dr Penny Warner-Smith (School of Economics, University of Newcastle) and Dr Kevin Lyons (School of Economics, Politics and Tourism, University of Newcastle)
Funding Source:	Australian Research Council (ARC) Grant via the Work Life Tensions Project
Expected Completion:	June 2008

Purpose of the Study: The aim of this project is to explore how children's structured leisure activities have changed and evolved over the past 50 years. The research aims to investigate the underlying influences which underpin children's involvement in structured leisure activities. The study aims examine how social and cultural influences have shaped participation in structured leisure activities for children and their parents.

Phase One: The first phase of the study involved ten focus groups which were conducted in both urban and rural regions of NSW and QLD. The focus groups were transcribed and thematically coded using the qualitative software package Nvivo. Themes identified in the focus groups were used to inform phase two of the study which involved semi structured telephone interviews.

Phase Two: Participants from both the Younger cohort (N=88) and the Mid-age cohort (N=82) from The Australian Longitudinal Study on Women's Health were recruited to participate in phase two of the study. Participants from the Younger cohort and their partners were interviewed in 2004, while participants from the Mid-age cohort were interviewed in 2005. All interviews have been transcribed and coded thematically utilising the qualitative software package Nvivo.

Preliminary findings suggest that contemporary children not only have the opportunity to participate in a greater range of activities, but are doing so at a much younger age than their parents or grandparents. Modern-day children are also highly influenced by their parents and their peers and structured leisure activities are seen to be an arena where children are taught to be successful. Children participating in structured leisure activities during the 1950s and 1960s were more likely to be involved via their own volition. Leisure for children during this time seemed to be characterised by a distinct lack of parental involvement, compared to contemporary children whose parents appear to be much more involved. These preliminary themes and others including but not limited to the cultural context of each time period, social movements, gender, parental involvement, family car ownership, location (i.e. urban, regional, rural) will be explored when examining the underlying social and cultural influences that have changed the context and meaning of children's structured leisure activities over the past fifty years.

Project:	When life's a pain: The relationship between stress and modifiable psychosocial factors in arthritis
PhD Candidate:	Ms Melissa Harris (Health Behaviour Sciences, School of Medicine and Public Health, University of Newcastle)
Supervisors:	Dr Deborah Loxton (Research Centre for Gender, Health and Ageing, University of Newcastle); Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle); and Professor Julie Byles (Centre for Research and Education in Ageing, University of Newcastle)
Funding Source:	None
Expected Completion:	December 2011

Background: Current research examining the relationship between psychosocial factors and chronic illness has increasingly focused on the role of stress in the aetiology and progression of disease. Stress has been highlighted as a contributor to many illnesses including coronary heart disease, breast cancer, irritable bowel syndrome, and disease progression in early HIV disease. Studies however, have also indicated that psychosocial factors including psychological distress may influence the stress process while others such as social support may provide a buffer.

Presently, a paucity of research exists with regard to arthritis, the major cause of disability and chronic pain in Australia. Findings limited to the study of rheumatoid arthritis suggest that stress and associated psychosocial processes may have a significant impact on symptomatology and psychological adjustment to the disease. Moreover, researchers have speculated that while the aetiology of arthritis appears multifactorial, psychological stress and psychosocial processes may influence the onset of arthritis, in particular rheumatoid arthritis via neuroendocrine and immune pathways. Yet, stress remains a substantial contributor to cellular ageing and thus

may also be a significant contributor to accrued joint degeneration through similar pathways.

To date, studies attempting to address the complex psychosocial risk factors that contribute to arthritis appear to be non-existent, with the exception of a Canadian study which examined the relationship between traumatic childhood experiences and the risk of arthritis in men and women. The authors in this study established a moderate increase in risk of arthritis in individuals that were exposed to multiple traumatic childhood experiences.

Additionally, there is emerging evidence to suggest that a significant number of individuals with arthritis often go undiagnosed and untreated. Studies examining barriers to help-seeking in other medical conditions have indicated that psychosocial factors may play a role. In a study of women with urinary incontinence it was found that psychosocial factors such as appraisal of symptoms, lack of social support and personality variables were predictive in the delaying of seeking treatment. Thus, the psychosocial processes implicated in arthritis disease progression may also play a crucial role in the delaying of seeking help regarding symptoms. With the estimated economic burden of arthritis in Australia exceeding $19 billion a year, it highlights the need for the identification of such barriers in order to improve rates of early diagnosis and treatment.

Aims: Firstly, the purpose of this study is to conduct a series of cross-sectional analyses utilising data from the five Mid-age time points in order to examine the psychosocial factors which distinguish mid-age women who develop arthritis or experience joint pain from those that do not. Future analyses will aim to examine the psychosocial pathways that contribute to arthritis and joint pain in mid-age women, as well as variables that may influence and modify the stress process.

Moreover, conceptual models of the psychosocial pathways in arthritis onset and psychosocial mediators and moderators of arthritis on health status will be evaluated. Lastly, comparisons of health service use among women with joint pain and potential psychosocial barriers to seeking treatment will further be investigated.

Results: Preliminary data analyses pertaining to the sequential cross-sectional studies have indicated that mid-age women experiencing joint pain or possessing self-reported arthritis have deficits in psychosocial functioning in comparison to women who reported not experiencing either joint pain or arthritis. The most significant findings indicated that depressive symptomatology, number of emotional life events, levels of perceived stress and the use of withdrawal as a dominant coping strategy increased concurrently with joint pain and arthritis status. Moreover these same women reported a greater number of comorbid health conditions and somatic symptoms and decreased levels of perceived social support. Additionally, women with joint pain or arthritis perceived their own health across a number of domains, including bodily pain, physical and social functioning, mental health, vitality and general health as significantly worse than women without arthritic symptoms or conditions. Further analyses will be conducted in order to further clarify these findings.

Project:	An examination of trends in young women's sexual and reproductive health over ten years
PhD Candidate:	Ms Danielle Herbert (School of Population Health, University of Queensland)
Supervisors:	Professor Annette Dobson and Dr Jayne Lucke (School of Population Health, University of Queensland)
Funding source:	University of Queensland Mid-Year Scholarship
Expected completion:	July 2010

Objectives: The purpose of this project is to systematically examine trends in young women's sexual and reproductive health (SRH) over ten years, spanning the first four surveys of the Young cohort of the Australian Longitudinal Study on Women's Health (ALSWH). The main focus is the analysis of SRH as predictors of fertility and subfertility. This project is currently in Phase 1 of the research plan.

Research Plan:

Phase 1: Description of trends from Survey 1 (1996) to Survey 4 (2006).
Analysis is currently underway on cross-sectional and longitudinal patterns of SRH in the following key areas:

- Pregnancy outcomes – live births and pregnancy losses (stillbirths, miscarriages, terminations, ectopic pregnancies).
- Incidence of sexually transmitted infections (STIs), abnormal pap smears.
- Age of menarche and sexual initiation (coitarche).
- Socio-demographic and health-related factors.
- Obstetric outcomes (resulting in physical damage to the reproductive tract).
- Main outcome measure is trajectories of pregnancy outcomes across four surveys.

Phase 2: How does early sexual and reproductive health influence later reproductive health outcomes?
This phase of the project will focus on four research questions:

1. Does early sexual behaviour predict later sexual health?
2. How does early reproductive behaviour influence later reproductive success?
3. Does sexual history affect assisted reproductive technology (ART) treatment?
4. Does reproductive history affect ART treatment?

The trends identified from the ALSWH surveys (Phase 1) will be compared with the sexual and reproductive histories of women presenting to infertility specialists with primary or secondary infertility. The ability to conceive and/or respond to ART treatments may be determined by individual sexual and reproductive histories.

Project:	Diet quality in young Australian women according to pregnancy status
PhD Candidate:	Ms Alexis Hure (School of Health Sciences, University of Newcastle)
Supervisors:	Dr Clare Collins (School of Health Sciences, University of Newcastle), Dr Anne Young (ALSWH, University of Newcastle) and Professor Roger Smith (Mothers and Babies Research Centre, University of Newcastle)
Funding Source:	None
Expected Completion:	December 2007

Objective: To compare the diet quality of young Australian women according to pregnancy status, defined as:

1. Pregnant & <12mo infant;
2. Pregnant;
3. Trying to conceive & <12mo infant;
4. Trying to conceive;
5. <12mo infant (vi) Other.

Study design/setting: The Australian Longitudinal Study on Women's Health (ALSWH) data collected during Survey 3 (March 2003) for the Young cohort (aged 25-30yrs) has been included in this analysis. Of particular interest is the dietary intake data which were assessed through the inclusion of the Cancer Council of Victoria's Dietary Questionnaire for Epidemiological Studies (DQES) Version 2. A diet quality score reflecting adherence to national dietary recommendations was generated, according to the methodology employed for the Australian Recommended Food Score (ARFS). This measure of diet quality was compared according to pregnancy status. An investigation into the component food group scores for the ARFS was undertaken to detect where, if any, specific dietary differences between pregnancy groups exist.

Results: Pregnancy status was predictive of diet quality ($p=0.003$) even after adjusting for education, area of residence, and marital status. Women who were pregnant, or had given birth in the previous 12 months had higher mean ARFS than those who were not pregnant, not trying, and had not recently given birth. However these findings were only statistically significant because of the large sample size. The absolute differences in mean ARFS were very small. No single food group accounted for the small variation in diet quality that did exist between pregnancy groups.

Progress: The manuscript is currently being prepared for submission to an epidemiological journal with the aim of submitting this by the end of the year.

Project:	The aspirations and life goals of young women during the period of emerging adulthood
PhD Candidate:	Miss Melissa Johnstone (School of Psychology, University of Queensland)
Supervisors:	Professor Christina Lee and Associate Professor Nancy Pachana (School of Psychology, University of Queensland)
Funding source:	APA Scholarship
Expected completion:	March 2009

Objectives:

- To examine young Australian women's aspirations for work and family, with reference to the theory of Emerging Adulthood as well as Hakim's Lifestyle Preference Theory.
- To identify and understand young Australian women's aspirations/goals/life plans and uncertainties, regarding employment, family, relationships, residence, living and finance, during their transition into adulthood.
- To understand how young women successfully navigate and subjectively experience the passage into early adult life.

Phase 1

Quantitative analyses of the data collected from Surveys 1, 2 and 3 of the Younger cohort of the Australian Longitudinal Study on Women's Health (ALSWH) were conducted, both cross-sectionally and longitudinally, focusing on responses to the questions regarding young women's aspirations for employment, motherhood and relationship status at age 35. The results were assessed with reference to Hakim's Lifestyle Preference Theory and the theory of Emerging Adulthood.

It was found that Hakim's Lifestyle Preference Theory did not adequately explain young women's aspirations for work and family. Young women could not be easily categorised into Hakim's Lifestyle Preference Groups, they were not consistently aspiring to a particular 'type' of lifestyle and they were not aligning their behaviour at Survey 3 with their aspirations from Survey 1. Based on these findings, a manuscript which attempts to explain the longitudinal aspirations of the young women and which discusses the discrepancies between Hakim's model and the present data has been prepared and submitted to a journal on Women's Studies.

Phase 2

The second phase of the project involved analysing the written comments obtained from Surveys 1, 2 and 3 of the Younger cohort of the ALSWH. This analysis focused on young women's comments that were specific to the topic of aspirations and the transition into adulthood; particularly comments regarding employment, family, relationships, living, finance and lifestyle. Currently, the comments from all three surveys have been read and prepared into a comparative discussion.

Paid work, study, travel, living, relationships and motherhood were major themes that emerged from each survey. The young women described a large degree of change and instability in some of these areas. In addition, the tone of the comments changed across the surveys. Increasingly, the comments suggested that the women were becoming less self-focused and more considerate of other people, more self-reflective and more accepting of life's challenges. They increasingly expressed concern about their futures and anticipated difficulties with fitting in everything they wanted to achieve.

Some of the findings demonstrated similarities to Arnett's theory of Emerging Adulthood, especially to the tenets of exploration, change and instability. An abstract for a paper which gives consideration to whether these themes are a reflection of a specific period of the lifespan or reflects adult life more generally in the 21st Century, has been submitted for the ASBHM Conference in Bondi at the end of January 2008.

Project:	Socioeconomic inequalities in women's use of health care services in Australia
PhD Candidate:	Rosemary Korda (National Centre for Epidemiology and Population Health, The Australian National University)
Supervisors:	Supervisors: Professor Jim Butler (Australian Centre for Economic Research on Health, The Australian National University); Dr Mark Clements, and Dr Emily Banks (National Centre for Epidemiology and Population Health, The Australian National University) Advisor: Dr Jane Dixon (National Centre for Epidemiology and Population Health, The Australian National University). ALSWH Collaborator: Dr Anne Young (Quality Assurance and Improvement Academic Division, University of Newcastle)
Funding Source:	Australian Postgraduate Award (APA) and NCEPH supplementary scholarship
Expected Completion:	Early 2008

This project forms part of a PhD thesis on socioeconomic inequality in the use of health care in Australia, and the impact on health outcomes. The purpose of this research is to investigate whether or not there are inequalities in health care based on a person's socio-economic status (SES, as measured by income, occupational and educational status, as well as area-level measures of SES).

Research Questions: The Australian Longitudinal Study on Women's Health data were used to address the following research questions:

1. Is there socioeconomic inequality in the use of ambulatory health care services once health status is taken into account?

2. What is the effect of health care cards and private health insurance on socioeconomic inequality in health service use?
3. What is the effect of accessibility of services, as measured by remoteness, on socioeconomic inequality in health care use?
4. Is there socioeconomic inequality in women's ratings of access to health care services?

Summary of Results: There is socioeconomic inequality in the use of ambulatory health services in Australian Mid-age women. While GP services are equally distributed, there is inequality in use of other health practitioners: socioeconomically advantaged women are more likely to use specialist doctor, allied health, alternative health, and dental services, while they are less likely to source hospital-based ambulatory medical care (i.e., emergency and outpatient medical care). This pattern of inequality is evident in women with a range of health states and chronic conditions. Inequalities in specialist services are greater than for GP and allied health services, but not as high as for dental services. In contrast, there is only marginal inequality in use of screening services, with higher SES women more likely to be up-to-date with cervical screening and no inequality in use of mammography.

Patterns of inequality are similar in major cities and more remote regions, although inequality in dental services is higher in more remote areas. Concession cards have a positive effect on equity, reducing socioeconomic inequality in GP use, but having no effect on inequality in specialist use. In contrast, private health insurance promotes inequity, increasing socioeconomic inequalities in use of specialist doctor, allied health and dental services. In addition to inequalities in health service use, socioeconomically disadvantaged women rate their access to health care services more poorly than do more advantaged women. This includes access to specialists, screening and other health services, as well as aspects of GP services, with the exception of bulk-billing which is rated more favourably by disadvantaged women.

The written output from this project will comprise two PhD chapters. Drafts of both chapters are almost complete. Papers from these chapters are in preparation. The thesis is on track for submission in early 2008.

Project:	The impact of trauma on young women's health behaviours
Masters of Health Psychology Candidate:	Ms Toni Lindsay (School of Behavioural Sciences, University of Newcastle)
Supervisors:	Dr Jenny Bowman (School of Behavioural Sciences, University of Newcastle) and Dr Deborah Loxton (Research Centre for Gender and Health, University of Newcastle)
Funding source:	None
Expected completion:	February 2008

Objectives: This project aims to examine the impact of traumatic life events on young women and their health behaviours including alcohol use, smoking, illicit drug use, as well as sexual practices. In order to examine this, the data from the first three Younger cohort surveys are being utilised.

The research questions for the current project include the following:

1. Do women who experience trauma show an increase in the number of negative health behaviours they undertake compared to women who do not experience trauma?
2. Do women who were engaging in positive health behaviours prior to a trauma decrease these behaviours following the onset of trauma?
3. Do women who were already participating in negative health behaviours increase these behaviours following the onset of trauma?

Results: Preliminary data analysis indicates that there is a link between the onset of trauma and an increase in negative health behaviours, especially smoking. Further longitudinal analysis is currently being conducted to further examine the impact of trauma on health behaviours. Results are expected in February 2008.

Project:	Childlessness and the role of choice in childless women's reproductive outcome
PhD Candidate:	Ms Heather McKay (Key Centre for Women's Health in Society, School of Population Health, The University of Melbourne)
Supervisors:	Associate Professor Jane Fisher (Key Centre for Women's Health in Society, School of Population Health, The University of Melbourne) and Professor Christina Lee (School of Psychology, The University of Queensland)
Funding source:	a) Melbourne Research Scholarship (Faculty-Based MRS). b) The Victorian component of data collection for this study is supported by a grant from the Helen Macpherson Smith Trust
Expected completion:	March 2008

Background: Since the 1960's significant economic, political, social and cultural changes have occurred in Australia that has affected the nature of families and family values. At the same time there has been a decline in our fertility rate and an increase in lifetime childless rates. It is now predicted that between 20 and 25% of Australian women will not give birth to a child and that increasingly women are choosing this reproductive outcome.

Aim: This study aims to investigate why women remain biologically childless, the role of choice in this reproductive outcome, and its impact on women's lives. In doing so it also seeks to develop and enhance knowledge of voluntary childlessness.

Method and Results: Australian Longitudinal Study on Women's Health (ALSWH) participants from the Mid-age cohort were chosen for this study because although their childless status is unchangeable, they are young enough to have lived their childbearing years after the baby boom (1961) and since effective contraception became widely available.

Data for the project was obtained in two ways: firstly via secondary analysis of existing relevant information collected as part of the main ALSWH project, and secondly via a sub-study survey sent to a subset of the Mid-age ALSWH participants who indicated in Survey 1 that they had never given birth to a child. The latter method was the main focus of this study.

Secondary Analysis Phase: Motherhood status for the ALSWH Mid-age participants was determined and of the 14,099 Mid-age ALSWH sample, 339 had inconsistent or missing data, and 119 were biologically childless but performed a social mothering role (as a step or adoptive mother). This left an eligible sample of 13,641 and, when the standard study area weightings were applied, 91.2% of them were biological mothers and 8.8% childless. At Mid-age childless women were found to have higher levels of education and are more extensively engaged in the paid workforce than mothers. There were no differences in the health status between mothers and

childless women; however life satisfaction differences between the two groups were complex.

Sub-Survey Phase: Five hundred and thirty five sub-study surveys were sent with a response rate of 80%. Women responded well to being questioned about their choice in remaining childless, the priority they gave to having a child, and the reasons for their biological childlessness. Their answers allowed three categories of childless women to be formed according to the degree of choice women felt they had in this reproductive outcome. Although women's reasons for remaining biologically childless were quite different, they generally recognised that there were numerous positive outcomes for themselves and others associated with their motherhood status. But women with less choice in the reproductive outcome were more likely to see negatives associated with their resultant lives.

Women who believed they had some choice in their childlessness also reflected on their decision. Some indicated other people were involved in their choice and this other party was usually their male partner; however, women's comments revealed there was a spectrum of involvement by these men in the decision to remain childless.

Project:	A functional model of fall risk
Doctorate candidate:	Afsoon Hassani Mehraban (School of Health sciences, Occupational Therapy, University of Newcastle)
Supervisors:	Professor Julie Byles (Centre for Research and Education in Ageing, University of Newcastle), Dr Lynette Mackenzie (Occupational Therapy, University of Newcastle) and Associate Professor Catherine D'Este (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)
Funding source:	None
Expected completion:	December 2007

Aim: This project will explore and apply a new conceptual model of health and function to the problem of falls among older women. Falls are a major cause of morbidity among older women in Australia. They are the leading cause of injury related death in people over the age of 65 and they increase the risk of admission to residential care, reduced activity, leading to social isolation and frailty. However, despite numerous studies of medical and physical risk factors in frail individuals there has been little work to understand the complexity of factors (medical, social, environmental & personal) that influence the risk of falls for women in the community. This project applies the newly developed International Classification of Functioning developed by the World Health Organisation to data collected as part of the Australian Longitudinal Study on Women's Health.

Method & results: This project has developed a self-reported version of a validated home hazard checklist (the HOME FAST) designed to identify environmental risks

for falls in older people. Using this checklist, data on home hazards and falls have been collected from 568 women from the ALSWH (86.5% response rate from sub-sample of 650). Combined with other ALSWH surveys, these data allow in-depth analysis of the influence of social and environmental factors on falls risk among community living elder women and the interaction between these factors and established physical and medical risk factors.

Preliminary analysis indicates that about 20% of the sub-sample experienced a fall in the previous six months. Qualitative responses indicated that these falls can prevent women from continuing with some of their activities, such as home-making activities, outdoor activities and walking. Also, fallers have more hazards at their home than non-fallers. They have more difficulty in doing everyday activities such as dressing/undressing, walking without help, getting outside the house. According to Modified Falls Efficacy scores, non-fallers are more confident in doing their activities without falling such as preparing simple meals, taking bath/showers, simple shopping.

A validation study is also being conducted to compare self report and the ratings given by health professionals when using the two versions of the HOME FAST (self-report and health care professional versions). This involved several stages of assessing validity:

The validity of the devised scoring method to convert self report scores to the HOME FAST scores (out of 25).

Two raters independently rated the self report HOME FAST Surveys returned by 56 participants from the ALSWH sub-study. The kappa statistic shows good to excellent agreement for most of the items (0.65-1) except for some items such as access in the kitchen, and using steps. On the basis of these findings further adaptations to the items for the self-report HOME FAST Survey have been developed. After revision and modification of scoring, the kappa statistic shows excellent agreement (0.8<k>1) for all the items.

The concurrent validity of the self reported HOME FAST against a health professional rating of the HOME FAST.

Using data from a companion study involving 39 home visits where an occupational therapist completed the HOME FAST and the older person completed the self report HOME FAST, the kappa statistic measure was used to assess inter-rater agreement. The result ranged from very poor agreement (for getting in/out of bath and reaching items in the kitchen=-0.04) to excellent agreement (for having grab rail and non-slip mats in bath/shower=0.8, 0.7). Self-reported ratings by the older people in the study identified mostly higher numbers of hazards than the ratings by the health professionals. Further work will need to be done to determine the possible reasons for this finding.

Further analysis using longitudinal data is being undertaken to understand the nature of falls risks, limitations in physical home environment and their consequences.

Additionally, an article entitled*: "The development of self-report version of Home Falls and Accidents screening Tool (HOME FAST)"* has been submitted to a journal.

Project:	Coping with miscarriage: Young women's experiences
PhD Candidate:	Ingrid Rowlands (School of Psychology, University of Queensland)
Supervisors:	Professor Christina Lee and Associate Professor Nancy Pachana (School of Psychology, University of Queensland)
Funding Source:	University of Queensland Joint Research Scholarship
Expected Completion:	August 2008

This project aims to combine quantitative and qualitative methods to investigate:

1. whether miscarriage is a predictor of poor mental health among young women
2. the predictors of more positive mental health outcomes among women who have experienced miscarriage
3. the coping strategies that facilitate resilience after miscarriage.

Stage 1: A series of cross-sectional quantitative analyses were conducted to examine the correlates of miscarriage among young women. Analyses were completed at the end of 2005, and a selection of findings from the analyses was recently presented at the Society for Reproduction and Infant Psychology conference in England in September 2007.

Stage 2: Qualitative interviews, examining emotional outcomes and coping strategies among women who had experienced miscarriage in the last two years, were completed in October 2006. Nine face-to-face interviews were conducted with women aged 35 to 42 years (M = 37 years) and interviews ranged from 15 to 80 mins (M = 42mins). Transcripts were analysed via thematic analysis. Interviews showed that women's initial reactions to miscarriage were described with powerful negative emotions - shock, bewilderment, enormous grief and loss. While some women described fearing future miscarriages, gaining a sense of mastery in subsequent pregnancies was important for maintaining their well-being. Further, acknowledgment and support from families and the community facilitated resilience after miscarriage. Unfortunately, many women described poor care from health professionals. Some women were unhappy with the lack of information received and also reported insensitive comments and lack of empathy while being treated in hospital. Overall, the results showed that social norms, attitudes and expectations greatly affected how women coped with miscarriage and this has important implications for support and treatment of women after miscarriage. We hope to present these qualitative results at the Women's Mental Health conference in March 2008.

Stage 3: A series of longitudinal analyses are currently being conducted to examine women's mental health outcomes after miscarriage. Longitudinal analyses were necessary to adequately examine whether miscarriage was associated with poor mental health while taking into account other time varying predictors e.g. the number of children; prior diagnosis of depression or anxiety; prior pregnancy loss and the

number of life events experienced. It is anticipated the analyses will be completed by December 2007.

Project Title:	Socio-demographic, health behaviour and physical health correlates of women's mental health: A longitudinal analysis of three cohorts of Australian women's self-reported mental health
PhD candidate:	Ms Nadine Smith (School of Population Health, University of Queensland)
Supervisors:	Professor Annette Dobson (School of Population Health, University of Queensland) and associate Professor Nancy Pachana (School of Psychology, University of Queensland)
Funding source:	NHMRC Public Health Postgraduate Research Scholarship
Expected completion:	Submitted November 2007

Objectives: Poor mental health is a leading cause of years lost due to disability globally. The broad aim of this thesis is to explore the nature of the relationships between women's self-reported mental health and socio-demographic, health behaviour and physical health factors across the lifespan.

Study design/settings: This research analysed data collected for the Australian Longitudinal Study on Women's Health (ALSWH) from Surveys 1 and 2 of the Younger cohort and Surveys 1, 2 and 3 of the Mid-age and Older cohorts.

Results: Sleep problems and other physical symptoms in older women may be due to due to physical illness or the normal ageing process rather than depression or anxiety. However, the inclusion of items related to sleep problems and other physical symptoms in a mental health scale (Goldberg Anxiety and Depression Scale) did not impair the psychometric properties of the scale in older women.

Forward telescoping (incorrectly reporting events as happening more recently) was evident with life events. This effect was stronger among women with poorer mental health. This complex relationship suggests that mental health influences both the reporting of the variable of interest (for example, physical health) and the true nature of the variable of interest.

Cross-sectionally, poor mental health was associated with: socio-demographics such as not having a partner, having limited education, being born outside Australia and having difficulty managing on income; health behaviours such as being a current smoker, being physically inactive, and being underweight or of acceptable weight; and physical health such as numerous visits to a general practitioners, more diagnoses with a physical illness and more symptoms of physical illness.

Mental health varied across time when examined longitudinally for the same women. For example, 23% of Mid-age women varied between poor and good mental health across the three surveys and only 4% reported poor mental health at all surveys. The

baseline factors predictive of decline in mental health over time were similar to the cross-sectional correlates of mental health.

Variant and invariant factors affecting mid-age women's mental health across three time-points included partner status, ability to manage on income, smoking, physical activity, visits to the general practitioner and number of physical symptoms. In general, women with positive invariant states (for example, always being physically active) had the best mental health across the three time points, women with negative invariant states (for example, always being physically inactive) had the poorest mental health across the three time points, and women reporting a variant state (for example, going from inactive to active) lay somewhere between these two extremes across the three time points.

Conclusion: Low socio-demographic status, unhealthy behaviours and poor physical health are risk factors for poor or declining mental health over time.

2. CONDUCT OF SURVEYS

2.1 Younger Survey 4 – finalised data collection

Survey 4 of the Younger cohort was carried out in 2006 when the women were aged 28 to 33. The development, piloting, progress and finalisation were described in Reports 24, 25, 26, 27 and 28. Table 2-1 gives the final response rates for Survey 4 of the Younger cohort.

Table 2-1 Response rates from Younger Survey 4 (at 31 August 2007).

	N	%
Completed surveys	9145	71.2
Deceased	2	0
Withdrawn	168	1.3
Not this time	196	1.5
No response	3336	26.0
Total mailed	12847	100

2.2 Mid-age Survey 5 – in progress

The process of development, piloting and mailing of the Survey 5 for the Mid-age cohort was described in Reports 26, 27 and 28. Copies of the Survey, Thank You Reminder leaflet and Targeted Reminder leaflet were included in Report 28. An updated timetable for this survey is given in Table 2-2, while Table 2-3 gives the response rates at 15th October 2007.

Table 2-2 Timetable for Mid Survey 5 (at 15th October 2007).

Date	Mailout	Items	N
15 March 2007	Mailout 1	Package mailed including survey, reply-paid envelope, letter of invitation and change of details card	12,420 mailed
19 April 2007	Mailout 2	Thank You Reminder leaflet mailed to all in Mailout 1, except recent withdrawals and those not wishing to participate in this survey	12,164 mailed
10 May 2007	Mailout 3	Reminder leaflet to all non-responders	3,654 mailed
June - October 2007	Extra mailouts1	Packages mailed (as for Mailout 1)	1,233 mailed
October - November 2007	Extra mailouts	Packages to be mailed (as for Mailout 1)	As required
June – August 2007	Phone reminder2	Reminder phone calls to all non-respondents will be carried out	6,461

Of these extra mailouts 26 were first packages sent to participants who had not yet been mailed to. This gave a total of 12,446 participants who were mailed at least one survey package.

A total of 1,704 participants were contacted.

Table 2-3 Response rates from Mid Survey 5 (at 15th October 2007).

	N	%
Completed surveys	10315	82.9
Deceased	12	0.1
Withdrawn	215	1.7
Not this time	252	2.0
No response	1652	13.3
Total mailed	12446	100

The surveys for the Mid-age Survey 5 have been mailed by the participant directly to the data management company, Datatime Services, for logging, batching, scanning and imaging. A visual check of the survey for any extra comments written in areas

not designated for written responses has been conducted by Datatime and these comments have been recorded as a separate qualitative variable. After recording any changes of name or address on page 30, they have recorded the qualitative comments, omitting any personally identifying information. The extra comments and page 30 comments have been checked for important information that may require the response to a question to be amended.

Occasionally participants unintentionally leave one or more questions in a survey unanswered. A missing page is defined as one complete page of the survey for which the participant has given no answers to the questions. The ALSWH project has a policy of phoning participants who have missed one complete page or more and requesting that they complete the missing questions over the telephone. For the Mid-age Survey 5 the missing pages were identified after data capture. Approximately 4.8% of participants had one or more missing pages. Participants turn two pages at once resulting in missing pages for facing pages. Pages which contain questions that the participants find difficult are more likely to result in a missing page than the pages which contain questions which are easier to answer.

After amending the raw dataset for incorrect responses and updating for missing page responses the data is recoded for skips, missing data and derived variables and scales are calculated.

The survey will continue to be received and the data incorporated into the dataset until the cut off date of 31st August 2008.

2.3 Older Survey 5 – pilot

The development of the pilot version of Survey 5 of the Older Cohort is described in Report 28 (June 2007). The Pilot Survey, Thank You reminder leaflet and Targeted Reminder leaflet are included in Appendix 3. In recognition of the Older women's increasing age, the number of items in the survey was decreased by approximately 15% thereby reducing the number of pages in the survey from 28 pages to 24. Questions which were dropped included items on sources of income, transport, depression and anxiety, arthritis, details of medications taken, consultations with doctors, specialists, opticians, dentists and other health practitioners, the Social Support Network subscale, and vaccinations. Changes were made to the questions on conditions and operations to focus on topics of interest and the proxy questions were changed to make them easier to answer. Items that were added were disability items to replace items on eyesight and hearing, six items from the Elder Abuse Scale, maiden name (for National Death Index linkage purposes), and an opt-in consent for data linkage. Table 2-4 shows the deletions, changes and additions from Survey 4 to Survey 5 Pilot of the Older Cohort.

Table 2-4 Sources of items, additions, deletions and changes in the Older Pilot Survey 5

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
1	1	Conditions	Came from NHS, piloted and evolved through OLD 1,2,3,4	'Rheumatoid arthritis' 'Other arthritis'		'Glaucoma' 'Macular degeneration' 'Parkinson's Disease'
2	2	Operations and procedures	WHA, then revised from National Estimates in Aust. Health Care Study Database 1995	'Knee surgery or arthroscopy', 'Heart surgery (heart bypass, angioplasty, angiography)'	Changed question stem to 'Have you had any of the following operations or procedures?' Responses changed to 'In the last three years' and 'More than three years ago.' Changed 'other eye surgery' and 'cataract' to one joint option Changed 'Hip surgery ' to two options , 'Hip surgery for hip replacement' and 'Hip surgery for broken hip'.	'Hysterectomy' 'Repair of prolapsed vagina, bladder or bowel' 'Bone density test' For 'Other surgery' added '(Please write on the line)'
3	3	Dr Visits	Modified from ABS 1989-90 National Health Survey			
5	4	Other HCP visits Additional item	Modified from ABS 1989-90 National Health Survey	'A hospital doctor', 'A specialist doctor', 'An optician', 'A dentist', 'An alternative health practitioner'		'An occupational therapist'

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
	5 & 6	Access to specialists	Adapted from Anne Young's Health Care Access substudy	ENTIRE ITEM DELETED		
4	7	Hospital admissions	Modified from Australian Bureau of Statistics (1991) 1989-1990 National health Survey users' guide. Canberra: ABS. Cat No. 4363.0 Then revised from WHA Survey 1 data for further differentiation.		From 'Mark one only' to 'Mark all that apply'. Response of 'Yes, day only' was changed to 'Yes but I did not spend the night' 'I' was added to 'Yes, (i) spent at least one night'.	
	8	Vaccinations	Nair B, Byles J, Tavener M and Heinze, R (2000) mmunisation rates in older veterans and war widows, Australasian Journal on Ageing, 19(3):136-138.	ENTIRE ITEM DELETED		
	9-10	Dentists	Adapted from Anne Young's Health Care Access substudy	ENTIRE ITEM DELETED		
6	11	Insurance coverage	Modified from Australian Bureau of Statistics (1991) 1989-1990 National health Survey users' guide. Canberra: ABS. Cat No. 4363.0 Then revised from WHA Survey 1 data for further differentiation.			
7-17	12-22	SF-36	Ware, J.E., & Sherbourne, C.D. (1992) The MOS 36-Item Short-Form Health Survey (SF-36):1. Conceptual framework and item selection, Medical Care, 30(6): 473-483.			
18	23	Height				
19	24	Weight				

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
23	25	Symptoms	WHA	'Allergies, hay fever, sinusitis' 'Skin problems' 'Headaches / migraines' 'Severe tiredness' 'Needing to rush to the toilet to pass urine' 'Haemorrhoids (piles)' 'Other bowel problems' 'Clumsiness' 'Tremor / shakes'		
20	26	Sleep	Baum, F.E. & Cooke, R.D. (1989). Community-health needs assessment: use of the Nottingham health profile in an Australian study. The Medical Journal of Australia, Vol. 150, pp 581-590.			
30	27	Memory	Crook III, T. M., Feher, E. P., & Larrabee, G. J. (1992). Assessment of memory complaint in age-associated memory impairment: The MAC-Q. International Psychogeriatrics, 4(2), 165-176. (Revised by WHA for Australian sample			

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
	28	Eyesight	Charlton, J.R.H, Patrick, D.L., & Peach, H. (1983). Use of multivariate measures of disability in health surveys. Journal of Epidemiology and Community Health, 37, 296-304.	ENTIRE ITEM DELETED	Replaced with Q21 - Disability item	
	29	Oral Health	Benyami Yael, Leventhal H, Leventhal EA. Self-rated Oral Health as an independent predictor of self-rated general health, self-esteem and life satisfaction. Social Science and Medicine 2004; 59:1109-1116.	ENTIRE ITEM DELETED		
	30	Hearing Aids	National Acoustics Laboratories	ENTIRE ITEM DELETED	Replaced with Q21 - Disability item	
	31	Hearing	Newman, CW, Weinstein, BE, Jacobson, GP, Hug, GA (1990) The hearing handicap inventory for adults: psychometric adequacy and audiometric correlates. Ear and Hearing, 11, 430-433.	ENTIRE ITEM DELETED	Replaced with Q21 - Disability item	
32	32	Life events	Revised and extended from Modified from Norbeck, J.S. (1984). Modification of live event questionnaires for use with female respondents. Research in Nursing and Health, 7, 61-71.		'Death of child' moved to below 'Death of spouse or partner'	
22	33	DOB				

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
	34	Anxiety & Depression (GADS)	Anxiety and depression scales from: Goldberg, D., Bridges, K., Duncan-Jones, P., & Grayson, D. (1988). Detecting anxiety and depression in general medical settings. British Medical Journal, 297, 897-899.	ENTIRE ITEM DELETED		
31	35	Falls and injury	Lynnette MacKenzie – Modified from DVA trial 1997			
	36, 37a, 37b	Arthritis/ stiffness/ pain	World Health Survey 2002 B-Individual Questionnaire	ENTIRE ITEM DELETED		
33-34	38 &39	Physical activity	Active Australia Armstrong, T, Bauman A, Davies J. (2000) Physical activity patterns of Australian adults: results of the 1999 National Physical Activity Survey. AIHW Canberra			
35-36	40-41	Vegetables and fruit	WHA			
37	42	Fluids	WHA			
38	43	Service use	Modified from Jorm, A. F., Henderson, S., Scott, R., Mackinnon, A. J., Korten, A. E. and Christensen, H. (1993). The disabled elderly living in the community: Care received from family and formal services. Medical Journal of Australia, 158, 383-388. Modified using DVA data			
39	44	Transport	WHA			

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
	45	Public transport	WHA	DELETED		
41	46	Difficulty with transport	WHA			
	47	Travel	Adapted from Life Space Questionnaire – Stalvey, B., Owsley, C., Sloane, ME., Ball, K. (1999) The Life Space Questionnaire: A measure of the extent of mobility of older adults. Journal of Applied Gerontology 18: 479-498.	DELETED		
42	48	Need for care	Modified from Australian Bureau of Statistics (1993) Disability, Aging and Carers Australia. Canberra: ABS. Cat. No. 4432.0			
43	49	Difficulty with daily tasks (ADL/IADL)	Leigh Tooth adapted – Gill scale – Gill, McGloin, Gahbauer, Shepard, Bianco (2001) Two recruitment strategies for a clinical trial of physically frail community-living older persons. JAGS 49: 1039-1045			
44	50	Help with daily tasks (ADL/IADL)	Leigh Tooth adapted – Gill scale – Gill, McGloin, Gahbauer, Shepard, Bianco (2001) Two recruitment strategies for a clinical trial of physically frail community-living older persons. JAGS 49: 1039-1045			
45	51	Residential and postal postcodes				

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
46	52	Housing	WHA modified ABS (1993) 1996 Census of population and housing: Nature and content of the census. Canberra: ABS. Cat No. 2008.0.			
47	53	Who lives with you	Modified from ABS (1994) Australian Housing Survey: User Guide. Canberra: ABS. Cat No. 4180.0			
48	54	Volunteer	WHA			
	55	Sources of income	Widows study	ENTIRE ITEM DELETED		
49	56	Manage on income	WHA			
50	57	Marital Status	Modified from ABS (1993) 1996 Census of population and housing: Nature and content of the census. Canberra: ABS. Cat No. 2008.0.			
51	58	Bereavement date	WHA		Question stem changed to ask for a 'Yes' or 'No' response instead of the date.	
	59	Husbands gold card		ENTIRE ITEM DELETED		
	60-63	Social Support Network subscale	Modified from Koenig, H.G., Westlund, R.E., George, L.K., Hughes, D.C., Blazer, D.G., & Hybels, C. (1993). Abbreviating the Duke Social Support Index for use in chronically ill elderly individuals. Psychosomatics, 34, 61-69.	ENTIRE ITEM DELETED		

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
54	64	Expressive and instrumental support	Adapted from items used in the MacArthur studies of successful aging – Gurung et al (2003) Accounting for changes in social support among married older adults. Psych & Aging, 18, 487-496.			
52	65	Providing Care	Modified from Australian Bureau of Statistics (1993) Disability, Aging and Carers Australia. Canberra: ABS. Cat. No. 4432.0			
53	66	Care for children	WHA			
57-58	67-68	Leisure	Widows Survey		Added 'Used a computer/ internet' Added 'Yes' and 'No' response options for last activity 'Other'	
	69	Medications		ENTIRE ITEM DELETED		
59-60	70-72	Proxy		All three questions were deleted	The direction of the question was changed so it asked the participant If anyone helped them as opposed to Old 4 where the person who helped to fill in the survey was asked.	'Did someone help you fill in this survey?' 'What was the main reason for your needing help to fill in this survey?'

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
21		Disability item	Charlton, J.R.H, Patrick, D.L., & Peach, H. (1983). Use of multivariate measures of disability in health surveys. Journal of Epidemiology and Community Health, 37, 296-304. (Part m to p, modified slightly).		Replaces eyesight, hearing and hearing aid questions	Addition
24		Medicine packaging	WHA			Addition
25-28		Revised urinary incontinence scale	Comprised of three items from the UDI-6 (Uebersax et al 1995) and two from the incontinence severity index (Sandvik et al 1993)			Addition
29		Faecal incontinence scale	Adapted from the Wexler scale			Addition
40		Mobility	WHA			Addition
55		Discrimination	Ageism Survey developed by Palmore (2001)			Addition
56		Elder Abuse	Hwalek, M.A., & Sengstock, M.C. (1986). Assessing the probability of abuse of the elderly: Toward development of a clinical screening instrument. Journal of Applied Gerontology, 5(2), 153-173. Six items from the Elder Abuse Scale			Addition

Old 5 Pilot Item No	O4 Item No	Topic	Source	Deletion	Change	Addition to Item
		Consent form				Maiden name was asked As well as an additional signature to consent to the participants data being linked with medicare Australia.

Approval for pilot testing of Survey 5 was obtained from the University of Newcastle and University of Queensland Human Research Ethics Committees. The Pilot Survey was mailed to 186 participants from the Older Pilot cohort in August 2007. The process for reminder and Thank You leaflet mailouts was modified for the Older Pilot Survey 5 and instead of sending a combined Thank You Reminder leaflet three to four weeks after the main mailout followed by a Targeted Reminder three to four weeks after that it was decided to send a Targeted Reminder three to four weeks after the main mailout followed by a second Targeted Reminder three to four weeks later. A Thank You leaflet will be sent when the bulk of the surveys have been received. Participants found it confusing to receive this combined Thank You Reminder leaflet and the new procedure is aimed at avoiding this confusion and reducing the number of phone calls that resulted. Copies of the survey, the letter sent to pilot participants, the feedback form asking for comments, the Targeted Reminder card and Thank You leaflet appear in Appendix Three. Table 2-5 outlines the timeline for Older Pilot Survey 5, and gives the response rates for the Older Pilot Survey 5 at 15th October 2007.

Table 2-5 Timetable for Old Pilot Survey 5 (at 15th October 2007).

Date	Mailout	Items	N
24 August 2007	Mailout 1	Package mailed including survey, reply-paid envelope, letter of invitation and change of details card	186 mailed
20 September 2007	Mailout 2	Reminder leaflet to all non-responders	107 mailed
8 October 2007	Mailout 3	Reminder leaflet to all non-responders	49 mailed
Late October 2007	Extra mailouts	Packages to be mailed (as for Mailout 1)	As required
Mid November 2007	Mailout 4	Thank You leaflet to all respondents	As required

Table 2-6 Response rates from Older Pilot Survey 5 (at 15th October 2007).

	N	%
Completed surveys	135	72.6
Deceased	0	0
Withdrawn	6	3.2
Not this time	2	1.1
No response	43	23.1
Total mailed	186	100

The surveys for Older Pilot Survey 5 are mailed back to the project for visual review. These surveys are sent to Datatime Services for scanning. For the first time it was decided to capture the pilot data by scanning so that the pilot data capture process is the same as that of the main survey. The first batch of data has been received and

checked for accuracy. Surveys for the Older Pilot Survey 5 will continue to be received, sent for scanning and added to the dataset until Mid November. The results from the Pilot Survey will be reviewed in December 2007 and used to determine the final version of the Older Survey 5 to be mailed in March 2008.

3. METHODOLOGICAL ISSUES

3.1 Prevalence of chronic (enduring) conditions

3.1.1 Introduction

At each Survey, women are asked about diagnosed medical conditions. For the earlier surveys these questions were framed as "Have you ever been told by a doctor that you have (list of conditions)?". These questions were revised for later surveys to read: "In the past three [two/four] years have you been diagnosed or treated for (list of conditions)?". The list of conditions differs for each cohort, and changes slightly with each survey as the women age. The conditions considered are hypertension, stroke, diabetes, heart disease, osteoporosis, asthma and arthritis.

Calculation of prevalence assumes that all chronic conditions are enduring, and so unless a woman, who has reported a condition at one survey, has died or did not respond to all subsequent surveys, she is considered to have the condition at all subsequent surveys.

(This is a continuance of the work reported in Technical Reports 26 and 27).

3.1.2 Methods

Prevalence status strings were constructed for each condition from the responses to the questions relating to a particular condition by concatenating the responses at each survey along with their participant status (non-participant, withdrawn, or died) when there was no response. These strings were then modified to reflect the enduring nature of the conditions.

E.g.	0040, .0.0, 0.00	->	0000
	1011, 1040, 1.10	->	1111
	0404, 0.04, .404	->	0004
	.144,.101, .1.0	->	.111

Where the values of the individual components of the prevalence status string are:

0	Not Prevalent
1	Prevalent
3	Died
4	Non-participant
5	Withdrawn
.	Missing

The advantages of this approach are that it is simple to construct and it is relatively straightforward to correct inconsistencies over any number of surveys. An example of actual changes made to the reported prevalence is given below.

Incidence of conditions between surveys can be derived from these data depending on the user's requirements. Sample code is provided below.

3.1.3 Variables

The final prevalence dataset for each cohort contains the following variables.

- Idalias
- XstrYYY – prevalence status string for cohort X (Y,M,O) and Condition YYY (hrt,diab,ht, arth, asth, ost).
- XstrYYYo – Original prevalence string (uncorrected responses).
- XstrYYYc – whether original string differs from final string (Y/N).
- pNYYY – prevalence at survey N for condition YYY.
- Actual changes made to diabetes prevalence in the Older cohort Surveys 1 to 4 (10 most frequent changes).

Table 3-1 Prevalence of diabetes in Older cohort (Survey 1 to 4)

Diabetes prevalence in Older Cohort S1-S4 (before and after correction)	Frequency
0040 0000	182
0400 0000	110
0.00 0000	107
00.0 0000	95
1011 1111	71
1000 1111	52
0440 0000	50
0404 0004	48
0010 0011	45
.000 0000	43

Sample SAS code for deriving incidence from prevalence strings.

```
data oldinc;
 set oldprev;
array ostr [*] $ 4 ostrht ostrst ostrdiab ostrhrt ostrost ostrasth ;
array inca2 [*] incht2 incst2 incdiab2 inchrt2 incost2 incasth2 ;
array inca [*] incht incst incdiab inchrt incost incasth ;

do i=1 to dim(ostr);
/* New Incidence */
  if substr(ostr[i],4,1)='3' then inca2[i]=7;        /*died*/
  else if substr(ostr[i],4,1)='5' then inca2[i]=9;  /*Withdrawn*/
  else if substr(ostr[i],4,1)='4' then inca2[i]=8;  /*Non-participant*/
  else if substr(ostr[i],4,1)='0' then inca2[i]=6;  /*Never*/
  else if substr(ostr[i],4,1)='.' then inca2[i]=.;  /*Missing*/
  else if substr(ostr[i],1,1)='1' then inca2[i]=1;  /*Existing*/
  else do;
    do j=2 to 4;
      if substr(ostr[i],j-1,1)='0' and substr(ostr[i],j,1)='1' then
inca2[i]=j;  /* Incident S1-S2, S2-S3, S3-S4 etc */
      else if substr(ostr[i],j-1,1) in('.','4') and
substr(ostr[i],j,1)='1' and substr(ostr[i],1,1)='0'
           then inca2[i]=5;   /* Incident unknown when */
    end;
  end;

/*old incidence*/
  if substr(ostr[i],1,1)='1' then inca[i]=1;
  else do;
    do k=2 to 4;
      if substr(ostr[i],k-1,1)='0' and substr(ostr[i],k,1)='1' then
inca[i]=k;   /* Incident S1-S2, S2-S3, S3-S4 etc */
      else if substr(ostr[i],k-1,1) in('.','4') and
substr(ostr[i],k,1)='1' and substr(ostr[i],1,1)='0'
           then inca[i]=5;   /* Incident unknown when */
    end;
    if inca[i]=. then do;
      if substr(ostr[i],4,1)='0' then inca[i]=6;       /*Never*/
      else if substr(ostr[i],4,1)='3' then inca[i]=7;  /*Dead*/
      else if substr(ostr[i],4,1)='4' then inca[i]=8;  /*Non-
participant*/
      else if substr(ostr[i],4,1)='5' then inca[i]=9;  /*Withdrawn*/
    end;
  end;
end;
drop i j k;
run;
```

3.2 Checking that Young 4 Surveys were scanned correctly - Comparing Young 4 to Young 3

3.2.1 Background

The paper versions of questionnaires for Young Survey 4 are due to be destroyed this year. However, before destruction a check was performed to ensure that they had been scanned correctly. Although there was no evidence to suggest that there were any errors in the scanning, it was considered important to check this before the questionnaires were destroyed.

Although the risk is low it is possible that the Young 4 questionnaires were not scanned correctly. For example, some pages could have been mixed up and the responses matched to another person's ID. After the questionnaires are destroyed there will be no way to correct this. This document describes a comparison of the Young 4 results with Young 3 that was performed to examine whether the responses could be reasonably considered to come from the same person.

The approach was to choose some variables that should not change across the surveys and then match them to see if there were any differences. These variables should ideally be from questions from the beginning, middle, and end of the questionnaire to increase the likelihood of detecting problem occurring on only certain pages.

3.2.2 Profile variables

The profile variables chosen were asked in both Young 3 and 4 Surveys. They were responses that could not have changed from one survey to the next. Table 3-2 shows the variables chosen in the first column. The second column describes the test used to find any differences. There are other possible variables but these were considered the most likely to show any inconsistencies.

Table 3-2 Profile variables

Variable	Test	Page on Young 4 Questionnaire
Child's Year of birth	If Y3's value is not missing and it is different from Young 4's value	12
(Repeat for each child)		12
Woman's Date of birth	If Y4 and Y3 have different dates of birth	28
Height	If the height differs by more than 4 cm	15
Smoking Status	If Never smoked at Y4, but was a smoker or quit smoker in Y3	16
Ever Used Drugs	If Never used drugs in Y4 and Had used Marijuana in Y3	17
Age of First Marijuana use	If not missing and age differs by more than 2 years	17
Marital Status	If Never Married in Young 4 but had another Status in Young 3	25
Hysterectomy	If had not had hysterectomy nor tubal ligation in Young 4 but did have either in Young 3	11

Pages 3 to 29 of the survey instrument contain questions. The questions used are on pages 11 to 28. Most sections of the questionnaire were covered, except for the very beginning, because there were not any suitable questions. With the exception of 'Ever Used Drugs' and 'Hysterectomy' these questions are not dichotomous variables so the chance of getting an accidental match was low.

The above variables were examined to see whether they had the same results for each survey. Further, the frequency of mismatches was added up for each respondent. If there were mismatched individuals then the number of mismatches should be quite high. The number of variables depends on the number of children a woman has had but there may be up to 14 variables.

3.2.3 Results

3.2.3.1 Number of mismatches

Table 3-3 shows the number of mismatches. There were 1813 respondents with mismatches out of 7593 respondents from Young 3 and 4. Of these 1813, 89% had only one mismatch and 10% had two mismatches. The maximum number of mismatches for a single individual was five and this occurred just once. All of these five differences were in the c*hild date of birth* variables and *height*. From what is known about these variables it is quite possible to have this number of differences from the same individual. In the case of *child date of birth,* while the date of children's birth should be in chronological order from oldest to youngest, one mistake often leads to all of the dates being wrong. When the individual case with five mismatches was examined it was found that the differences arose from an extra date

of birth appearing. This extra date then resulted in the following dates of birth becoming misaligned. Overall, there were in fact fewer than five mismatches.

Table 3-3 Frequency of mismatches

Mismatch	Frequency	%
1	1642	88.80
2	186	10.06
3	19	1.03
4	1	0.05
5	1	0.05

3.2.3.2 Mismatches by variable

Table 3-4 shows the frequency of matches for each variable. Height has the highest number of mismatches with 12% different. This variable is known to vary a lot in actuality and in self-reporting, so this is perhaps not a sign of incorrect scanning, but it does suggest that this variable is not constant.

Age of first marijuana use, ever used drugs, and smoking status also have some different values, though these are less than 5%. These questions about drug use ask about an illegal act so false reporting is to be expected. In the case of smoking, it is becoming socially unacceptable so perhaps some false reporting is evident here too. Also, for insurance and medical reasons people may want to deny ever having smoked. All the other variables are very consistent. Date of birth matches for more than 99% of cases. This suggests that the questionnaires have been scanned correctly.

3.2.4 Conclusion

Seventy six percent of individuals had exactly the same values for the 14 profile variables. Of the 24% who did not, none of them had more than five differences and the vast majority had only one difference. The differences mostly occurred in variables with known variability – height, and the drug/ tobacco use questions. It is very likely that these differences can be explained by the known variation inherent in these questions. There were no surprises or any reason to think the data was problematic.

The Data Management Group reviewed these results and concluded the two data sets Young 3 and Young 4 match very closely and there was no systematic mistake with the scanning.

Table 3-4 Frequencies of matches for each variable

		Frequency	%
Height	Not Matched	944	12.19
	Matched	6802	87.81
Birth year	Not Matched	16	0.21
	Matched	7730	99.79
Birth day	Not Matched	19	0.25
	Matched	7727	99.75
Birth Month	Not Matched	31	0.40
	Matched	7715	99.60
Smoking Status	Not Matched	221	2.85
	Matched	7525	97.15
Ever Used Drugs	Not Matched	328	4.23
	Matched	7418	95.77
Age of Marijuana use	Not Matched	261	3.37
	Matched	7485	96.63
Marital Status	Not Matched	164	2.12
	Matched	7582	97.88
Hysterectomy	Not Matched	1	0.01
	Matched	7745	99.99
Child1 Date of Birth	Not Matched	51	0.66
	Matched	2304	29.74
	N/A	5391	69.60
Child2 Date of Birth	Not Matched	27	0.35
	Matched	1121	14.47
	N/A	6598	85.18
Child3 Date of Birth	Not Matched	10	0.13
	Matched	301	3.89
	N/A	7435	95.99
Child4 Date of Birth	Not Matched	6	0.08
	Matched	51	0.66
	N/A	7689	99.26
Child5 Date of Birth	Not Matched	1	0.01
	Matched	7	0.09
	N/A	7738	99.90
Child6 Date of Birth	Not Matched	2	0.03
	N/A	7744	99.97

3.3 Accuracy of medications data for Older 4

Data on medications taken by the women are available from two sources:

1. Pharmaceutical Benefits Scheme (PBS) data.
2. Self-report on their prescribed medications.

In Survey 4, the Older Women were asked to:

O4q69: Please write down the names of all your medications prescribed by a doctor. Where possible, copy names from the packets, or obtain a list from your regular pharmacist and return it with your survey.

Participants recorded medications in open-ended text format and the data were coded as described in the June 2007 Technical Report (28).

A similar question was included in Survey 5 for the Mid-age women. However these women were also asked to record over-the-counter medications.

For the Older women participating in Survey 4, these self-reported medications were compared to three and six months of PBS data. The PBS data was collated for the month the survey was returned and the two or five months retrospective of the month the survey was returned.

3.3.1 Assessment of agreement between self-reported medication use and PBS data

Of the 7,158 women that returned Survey 4, 6,495 (90.7%) had completed the self-reported medications question (q69). However, comparison of these self-reported medications could only be accurately matched to the PBS data for those 4,687 (66%) participants that consented to the release of their MBS/PBS data.

Among these women, 392 (8%) did not have any current medications according to Survey 4, and a similar percentage had no medications within three months of PBS data. When five months of PBS data were examined, 5% of women were found to have no medications recorded on PBS (see Table 3-5).

Table 3-5 Medication use by Older women at Survey 4

		Consenters	
	Old 4	**PBS (3 Months)**	**PBS (6 months)**
No medications	392 (8%)	338 (7%)	233 (5%)
Recorded medications	4,295 (92%)	4,349 (93%)	4,454 (95%)

Table 3-6 shows the agreement between these two sources of data in terms of whether women have any medications or not. A number of the women who did not report medications on the survey were found to have medications within three months and six months of PBS data indicating that these women had under-reported their medication use. A total of 152 (3.2%) had no medication documented in either the

survey data or the PBS (3 months) and 129 (2.8%) of participants had no medications for the survey and PBS (6 months) files.

Table 3-6 Survey medications compared to PBS data for 3 months and 6 months.

	PBS (3 Months)			PBS (6 Months)		
Survey	Yes	No	Total	Yes	No	Total
Yes	4,109 (87.7%)	186	4,295	4,191 (89.4%)	104	4,295
No	240	152 (3.2%)	392	263	129 (2.8%)	392
Total	4,349	338	4687	4,454	233	4687

Table 3-7 shows the mean number of medications for the Older women according to whether self-report or PBS data were used to estimate this number. The mean number obtained from the PBS data is higher than the number obtained from self-report.

Table 3-7 Self-reported vs PBS data summary statistics .

	Returned surveys in 2005 *	PBS - 3 months prior	PBS - 6 months prior
No of obs	4,687	4,687	4,687
Mean	4	5	7
Median	4	5	6
Min	0	0	0
Max	25	23	32

* sample excluded women that failed to return their survey in 2005

To further test the agreement between these two sources of medication data, self-reported medications were compared to PBS data for the two different time periods for groups of drugs listed in Table 3-8, 3-9 and 3-10. These tables show the class of drug, the generic names of drugs in this group, and how these drugs are coded in the Anatomical Therapeutic Classification (ATC) [1].

Table 3-8 Diabetes medications

Medication category	Medication	ATC code
Insulin and Analogues	Insulins (Fast-acting, long-acting)	A10A
Oral blood glucose lowering drugs	Metformin, Sulfonamides, Glucosidase inhibitors, Thiazolidinediones etc	A10B

Table 3-9 Anti-hypertensives, statins, aspirin and folic acid

Medication	ATC description	ATC code
Thiazide diuretic or Any Cardiac diuretic Any diuretic	Low-Ceiling Diuretics, Thiazides Diuretics	C03AA, C03AB03, C03AX01, C03EA01, C03BA11 C03
Angiotensin II receptor antagonists or Angiotensin converting enzyme inhibitor	Agents Acting On The Renin-Angiotensin System or Angiotensin-Converting Enzyme (Ace) Inhibitors, Plain Converting Enzyme Blockers	C09 or C09AA
Beta blocker	Beta Blocking Agents, Plain, Non-Selective And Non-Selective	C07AA, C07AB
Statin	Cholesterol- And Triglyceride Reducers HMG COA Reductase Inhibitors	C10AA
Aspirin	Platelet Aggregation Inhibitors Excl. Heparin (Aspirin)	B01AC06, N02AA59, N02AA51, N02BA01, N02BA51
Folic acid	Iron In Combination With Folic Acid	B03AD03, B03BB, B03AE02, B03AE01

Table 3-10 Psychotropic medications

Medication category	Medication	ATC code
Depression Drugs	Tricyclics	N06AA
	SSRI	N06AB
	MAOI	N06AF, N06AG
	Other	N06AX
Acting on Nervous System Drugs	Anxiolytics	N05B
	Hypnotics	N05C

Table 3-11 reports the prevalence of use of these drugs according to self-reported medications and six months of PBS data, and the agreement between these two measures (the proportion of women consistently classified as taking or not taking the drug according to both data sources). Sensitivity (the probability that women identified as taking a medication according to PBS data will be report this medication on her survey) and specificity (the probability that a woman who is not taking a medication will not report this on her survey) are also shown in Table 3-11. The positive predictive value (PPV) indicates the probability that a woman reporting a medication will also be found to be using this medication on PBS data. Negative

Predictive Value (NPV) is the probability that a woman who does not report the medication will also be found to be not taking this medication according to PBS data.

Prevalence of medication use is generally higher in PBS data except for Aspirin intake. This could be accounted for by over the counter purchases of Aspirin which will not appear in the PBS data. Specificity is high for all medication use. Overall agreement and Sensitivity are highest for glucose lowering drugs and lowest for nervous system medications. PPV and NPV are generally high, except for Aspirin and folic acid which can be purchased over-the-counter without prescription.

Table 3-12 shows self-reported medications and three months of PBS data. Prevalence of medication use is still generally higher in PBS data except for Aspirin intake which is twice as high in self-reported data. Sensitivities tend to be higher in this table, but are still low for nervous system drugs. These drugs may be used on a short-term or as needed basis and so recent prescriptions recorded on PBS may not reflect current use at the time of the survey.

In general, this analysis indicates good agreement between these two sources of medication information for most of the groups of medications assessed. The findings are similar to other research involving a separate sample of Older people in Australia that compared the same groups of drugs[2]. Care must be taken when using PBS data as a source of information about drugs that can be bought over-the-counter or that are used as needed. Consideration must also be given to the time-frame when using PBS data to identify current prescriptions as some medications may not appear within a three month window if a prescription has not been completed in this time-period. Medications that are not covered under the PBS scheme will also be under-represented in PBS data and self-report is a better source of information on the use of these medicines.

3.3.2 References

1. The ATC/DDD system, available at http://www.whocc.no/atcddd/
2. Pit S & Byles J. Agreement and accuracy between telephone self-report of drug use in Older people and pharmaceutical claims data. *Drugs and Ageing* (In Press).

Table 3-11 Prevalence of self-report and pharmaceutical claims data, observed agreement, sensitivity, specificity and positive and negative predictive value of self-report compared with six months of pharmaceutical claims data among 4,687 participants.

	Prevalence		Observed agreement		Sensitivity		Specificity		PPV	NPV
Prescription drug group	**SR**	**PBS**	**%**	**95% CI**	**%**	**95% CI**	**%**	**95% CI**	**%**	**%**
Insulin	0.9%	1.2%	72%	(62, 82)	63%	(50, 75)	99.8%	(99.7, 99.9)	85%	99%
Glucose lowering	6%	6%	94%	(92, 96)	91%	(88, 94)	99.8%	(99.7, 99.9)	98%	99%
Thiazide	9%	10%	85%	(82, 87)	82%	(79, 86)	99%	(98.7, 99.4)	90%	98%
Angiotensin	46%	50%	88%	(86,89)	89%	(88, 90)	98.5%	(98, 99)	98%	90%
Beta Blockers	20%	23%	83%	(81, 85)	80%	(77, 82)	98.5%	(98, 99)	94%	94%
Statin	32%	36%	90%	(89, 91)	89%	(87, 90)	99.3%	(99, 99.6)	99%	94%
Aspirin	33%	25%	50%	(47, 52)	75%	(72, 77)	80%	(79, 82)	55%	91%
Folic acid	3%	3.5%	60%	(54, 67)	60%	(52, 67)	98.8%	(98.4, 99.1)	63%	99%
Depression	12%	16%	80%	(77, 82)	72%	(68, 75)	99.6%	(99.4, 99.8)	97%	95%
Nervous System	10%	21%	44%	(41, 48)	37%	(34, 40)	98%	(97.6, 98.5)	83%	85%

Table 3-12 Prevalence of self-report and pharmaceutical claims data, observed agreement, sensitivity, specificity and positive and negative predictive value of self-report compared with three months of pharmaceutical claims data among 4,687 participants.

Prescription drug group	Prevalence SR	Prevalence PBS	Observed agreement %	Observed agreement 95% CI	Sensitivity %	Sensitivity 95% CI	Specificity %	Specificity 95% CI	PPV %	NPV %
Insulin	0.9%	0.8%	60%	(47, 73)	66%	(50, 81)	99.6%	(99.4, 99.8)	56%	99%
Glucose lowering	6%	6%	88%	(85, 91)	92%	(88, 95)	99.1%	(98.7, 99.4)	86%	99%
Thiazide	9%	7%	75%	(72, 79)	88%	(85, 92)	97%	(96.6, 97.6)	69%	99%
Angiotensin	46%	48%	87%	(86, 88)	91%	(90, 92)	96%	(95,97)	95%	92%
Beta Blockers	20%	20%	79%	(76, 81)	81%	(79, 84)	96%	(95.5, 96.8)	84%	95%
Statin	32%	34%	90%	(89, 91)	91%	(89, 92)	98%	(97.5, 98.5)	96%	95%
Aspirin	33%	15%	35%	(33, 38)	79%	(76, 82)	75%	(73, 76)	35%	95%
Folic acid	3%	2%	48%	(40, 55)	65%	(55, 75)	98%	(97.6, 98.4)	39%	99%
Depression	12%	14%	82%	(79, 84)	78%	(75, 81)	98.9%	(98.6, 99.3)	92%	97%
Nervous System	10%	16%	47%	(44, 51)	43%	(39, 46)	96.8%	(96.3, 97.4)	72%	90%

3.4 Comparison of consenters and non-consenters to Medicare and PBS linkage

Research based on linked records has the potential to make a major contribution to the understanding of the factors influencing health and wellbeing and will become increasingly important in the evaluation of health services. The ALSWH provides the opportunity to link survey data and Medicare data for large numbers of women. This section reports the results of several postal requests for consent to record linkage and the socio-demographic characteristics of the women who consented to linkage as of 2005.

3.4.1 Consent to data access

Women were asked to provide consent to access to Medicare data in 1996, after completing Survey 1. This consent was not enduring and needed to be re-obtained for 2000 onwards. This new consent also included access to PBS data and other health service records.

A summary of the number of consenting women each year since 1996 is shown Table 3-13 and Figure 3-1.

Table 3-13 Number of consenting ALSWH women 1995-2005 (new consent period began in 2002)

	Original consent period			New consent period		
	1995-1996	1997-1999	2000-2001	2002-2003	2004	2005
Younger	5,260	6,219	6,203	4,356	4,357	4,349
Mid-age	7,898	8,883	8,825	7,276	7,276	7,275
Older	6,542	7,531	7,395	5,594	5,522	5,494
TOTAL	19,700	22,633	22,423	17,226	17,155	17,118

There was an accumulation of consent during the period 1996-2001, but a reduction in the number of consents during the second consent gaining period. Some of this effect is due to attrition in the cohort. The request for renewed consent resulted in a further 3,000 women giving consent. However while the details for new consenters were added, women who had withdrawn from the study were excluded from the data extraction process for that period. Hence the number of consenters differs for each data extraction period.

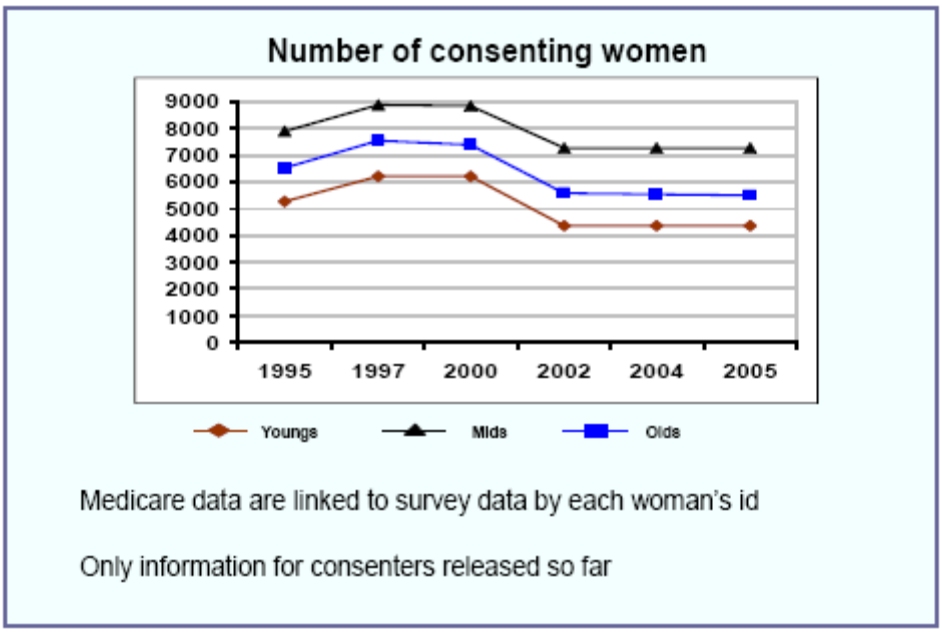


Figure 3-1 Number of consenting women for each period

Comparisons of consenters and non-consenters at the time of completing Survey 4 are shown in Tables 3-14 and 3-15 (Mid 4 in 2004, Old 4 in 2005, Young 4 in 2006). There were significant but small differences between consenters and non-consenters according to area of residence (Table 3-14)[1]. Women who gave consent to linkage in all three age cohorts tended to be better educated and were more likely to be able to manage on their available income (Table 3-15)[2]. These findings provide evidence of a socioeconomic bias among the consenters.

Among the Younger and Mid-age cohorts, consenters were more likely to say their health was excellent, very good or good then non-consenters, but there were no differences in self rated between consenters and non-consenters among the Older cohort.

Table 3-14 Percentage of consenters versus non-consenters by area of residence.

	Younger women Consent			Mid-age women Consent			Older women Consent		
	Yes %	No %	p	Yes %	No %	p	Yes %	No %	p
Area			0.056			<0.0001			<0.0001
MajorCity	56	55		34	34		44	44	
Inner regional	26	28		42	38		38	34	
Outer Regional	15	14		20	22		16	19	
Remote	3	3		3	6		2	3	

[1] Area of residence is based on aria-plus scores, the most recent aria-plus scores differ between cohorts (y3aria+, m4aria+, o3aria+). Unfortunately the younger and older cohorts do not have an aria-plus score for survey 4. For the purpose of this report the figures for those mid-aged women that completed survey 4 uses m3aria+ which may be more useful.

[2] Education was measured at Survey 1 for the Mid-age and Older cohorts, and at Survey 4 for the Younger cohort.

Table 3-15 Comparison of consenters and non-consenters at Survey 4.

	Younger women Consent			Mid-age women Consent			Older women Consent		
	Yes %	**No %**	**p**	**Yes %**	**No %**	**p**	**Yes %**	**No %**	**p**
Consented	43	57		64	36		66	34	
School Education only	18	25	<0.0001	58	68	<0.0001	80	85	<0.0001
Self-rated health									
Excell/v.good/ good	70	62	<0.0001	88	84	<0.0001	92	92	0.3254
Fair/poor	30	38		12	16		8	8	
Diabetes	2	2	0.7	6	8	0.0003	14	15	0.0976
BMI			0.1126			0.127			0.1583
Underweight	4	4		1	1		4	5	
Acceptable	58	57		41	42		51	48	
Overweight	23	22		34	32		32	34	
Obese	15	17		23	25		13	14	
Self-reported number of GP visits			0.4524			0.0032			.0.9136
None	5	5		6	8		1	1	
1-4	64	65		64	61		35	34	
5 or more	31	30		30	31		64	65	
Able to manage on income	61	59	0.0057	65	58	<0.0001	81	75	<0.0001

3.5 Reproductive history in Younger cohort

3.5.1 Overview

At all four surveys, information about younger women's reproductive events was collected. Not only the nature of the reproductive event was of interest, but also the number of times a woman had experienced the event. The following table shows how the question on reproductive events has been asked at each survey.

Table 3-16 Reproductive event questions at each survey for the Young cohort

Survey	Question on reproductive events
1	Y1Q22: How many times have you (0,1,2,3,>4,don't want to answer)
	Been pregnant
	Had a miscarriage
	Had a termination
	Given birth to a child
2	Y2Q35: How many times have you had each of the following? (1,2,3,4,>5)
	Live birth (36+)
	Live premature birth
	Stillbirth
	Miscarriage
	Termination
3	Y3Q35: How many times have you had each of the following? (0,1,2,3,4,>5)
	Live birth (36+)
	Live premature birth
	Stillbirth
	Miscarriage
	Termination
4	Y4Q33: How many times have you had each of the following? (0,1,2,3,4,>5)
	Live birth (36+)
	Live premature birth
	Stillbirth
	Miscarriage
	Termination for medical reasons
	Termination for other reasons
	Ectopic pregnancy (tubal pregnancy)

When looking at the number of reproductive events over time, the sequence did not always make sense. Logically the number of events can only increase or stay the same, but it cannot decrease between surveys. Additionally, at Survey 2 there was no option of '0' times, which means a missing value at this survey can either mean '0' times or be a missing value. Looking at this problem from a longitudinal perspective, most cases can be resolved. The objective was to clean variables for reproductive events.

3.5.2 Missing values at Survey 2

In order to distinguish the zero events from missing values, the number of events at Survey 3, or if Survey 3 is missing at Survey 4 was considered. If the number of events at Survey 3 (or Survey 4 if Survey 3 was missing) was equal to zero, then zero events at Survey 2 were assumed; if not, the number of events at Survey 2 was set to missing. This is a rather conservative approach, and imputing missing values for analysis purposes should be considered.

3.5.3 Births – Survey 2 to Survey 4

Firstly, the focus was number of times a woman had given birth from Survey 2 onwards. The reason for excluding Survey 1 was the sub-classifications of the event 'given birth' that had been added at Survey 2, which were: live birth (>36weeks), premature birth (<36weeks) and stillbirth. In order to clean this variable, the following rules were applied for each sub-classification, keeping in mind that the number can either stay the same or increase between surveys. ('Number of events' in the following context refers to each of the sub-classifications separately).

3.5.3.1 No missing values at Surveys 2 to 4

If the number of events at Survey 3 is smaller than at Survey 2:

- and number of events at Survey 4 is smaller than or equal to the number of events at Survey 2 then fill in the value from Survey 2 into Survey 3 and Survey 4 (eg -,3,2,2 => -,3,3,3).
- and number of events at Survey 4 is greater than number of events at Survey 2, then set Survey 3 to missing (eg -,3,2,4 => -,3,.,4).
- Otherwise if the number of events at Survey 3 is greater than or equal to the number of events at Survey 2:
- and the number of events at Survey 4 is smaller than at Survey 3, then fill the value from Survey 3 into Survey 4 (eg -,2,3,2 => -,2,3,3).

3.5.3.2 One missing value

Missing value at Survey 2

If number of events at Survey 3 is equal to zero, then the number of events at Survey 2 is set to zero (eg -,.,0.x => -,0,0,x).

If the number of events at Survey 4 is smaller then the number of events at Survey 3, then fill the value from Survey 3 into Survey 4 (eg -,.,2,1 => -,.,2,2).

Missing value at Survey 3

If number of events at Survey 4 is smaller than or equal to Survey 2, then fill in the value from Survey 2 into Survey 3 (and Survey 4 if smaller than Survey 2) (eg -,1,.,0 =>-,1,1,1).

Missing value at Survey 4

If the number of events at Survey 3 is smaller than in Survey 2, then fill in the value from Survey 2 into Survey 3 (eg -,2,1,. => -,2,2,.).

3.5.3.3 Two missing values

Missing values at Surveys 2 and 4

If the number of events equals zero at Survey 3, then Survey 2 is set to zero as well (eg -,.,0,. => -,0,0,.).

Missing values at Surveys 2 and 3

If the number of events equals zero at Survey 4, then Survey 2 and Survey 3 are set to zero as well (eg -,.,.,0 => -,0,0,0).

Missing values at Surveys 3 and 4

No modifications undertaken.

3.5.4 Reproductive events – Survey 1 to Survey 4

Similar to the sub-type of categories of the birth events, the following section examines the number of each reproductive event (birth, miscarriage, termination) across the four Surveys. In order to be able to compare over all four surveys, the following categories were combined: from Survey 2 onwards: live birth, premature birth and stillbirth as birth event; at Survey 4: termination for medical reasons, termination for other reasons and ectopic pregnancy as termination event. The basic rules were:

- if once an event was reported, it was not possible to reverse it in later surveys (only increasing values eg 1,2,3,4, or no change eg 1,1,2,2 are permitted).
- missing values were only filled in if at least one survey without missing value follows the missing value, so that the value filled in can be justified.
    - The value after the missing value is higher than before, then the missing value stays, eg 2, 2, ., 3 as it is not possible to tell when the event happened (eg between Surveys 2 and 3 or between Surveys 3 and 4.
    - The value after the missing value is equal to or smaller than before, then the value from before was filled into the following surveys, eg 2, 2, ., 2 will change to 2, 2, 2, 2 and 2, 2, ., 1 will also change to 2, 2, 2, 2.

Problems occurred when the number of birth events at Survey 1 was greater than at Survey 2. The rule would be to take the value from Survey 1 and fill into Survey 2, however, as it was impossible to find out whether it was a normal birth, premature birth or stillbirth, the number of births at Survey 1 was set to missing in these cases (32).

3.5.4.1 No missing values at Surveys 2 to 4

If the number of events at Survey 2 is smaller than at Survey 1

- and the number of events at Survey 3 is smaller than or equal to Survey 2
    - and the number of events at Survey 4 is smaller than or equal to Survey 3, then fill in the value from Survey 1 into Surveys 2, 3 and 4 (eg 3,2,1,0 =>3,3,3,3).
    - And the number of events at Survey 4 is greater than Survey 3
        - And the number of events at Survey 4 is greater then Survey 1, then set Survey 2 and Survey 3 to missing (eg 3,2,1,4 =>3,.,.,4).
        - And the number of events at Survey 4 is smaller than or equal to the number of events at Survey 1, then fill the value from Survey 1 into Surveys 2 and 3 (and 4 if smaller than Survey 1) (eg 3,2,1,2 => 3,3,3,3).
- And the number of events at Survey 3 is greater than at Survey 2
    - And the number of events at Survey 3 is greater than or equal to Survey 1
        - And the number of events at Survey 4 is smaller than at Survey 3 then fill the value from Survey 1 into Survey 2 and the value from Survey 3 into Survey 4 (eg 3,2,4,3 =>3,.,4,4).
    - And the number of events at Survey 3 is smaller than at Survey 1
        - And the number of events at Survey 4 is greater than at Survey 1 then set Surveys 2 and 3 to missing (eg 3,2,2,4 => 3,.,.,4).
        - And the number of events at Survey 4 is smaller than or equal to Survey 1 then fill the value from Survey 1 into Surveys 2, 3 (and 4 if smaller than Survey 1) (eg 3,2,2,1 =>3,3,3,3).

Otherwise if the number of events at Survey 2 is greater than or equal to Survey 1

- and the number of events at Survey 3 is smaller than or equal to Survey 2
    - and the number of events at Survey 4 is smaller than at Survey 3 then fill the value from Survey 2 into Survey 3 (and 4 if smaller than) (eg 2,3,2,1 => 2,3,3,3).
    - And the number of events at Survey 4 is greater than at Survey 3
        - And the number of events at Survey 4 is greater than at Survey 2 then set Survey 3 to missing (eg 2,3,2,4 => 2,3,.,4).
        - And the number of events at Survey 4 is smaller than or equal to Survey 2 then fill the value from Survey 2 into Survey 3 (and 4 if smaller than Survey 2) (eg 2,3,2,3 =2,3,3,3).
- And the number of events at Survey 3 is greater than or equal to Survey 2
    - And the number of events at Survey 4 is smaller than at Survey 3 then fill the value from Survey 3 into Survey 4 (eg 2,3,4,3 => 2,3,4,4).

3.5.4.2 One missing value

Missing value at Survey 1

If the number of events at Survey 2 is zero, then set Survey 1 to zero (eg .,0,x,x =>0,0,x,x).

If the number of events at Survey 3 is smaller than at Survey 2

- and the number of events at Survey 4 is smaller than or equal to Survey 2 then fill the value from Survey 2 into Surveys 3 (and 4 if smaller than) (eg .,3,2,3 =>.,3,3,3).
- And the number of events at Survey 4 is greater than at Survey 2 then set Survey 3 to missing (eg .,3,2,4 => .,3,.,4).

Otherwise if the number of events at Survey 3 is greater than or equal to Survey 2

- and the number of events at Survey 4 is smaller than at Survey 3 then fill the value from Survey 3 into Survey 4 (eg .,2,3,1 => .,2,3,3).

Missing value at Survey 2

If the number of events at Survey 3 is smaller than at Survey 1

- and the number of events at Survey 4 is smaller than or equal to Survey 3 then fill the values from Survey 1 into Surveys 2, 3 and 4 (eg 3,.,2,1 => 3,3,3,3).
- And the number of events at Survey 4 is greater than at Survey 3
    - And the number of events at Survey 4 is greater than at Survey 1 then set Survey 2 and Survey 3 to missing (eg 3,.,2,4 =>3,.,.,4).
    - And the number of events at Survey 4 is smaller than or equal to Survey 1 then fill the value from Survey 1 into Surveys 2, 3 (and 4 if smaller than) (eg 3,.,2,1 => 3,3,3,3).

Otherwise if the number of events at Survey 3 is greater than at Survey 1

- and the number of events at Survey 4 is smaller than at Survey 3 then fill the value from Survey 3 in to Survey 4 (eg 2,.,3,2 => 2,.,3,3).

Otherwise if the number of events at Survey 3 is equal to Survey 1 then fill the value from Survey 1 into Survey 2 and check whether the number of events at Survey 4 is smaller than at Survey 3, and if this is the case fill in the value from Survey 3 into Survey 4 (eg 2,.,2,1 =>2,2,2,2).

Missing value at Survey 3

If the number of events at Survey 2 is smaller than at Survey 1

- and the number of events at Survey 4 is greater than at Survey 1 then set Survey 2 and Survey 3 to missing (eg 2,1,.,3 => 2,.,.,3).
- and the number of events at Survey 4 is smaller than or equal to Survey 1 then fill the value from Survey 1 into Surveys 2, 3 (and 4 if smaller than) (eg 2,1,.,2 => 2,2,2,2).

Otherwise if the number of events at Survey 2 is greater than or equal to Survey 1

- and the number of events at Survey 4 is smaller than or equal to Survey 2 then fill the value from Survey 2 into Surveys 3 (and 4 if smaller than Survey 1) (eg 1,2,.,1 => 1,2,2,2).

Missing value at Survey 4

If the number of events at Survey 2 is smaller than at Survey 1

- and the number of events at Survey 3 is smaller than or equal to Survey 1 then fill in the value from Survey 1 into Surveys 2 (and 3 if smaller than) (eg 3,2,3,. => 3,3,3,.).
- and the number of events at Survey 3 is greater than at Survey 1 then set Survey 2 to missing (eg 3,2,4,. => 3,.,4,.).

Otherwise if the number of events at Survey 2 is greater than or equal to Survey 1

- and the number of events at Survey 3 is smaller than at Survey 2 then fill in the value from Survey 2 into Survey 3 (eg 2,2,1,. => 2,2,2,.).

3.5.4.3 Two missing values

Missing values at Survey 1 and Survey 2

If number of events at Survey 3 is equal to zero, then set number of events at Survey 1 and 2 to zero as well (eg .,.,0,x => 0,0,0,x).

If number of events at Survey 4 is smaller than at Survey 3, then fill the value of Survey 3 into Survey 4 (eg .,.,3,2 => .,.,3,3).

Missing values at Survey 1 and Survey 3

If number of events at Survey 4 is smaller than or equal to the number of events at Survey 2, then fill in the value of Survey 2 into Surveys 3 (and 4 is smaller than) (eg .,3,.,2 => .,3,3,3).

If number of events at Survey 2 is equal to zero, then set Survey 1 to zero (eg .,0,.,x => 0,0,.,x).

Missing values at Survey 1 and Survey 4

If number of events at Survey 2 is equal to zero, then set number of events at Survey 1 to zero (eg .,0,x,. => 0,0,x,.).

If number of events at Survey 3 is smaller than in Survey 2, then fill the number of events of Survey 2 into Survey 3 (eg .,3,2,. => .,3,3,.).

Missing values at Survey 2 and Survey 3

If the number of events at Survey 4 is smaller than or equal to Survey 1, then fill the value from Survey 1 into Surveys 2 , 3 (and 4 if smaller than Survey 1) (eg 2,.,.,1 => 2,2,2,2).

Missing values at Survey 2 and Survey 4

If the number of events at Survey 3 is smaller than or equal to Survey 1, then fill the values from Survey 1 into Surveys 2 (and 3 is smaller than) (eg 3,.,2,. => 3,3,3,.).

Missing values at Survey 3 and Survey 4

If the number of events at Survey 2 is smaller than Survey 1, then fill the value from Survey 1 into Survey 2 (eg 3,2,.,. => 3,3,.,.).

3.5.4.4 Three missing values

Missing values at Survey 1, Survey 2 and Survey 3

If number of events at Survey 4 is equal to zero, then set Survey 1, Survey 2 and Survey 3 to zero (eg .,.,.,0 => 0,0,0,0).

Missing values at Survey 1, Survey 2 and Survey 4

If number of events at Survey 3 is equal to zero then set Survey 1 and Survey 2 to zero (eg .,.,0,. => 0,0,0,.).

Missing values at Survey 1, Survey 3 and Survey 4

If the number of events at Survey 2 is equal to zero then set Survey 1 to zero (eg .,0,.,. => 0,0,.,.).

Missing values at Survey 2, Survey 3 and Survey 4

No action required.

3.5.5 Additional variables for prevalence and change

In order to easily determine whether a woman has had a reproductive event, a prevalence variable for each reproductive event was created. This variable takes the value '1' if the woman ever had the event eg. termination, and '0' if she hasn't had this event.

An additional change variable takes the value '1' if the number between surveys for one reproductive event, eg. miscarriage increases, and '0' if it stays the same. It is similar to incidence, however as incidence stands for the number of new cases, this change variable stands for the number of women with new cases (could be more than one case). Note, a change variable was only created if both surveys had non-missing value.

3.5.6 Tables

The following tables show a summary of the results and include only women who have participated in all four surveys (6840).

Table 3-17 Number of term births, preterm births and stillbirths before and after data cleaning for Surveys 2 to 4.

	Normal birth		Premature		Stillbirth	
Survey	Before	After	Before	After	Before	After
2	1590	1590	107	107	22	22
3	3214	3238	222	240	47	54
4	5706	5771	356	418	53	72

Table 3-18 Number of terminations for medical reasons, other reasons or ectopic pregnancies at Survey 4.

Termination for	N
Medical reason	138
Other reason	1175
Ectopic pregnancy	78

Note, as this was the first Survey where these categories were asked, there was no imputation possible.

Table 3-19 Number of reproductive events before and after data cleaning for each survey; and number of women who have had a reproductive event (prevalence), using the cleaned data.

	Before	After	Prevalence
Termination			
Survey 1	434	434	380
Survey 2	893	939	744
Survey 3	1117	1196	929
Survey 4	1359	1481	1106
Miscarriage			
Survey 1	236	236	197
Survey 2	581	632	484
Survey 3	972	1109	800
Survey 4	1472	1704	1217
Birth			
Survey 1	510	510	410
Survey 2	1593	1600	1101
Survey 3	3444	3449	2070
Survey 4	6173	6223	3379

Table 3-20 Number of women who have had one or more reproductive events (termination, miscarriage, birth) between Surveys 1 and 2, 2 and 3, 3 and 4.

Between Surveys	Termination	Miscarriage	Birth
1-2	385	306	861
2-3	58	73	522
3-4	237	468	2243

Table 3-21 Number of missing values within each reproductive event before and after data cleaning.

	Termination		Miscarriage		Birth	
Survey	Before	After	Before	After	Before	After
1	88	47	126	21	117	48
2	5002	215	5002	355	1079	1073
3	453	38	495	39	86	83
4	41	41	22	22	45	23

3.6 Amending longitudinal data

3.6.1 The issue

Some combinations of longitudinal data should not logically occur. There are various approaches that may be taken by researchers who encounter these illogical combinations: they may delete the data, leave it in but treat it as 'noise', or change the data based on some general principles. A consistent approach based on general principles is recommended. This keeps the sample sizes high and delivers more consistent data. The Data Management Group has recommended the construction of a stated list of principles for amending longitudinal inconsistencies. Where possible the data on the analysis data sets will be updated accordingly and documentation provided for reference in the Data Dictionary Supplement.

3.6.2 Examples

3.6.2.1 Termination of pregnancy

A woman may say she has had a termination at Survey n, but later at Survey n+2 she may say that she has never had a termination. The assumption is that she is no longer willing to report this event, and later responses should be altered to 'had a termination'.

3.6.2.2 Asthma

Asthma is an on-going chronic condition. Many women state they have asthma at one survey but at a later survey state they do not now have it. However, once a person has asthma they will always have it, even if they are no longer having symptoms. Later responses should be altered to 'have asthma.'

3.6.2.3 Smoking

A woman may claim to have quit smoking, but at a later survey says she never smoked. Later responses should be altered to 'quit smoking'.

3.6.3 Understanding the problem

These examples appear to occur when a woman is answering questions about an unpleasant or potentially socially unacceptable event that occurred in the past. In the case of chronic conditions, people may mistakenly believe that a lack of symptoms means the condition is cured. However, the opposite may also be the case. It is possible that the early positive response was not correct, based on a mis-perception, and later the respondent corrected it.

3.6.4 Principles for dealing with the problem

- Missing data should be avoided whenever possible.
- A best guess is better than missing data.
- A positive response to an 'ever happened event' is more likely to be true than a negative response.

- Common sense can be used to understand what is going on, as in the pregnancy termination and cigarette examples.
- It is permitted to change data when it seems likely to be wrong and a likely true response can be deduced.

3.6.5 How to make the changes

There are two ways to make the changes: to change the value of an existing variable or to create a new variable.

3.6.5.1 Changing the value of an existing variable

This is considered to be the best approach if the change is minor, as in the examples above.

Currently when recoding is done, the values of some variables are changed. The variable name does not change, and it is usually of the form Y4Q3a, that is, the variable for Young 4, Question 3a. Changes are ratified by the Data Management Group, or are accepted by the Data Manager when the changes are obvious or trivial. All changes are documented in the Data Manager's manual (maintained by the Data Manager – Surveys). There is no indication that this variable has had some of its values changed in the data sets or the data dictionary.

An example of an agreed-upon recode is where a woman has said she has no trouble doing vigorous exercise and leaves the question about doing moderate exercise blank. This blank value is replaced with 'having no trouble doing moderate exercise'.

Another example of a obvious change is where a women has given the date of birth of her child as 'dd mm 1986', when she would have been 11, but in the previous survey she gave the same day and month, but a different year: 1996. The child's date of birth was changed to 1996, which is more likely.

Changing the existing values instead of the variable is not resource intensive, but does not highlight the change. Therefore the changes must be documented for reference. Changes are not made to the programs, formats, data dictionary or its supplements.

3.6.5.2 Creating a new variable

This is considered to be the best approach if considerable changes are required. There are some variables that have had some considerable changes from their raw data state. These are usually given a new name, not a 'Q' name. Some examples are described below.

Weight and height

Weight and height in many cases are not the same as the raw data because the raw data was given in imperial units or it was missing or there was something wrong. The variables AVERAGEHTCM and M3WTKG are obviously not raw data because they are not in the analysis data set and they are not named by their question numbers.

Marital status

Most changed variables remain on the analysis data sets. For example, y4marital is changed from the raw data. This is to make it comparable with other marital status variables. The Young 4 question includes 2 de facto options (same-sex or opposite sex) that were not in earlier versions of this question. These options have to be grouped for the Y4MARITAL variable. Its unique name is a signal that it is not simply the raw data, for example, from Q45.

Whenever a new variable is created it needs to be documented, which may be resource intensive. Also, in some cases it may be a good idea to retrospectively create new variables for pre-existing data sets, but it is important not to delete existing variables, as they are likely to be essential for existing analysis programs.

3.6.5.3 How to change suspect variables

Table 3-22 shows some examples of methods that may have been used. The value shown in brackets is the corrected value. These methods may also be used to generate further examples.

The examples show that each variable has a unique set of rules. The general approach is to use all available information, combined with sound judgement, to change the data. Most of the examples above do not result in the creation of a new variable. The documentation would be only at the data management level. But those variables requiring more extensive recoding, such as weight, and marital status, result in new variables with unique names and subsequent documentation in the Data Dictionary Supplement.

3.6.6 Recommendations

It is recommended that a flexible approach be taken and that each variable be considered individually as required. Minor changes can occur with the approval of the Data Manager – Surveys. More substantial changes requiring new variables and documentation should be ratified through Data Management Group

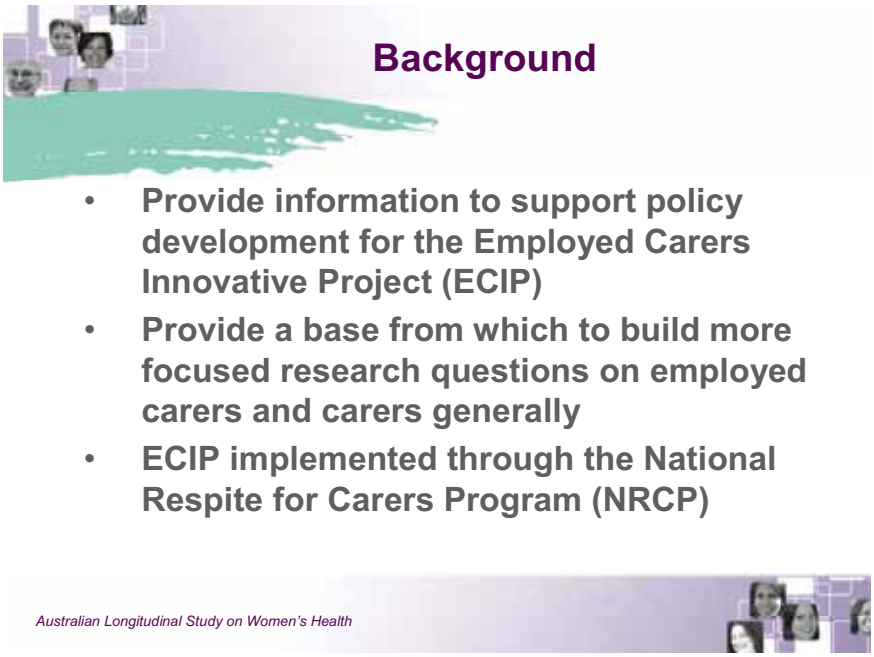
Table 3-22 Table of longitudinal variables

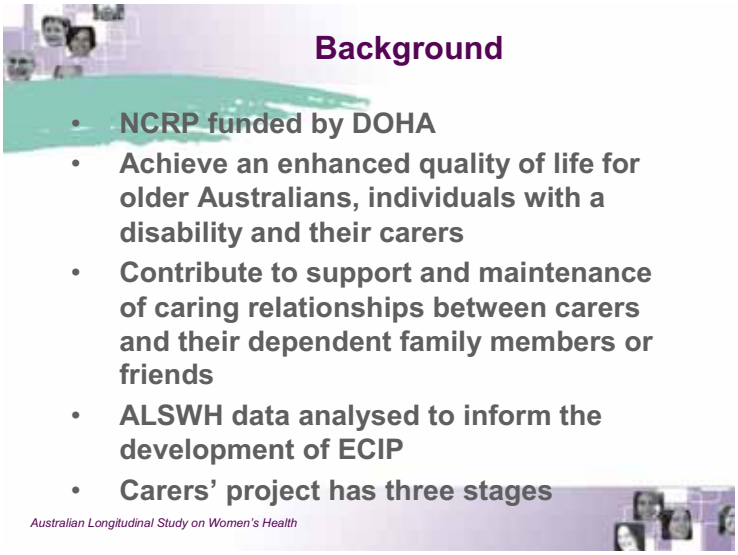
	Survey 1	Survey 2	Survey 3	Survey 4	Reason / Method for change
Termination of pregnancy	Yes	Yes	No (Yes)	No (Yes)	We believe a positive response is more likely true than a negative one, and this is something that the woman may want to forget
Smoking Status	Quitter	Never Smoked (Quitter)	Never Smoked (Quitter)	Never Smoked (Quitter)	As above, Quitter trumps Never, and this is something she may want to wish away.
Year of birth of first child	.	.	1996 - thus age of mother 22	1986 (1996)	Age when giving birth is more likely 22 than 12.
Asthma – as told by doctor	Yes	No (Yes)	No (Yes)	No (Yes)	This condition cannot be cured.
Weight (kg)	64	66	98 (68)	70	A linear model suggests the 9 is a misread of 6
Age	. (47*) – Mid-age cohort	. (49*)	. (non-response)	. (non-response)	No data except in the cohort. Impute value.
Proxy		No (Yes)			Proxy comments strongly suggest that a proxy was used.
Diabetes	.	No (Yes)	.	No (Yes)	Links to Medicare data show that medications solely for diabetes prescribed.

* The values in brackets are the corrected value.

3.7 Presentations given at face-to-face Dada Management Group meeting, 21 June 2007, University of Queensland

3.7.1 Carers Project, Presented by Melanie Watson





Stage 1

- Examined paid employment and responsibilities for caring for another person with long-term illness, disability or frailty
- Mid Survey 4 data analysed (n = 10,905)
- Results:
  - Carers had less involvement in the workforce
  - Carers had more involvement with caring for children
  - Carers had less social support
  - Carers had more negative outcomes in terms of mental health, optimism, stress, sleeping problems, physical symptoms
  - Live-in carers were heavy users of health services

Australian Longitudinal Study on Women's Health

Stage 2

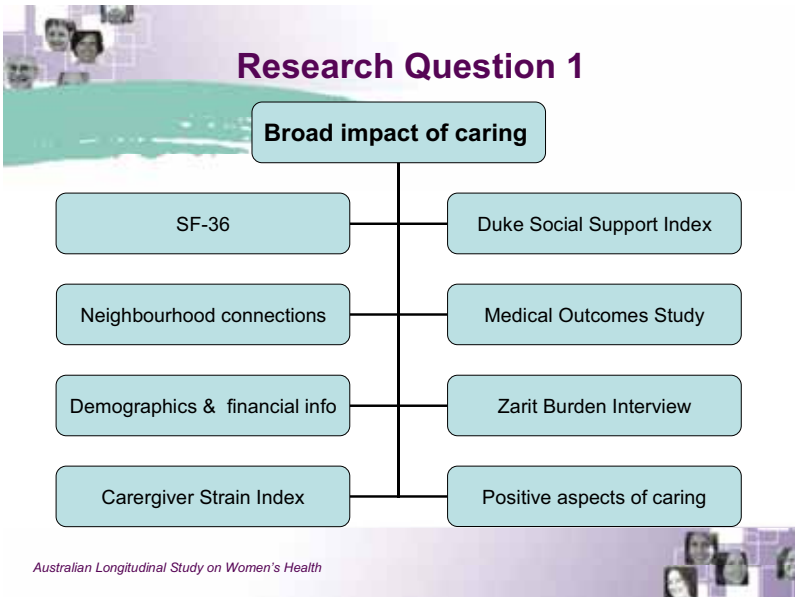
- Examined changes in caring roles and employment
- Mid Survey 3 and Survey 4 analysed
- Results:
  - Women not caring more likely to work full time
  - Carers at both surveys more likely not to work, or work part time
  - Those who start caring more likely to cut down working
  - Non-carers the least rushed/pressured
  - Non-carers had highest levels of physical and mental wellbeing

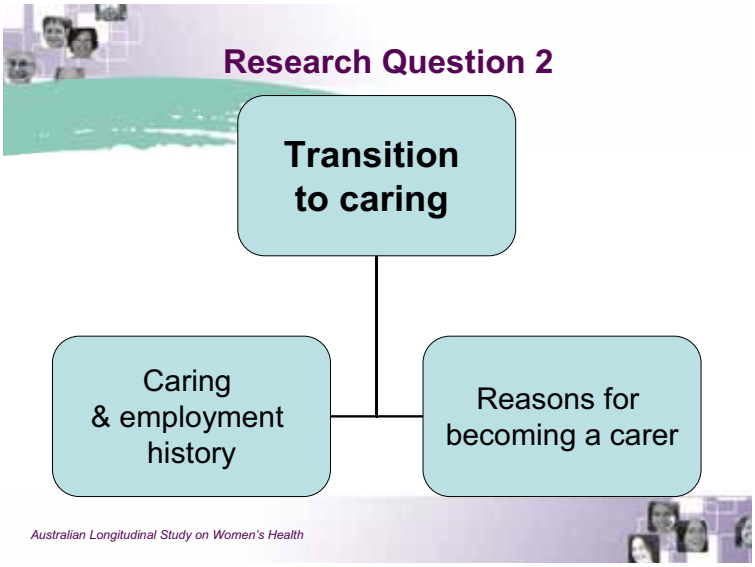
Australian Longitudinal Study on Women's Health

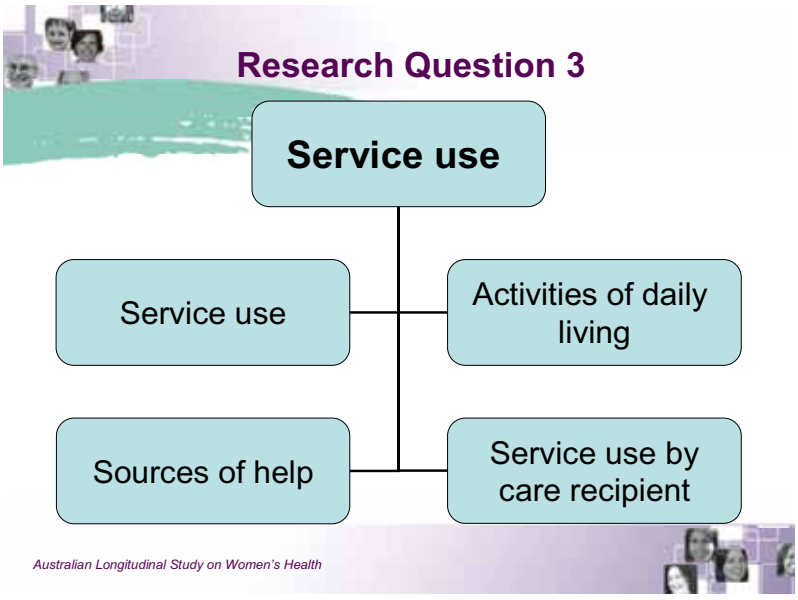
Stage 3

- Documentation and results of a pilot sub-study of women's caregiving and employment transitions and the role of health services in lessening the impact of caregiving on women's lives
- Objectives:
  - What is the broad impact of caring on women's lives?
  - How do women manage the transition to caring?
  - What services to women currently use?
  - What services lessen the negative impact of caring on the lives of carers?

Australian Longitudinal Study on Women's Health


Research Question 1
Broad impact of caring
SF-36
Duke Social Support Index
Neighbourhood connections
Medical Outcomes Study
Demographics & financial info
Zarit Burden Interview
Carergiver Strain Index
Positive aspects of caring
Australian Longitudinal Study on Women's Health


Research Question 2
Transition to caring
Caring & employment history
Reasons for becoming a carer
Australian Longitudinal Study on Women's Health


Research Question 3
Service use
Service use
Activities of daily living
Sources of help
Service use by care recipient
Australian Longitudinal Study on Women's Health

Research Question 4

- Services that lessen the negative impact of caring:
  - Questions from previous ALSWH surveys

Survey

- Mid-age pilot group
- Surveys mailed to ≈ 350
- ≈ 12% are live-in carers
- ≈ 28% care for someone who lives elsewhere

Progress

- 151 surveys received (50.3%)
- 3 returned to sender
- 1 declined to participate
- 1 withdrew after completing the survey

Future

- Stage 3 Report due 1 October 2007
- Funding for sub-study on the mid-age cohort (2008/09)

3.7.2 Data Manager – Details of the Role, Presented by David Fitzgerald

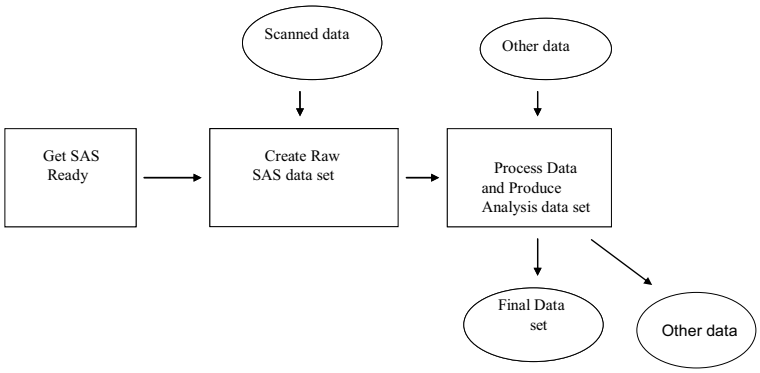
Contents

- Creating New Data Sets
- Recodes
- Skip Questions
- Data Updates
- List of Data

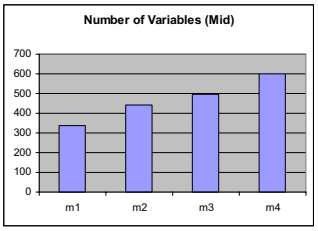
Creating New Data Sets

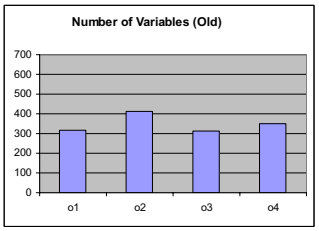
- Eg Young 4
- Three Major Programs:
  - 1. Set up library and file names
  - 2. Read in questionnaire data, create raw data set
  - 3. Process data and produce analysis data set

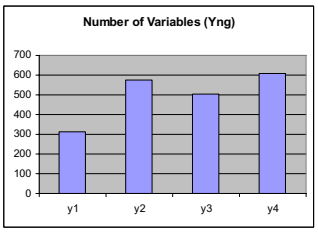
Data Creation



Variables

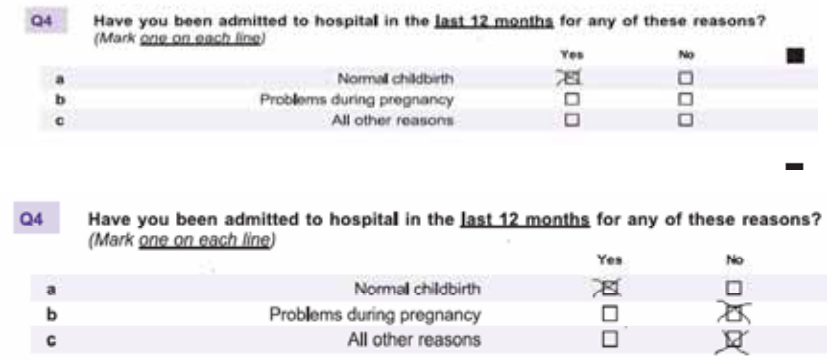






Recode Method A

- Yes/No Question with only Yes answered. Missing means No
- Example



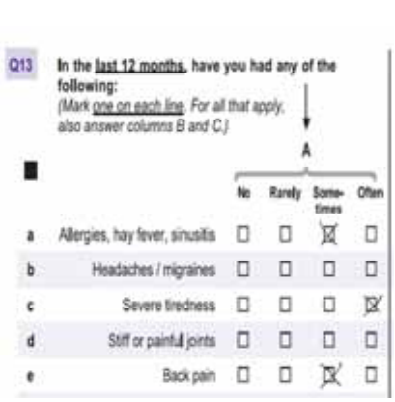
Q4 Have you been admitted to hospital in the last 12 months for any of these reasons?
(Mark one on each line)

		Yes	No
a	Normal childbirth	☒	☐
b	Problems during pregnancy	☐	☐
c	All other reasons	☐	☐

Q4 Have you been admitted to hospital in the last 12 months for any of these reasons?
(Mark one on each line)

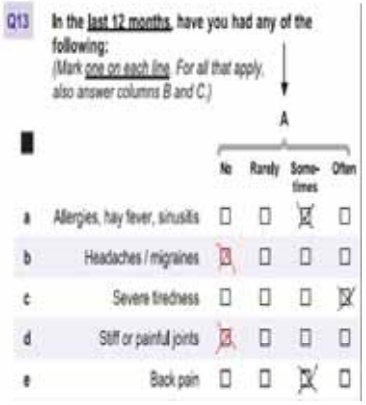
		Yes	No
a	Normal childbirth	☒	☐
b	Problems during pregnancy	☐	☒
c	All other reasons	☐	☒

Recode, Method B



Q13 In the last 12 months, have you had any of the following:
(Mark one on each line. For all that apply, also answer columns B and C.)

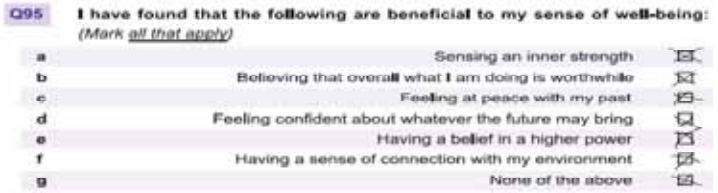
		A			
		No	Rarely	Some-times	Often
a	Allergies, hay fever, sinusitis	☐	☐	☒	☐
b	Headaches / migraines	☐	☐	☐	☐
c	Severe tiredness	☐	☐	☐	☒
d	Stiff or painful joints	☐	☐	☐	☐
e	Back pain	☐	☐	☒	☐



Q13 In the last 12 months, have you had any of the following:
(Mark one on each line. For all that apply, also answer columns B and C.)

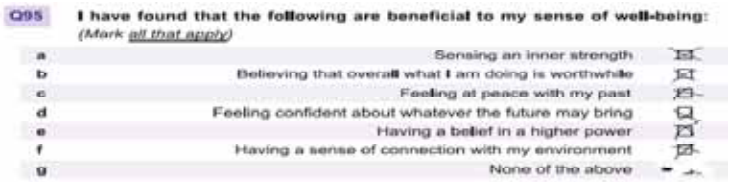
		A			
		No	Rarely	Some-times	Often
a	Allergies, hay fever, sinusitis	☐	☐	☒	☐
b	Headaches / migraines	☒	☐	☐	☐
c	Severe tiredness	☐	☐	☐	☒
d	Stiff or painful joints	☒	☐	☐	☐
e	Back pain	☐	☐	☒	☐

Recodes, Method C



Q95 I have found that the following are beneficial to my sense of well-being:
(Mark all that apply)

a	Sensing an inner strength	☒
b	Believing that overall what I am doing is worthwhile	☒
c	Feeling at peace with my past	☒
d	Feeling confident about whatever the future may bring	☐
e	Having a belief in a higher power	☐
f	Having a sense of connection with my environment	☐
g	None of the above	☐



Q95 I have found that the following are beneficial to my sense of well-being:
(Mark all that apply)

a	Sensing an inner strength	☒
b	Believing that overall what I am doing is worthwhile	☒
c	Feeling at peace with my past	☒
d	Feeling confident about whatever the future may bring	☐
e	Having a belief in a higher power	☐
f	Having a sense of connection with my environment	☐
g	None of the above	☐

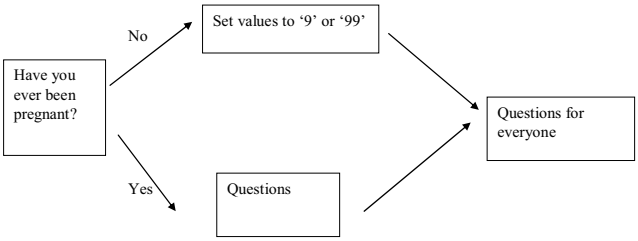
Recodes, Method D

- Logical Method

- Eg. If cannot climb one flight of stairs, then cannot climb several flights of stairs

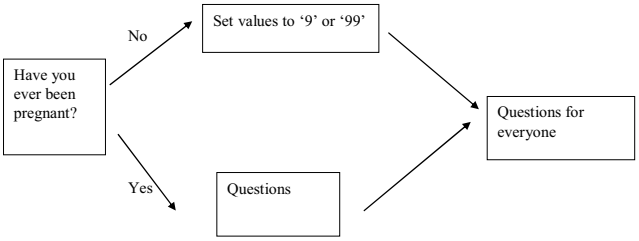
Skip Questions

- General Scheme



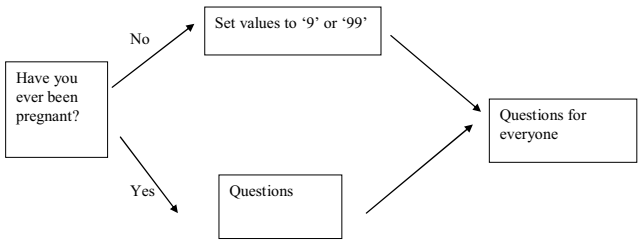
Skip Questions Edit 1

If Answered 'No', and answered questions, but only negatively, then reset those values to '9' , '99'



Skip Questions, Edit 2

If Answered ‘No’, and answered questions, positively, then reset earlier question to ‘Yes’



Updating Data

- Identify Reason for update
- Make changes inside the data creation process
- Run the process, making backups beforehand
- Compare new data to old –Proc Compare
- Update SAS, text, send to Newcastle
- Announce change

Data List

Data	Example	Format
Survey Analysis Data	Wha3OldB	SAS, Text, with formats, labels
Raw Data	Raw3Old	SAS
Qualitative Data	Last page comments	Access
Anthropometry	YngHtWtBmiB	SAS, Text
Medications, (Old 4)	Old4Medications	SAS,
Medicare	Mbs_line_Mid04	SAS
Participation Status	YngStatusMar2007B	SAS, Text
Other Survey Info	FFQ, Child	

Future Tasks

- Complete Derived Variables in all Data
- Universal SAS Formats
- Transition variables
- What else?

3.7.3 Incidence and Prevalence of Chronic Conditions Revisited, Presented by Richard Hockey

Introduction

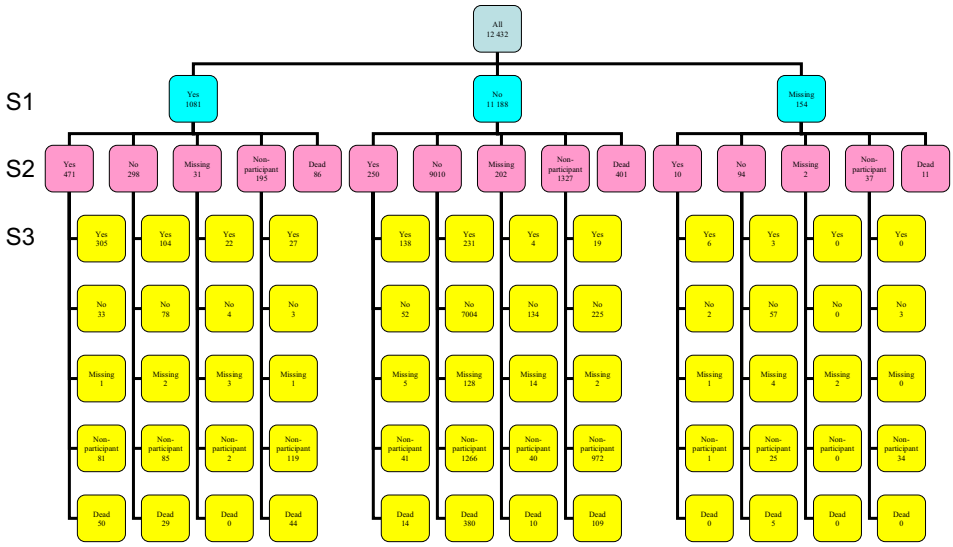
"A discussion of our current definitions of incidence and prevalence - in particular how deaths, withdrawals, and missing cases are coded for these rules"

Current Definitions

- 'Best' estimate of prevalence and incidence of enduring chronic conditions
- Based on self report of conditions
- Described in Technical Reports #26,#27

Response tree

Diabetes, Old Cohort S1-S3



Prevalence & Incidence

Current method:

- Prevalence takes deaths and non-response/withdrawal into account.
- Incidence – 2 measures
  - Incidence Rate – as per prevalence
  - Incidence groups – ‘Existing’, ‘New’ and ‘Never’ (at final survey).

Incidence Groups

- Current methods:
- A. ‘incident’ or ‘existing’ cases not allowed to die or be lost to follow-up. While, ‘never’ cases **must** respond to final survey to be counted.
- B. As above, but only those who respond to last survey are included. ie existing and incident cases die or are lost to follow-up.

Prevalence

- Increase categories (at each survey):
  - Not diseased (0)
  - Diseased (1)
  - Dead (3)
  - Withdrawn (5)
  - Non-participant (4)
  - Missing (.)

Status sequence

- Concatenate prevalence at each survey to create status sequence string.
  e.g. 1113 , 0015 .114
- Easy to construct
- Simpler to correct inconsistencies over multiple surveys.
  E.g. 0040, .0.0, 0.00 -> 0000
  1011, 1040, 1.10 -> 1111
  0404, 0.04, .404 -> 0004 etc

Advantages

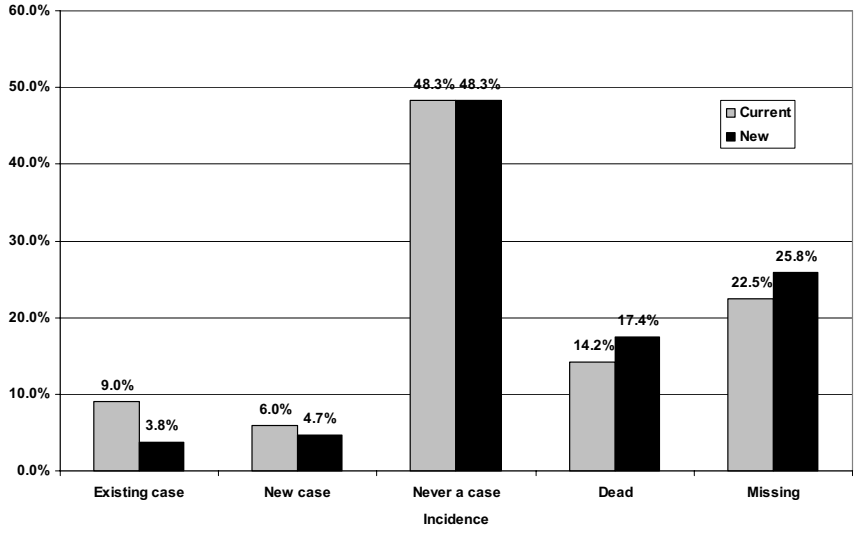
- Simple to extract prevalence and derive incidence from sequences.
- Scalable to any number of surveys. (easier to maintain, fewer coding errors).

Disadvantages

- Some loss of information.
  Some missing or non-participants recoded.
- Assumes earliest response 'correct'.
  30-40% of older cohort who reported a chronic condition at S1 did not at S2.

Illustration

Diabetes Incidence, Old Cohort



Conclusion

- Prevalence groups to be expanded to include ‘deaths’, ‘Withdrawn’, ‘missing’, and ‘non-participant’ groups.
- Create datasets of prevalence groups of chronic conditions for each cohort (sequence strings).
- Provide sample code for alternative incidence definitions.
- Flag changes to original responses.

3.7.4 Height loss in elderly women, Presented by Melanie Spallek and Janneke Berecki

Background I

- Height decreases with old age
- Decreases in bone mineral density are associated with height loss
- High body weight and oestrogen treatment are protective against height loss

Hypothesis I

The existence (at baseline) of

> osteoporosis,
> older age,
> low BMI,
> many years received HRT,
> low physical activity
> and low self-rated health

are associated with excessive height loss in following surveys.

Background II

- Height loss due to osteoporotic vertebral deformities and posture change, can lead to raised abdominal pressure and pulmonary dysfunction

Hypothesis II

Women with excessive height loss are more likely

> to increasingly suffer from indigestion,constipation, breathing difficulties and back pain

> to report greater decline in MCS and PCS

> to have reported falls or broken bones between S1and S4.

than women with average height loss.

Exploratory Analysis

Height change between Survey 1 and Survey 4 was classified as:
gain 1-3cm, no change, loss of 1-3cm, loss of 4-9cm

Variables used:

osteoporosis	yes,no	p-value=0.03
age	70-75years	p-value=0.079
BMI	under, normal, over, obese	p-value<0.001
years been on HRT	never, <1year, 1-4years, 5-10years, >10years	p-value=0.98
physical activity (PA)	none/v low, low/mod, mod/high, high/v high	p-value=0.14
self-rated health (SRH)	excellent, very good, good, fair, poor	p-value=0.36

Model for Hypothesis 1

- continuous outcome variable 'height change'
  =>general linear model (PROC GLM)
- univariate analyses
  age (<0.01), osteoporsis (<0.01), BMI (<0.01),
  SRH (0.38), HRT (0.72), PA (0.87)
- multivariate analysis (backward selection procedure)

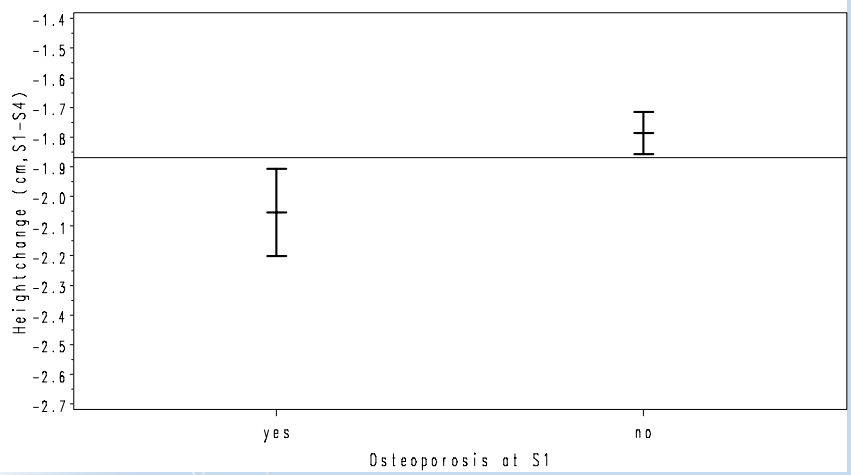
height change=BMI+osteoporosis+age

underweight

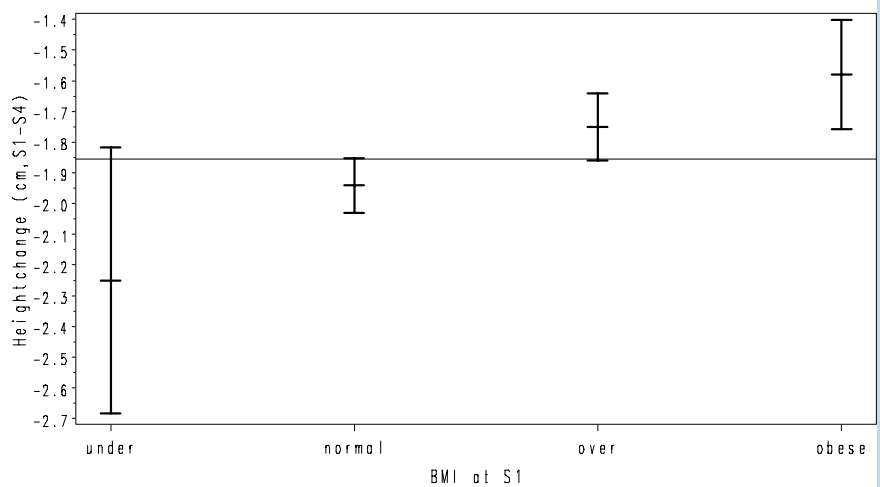
YES

Older
(-0.07)

LSmeans and 95%CI of height change in cm between S1-S4 by presence of osteoporosis at S1



LSmeans and 95%CI of height change in cm between S1-S4 by BMI-classification at S1



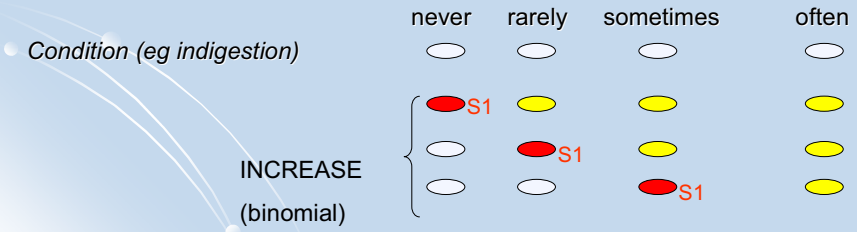
H2

Outcome variables I

- 'Increasingly suffer from indigestion, constipation, breathing difficulties and back pain' MEANS:

Following question was asked at S1 and S4:

Have you had any of the following problems in the LAST 12 MONTHS?



Outcome variables II

- Decline in MCS and PCS (continuous):
  MCS at S4 – MCS at S1
  PCS at S4 – PCS at S1

- Report of falls or broken bones between S1 and S4 (binomial):
  If broken bones are reported at any survey =>
  variable *broken bones*='yes'
  If no broken bones are reported at ALL surveys =>
  variable *broken bones*='no'
  Same method applies for falls.

Models

Main independent variable (binomial):
Have lost more or less than 3cm in height between S1&S4. (shrank3)

Logistic Regressions:
MODEL1: inc_indigestion = shrank3 + fosamax + evista
MODEL2: inc_constipation = shrank3 + fosamax + evista
MODEL3: inc_breathingdiff = shrank3 + asthma + bronchitis + BMI
MODEL4: inc_backpain = shrank3
MODEL5: falls1to4 = shrank3
MODEL6: brokenbones1to4 = shrank3

TTEST:
PCSdiff by shrank3
MCSdiff by shrank3

Models

Instead of shrinking, a new variable (newosteo) which indicates new cases of osteoporosis between Survey 1 and Survey 4 (women who have not been diagnosed with osteoporosis at Survey 1).
RR=1.64 [1.45;1.86] for women who shrink more than 3cm are more likely to newly be diagnosed with osteoporosis than those who do not.

MODEL1: inc_indigestion = newosteo + fosamax + evista
MODEL2: inc_constipation = newosteo + fosamax + evista
MODEL3: inc_breathingdiff = newosteo + asthma + bronchitis + BMI
MODEL4: inc_backpain = newosteo
MODEL5: falls1to4 = newosteo
MODEL6: brokenbones1to4 = newosteo

PCSdiff by newosteo
MCSdiff by newosteo

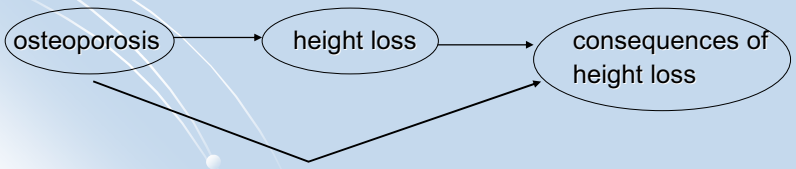
Results

outcome	indepent		odds ratio	95% CI
inc_breathingdiff	BMI	underweight	1.23	[0.84; 1.80]
		healthy weight	*1.00*	
		overweight	1.23	[1.04; 1.44]
		obese	1.60	[1.23; 1.99]
	newosteo	yes	1.24	[1.03; 1.50]
		no	*1.00*	
inc_backpain	newosteo	yes	1.52	[1.32; 1.76]
		no	*1.00*	
falls1to4	newosteo	yes	1.67	[1.44; 1.95]
		no	*1.00*	
brokenbones1to4	newosteo	yes	2.23	[1.89; 2.63]
		no	*1.00*	

Conclusions

Self-reported height is not accurate enough to detect consequences of height loss.

Self-reported osteoporosis is highly associated with height loss and can be used instead to detect consequences of height loss (which itself is a consequence of osteoporosis).



4. MAINTENANCE OF COHORTS

4.1 Maintenance strategies

Cohort maintenance and tracking of "return-to-sender" mail continues according to the strategies outlined in previous reports. The office team continues to track all women who responded to Survey 1 in 1996, and who are not known to have died or withdrawn from the project since then. This includes women who did not respond to Survey 2, Survey 3, Survey 4 or Survey 5. Participants for whom we have no current contact details remain in the tracking system unless they are positively identified as deceased, withdrawn, permanently emigrated, or otherwise ineligible or unwilling to participate. Secondary contacts, electoral rolls, and electronic white pages continue to be the main sources of information. Increasingly we are finding email addresses to be useful, especially among the younger women. While in previous years, email addresses seemed to be fairly short-lived and unstable, it now appears that individuals are likely to keep the same email address for some years.

4.2 National Death Index

The National Death Index is used on an annual basis to identify women who are recorded as being deceased. This not only adds to information provided to us by family members, but also provides administrative data on causes of death. A list of 38,829 participants, including unconfirmed deceased participants and participants who have withdrawn from the project, was sent to AIHW in November 2006 for matching against the National Death Index (NDI). A list of 9,121 matches for 4,335 participants was returned by AIHW in January 2007 for clerical review. There were 4,786 duplicate matches.

The records were coded according to the closeness of the match of the ALSWH project date of birth with the NDI date of birth and the closeness of the match of the project surname, first name and middle name with those recorded on the NDI. Those with exactly matching dates of birth and all names were taken as deceased (405 records) while combinations of close date of birth matches and close name matches were selected for checking (4,391 records). From the records checked, a further 94 deceased matches were identified and in cases where there was any doubt that the deceased person was one of the ALSWH participants the match was rejected. Each match accepted was checked to see if they were an ALSWH known deceased participant or a new deceased participant. Of the 499 matches identified, 136 deaths ALSWH knew about, 200 were new notifications and 163 were notification of deaths of participants who had withdrawn. The summary of results is shown in Table 4-1.

Table 4-1 Summary of National Death Index matching results

	N
Confirmed deceased	136
New deceased	200
Withdrawn deceased	163
Doubtful match	3,892
Not checked	4,730
TOTAL	9,121

The new deceased details were added to the table of deceased participants and the table recording the details of withdrawn and subsequently deceased participants in the ALSWH database. At the time of matching there were 2,634 deceased participants and 48 (1.8%) of these have never been confirmed with the NDI. This compares with last year's figures of a total number of 2,304 deceased participants and 57 (2.5%) deaths unconfirmed with the NDI. (See Figure 4-1, Figure 4-2 and Figure 4-3).

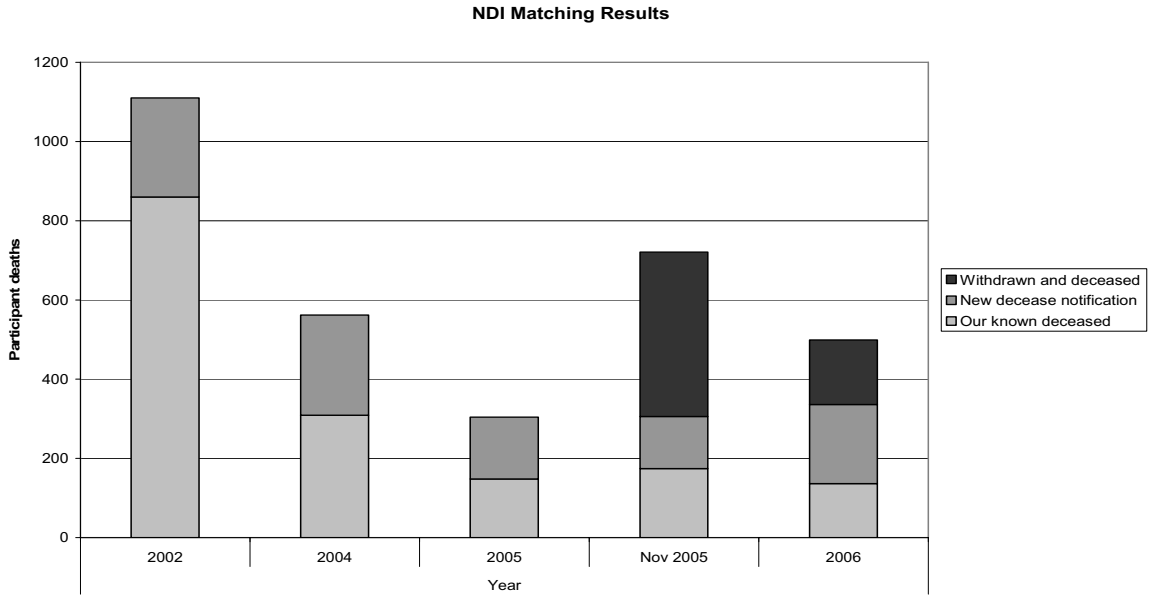


Figure 4-1 National Death Index matching results

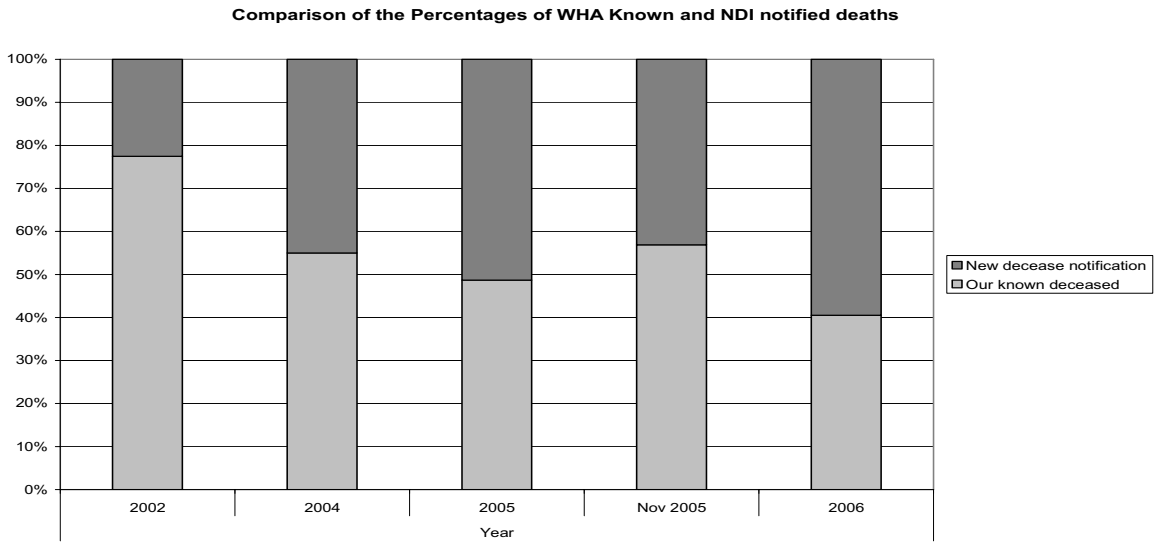


Figure 4-2 Comparison of the percentages of ALSWH known and National Death Index notified deaths

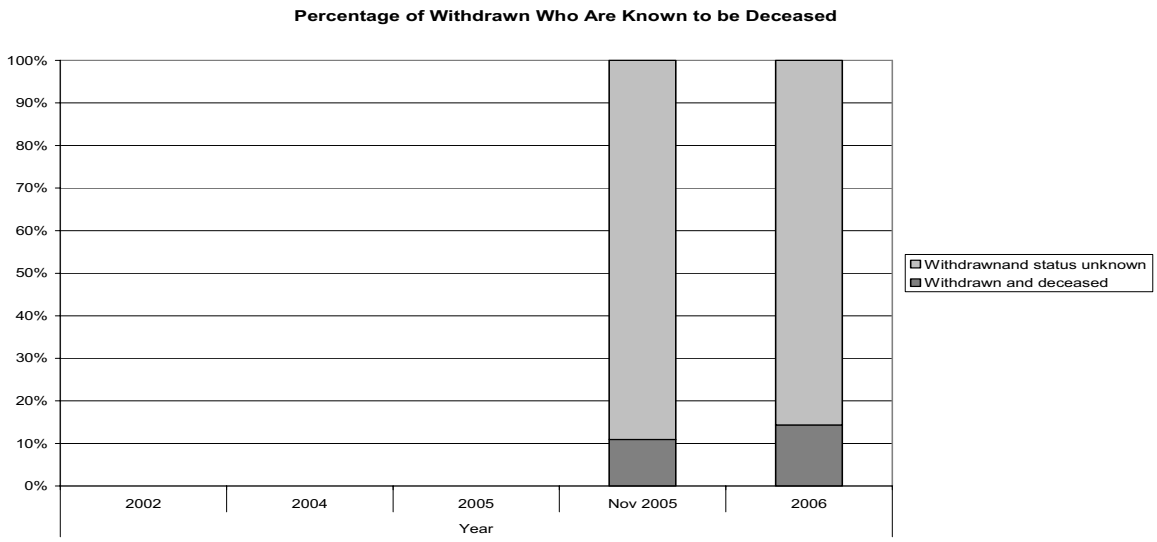


Figure 4-3 Percentage of withdrawn who are known to be deceased

4.3 Cause of death codes

In March 2007, 1248 confirmed deceased records were sent to AIHW to obtain cause of death codes (COD codes) from the NDI. Codes for 773 of these records were returned in June 2007. Of the 475 records which did not return COD codes, 15 had the year of death before 2005 (see Table 4-2), the remainder had a year of death of 2005 or later. The NDI COD codes lag behind the registration of deaths by up to 2 years.

Table 4-2 Confirmed deaths with and without cause of death codes by year of death

	Year of death			
	Before 2005	2005	2006	Total
No COD Code	15	30	430	475
COD Codes	2294	394	0	2688
Deceased	2309	424	430	3163

There can be up to 19 COD codes. The first COD code is the underlying cause of death. All others are additional causes of death. Multiple cause of death coding was used from 1997 onwards.

The codes for causes of death depend on when the person died and when their record was placed on the NDI. Those deaths that were registered in or before 1996 are recorded in ICD-9, those registered in 1997 and 1998 are a combination of ICD-9 and ICD-10 and those registered in 1999 and onwards are recorded in ICD-10.

The next round of matching data from ALSWH participants to the NDI will commence in November 2007.

4.4 Update of sample and response rates

4.4.1 Survey 1, 1996

Information provided in early reports has been repeated and updated here for completeness. The numbers provided in the Tables are up to date as at October 2007.

More than 40,000 women responded to Survey 1 of the main cohorts in 1996. Because of uncertainties about the accuracy of the Medicare database (which was used as the sampling frame for the stratified random samples), response rates cannot be exactly specified. We have estimated that 41%-42%, 53-56%, and 37-40% of the Younger, Mid-age, and Older women, respectively, responded to the initial invitation to participate. Confidentiality restrictions meant that the names of the selected women were unknown to researchers. Usual methods of encouraging participation such as by telephone could not be used. The response rates were pleasing given that the invitation included a request for women to participate in the longitudinal study for up to 20 years.

In light of these response rates, it is important to assess any response bias so that the generalisability of the study findings can be determined. A comparison of the demographic characteristics of respondents and non-respondents was not possible because privacy guidelines prevented the researchers from having any information about women who were selected to receive an invitation but did not respond. We were able, however, to obtain aggregate data for non-respondents' use of health services (from the Australian Medicare database). These data suggest that there are small differences in use of health services among respondents and non-respondents, with non-respondents less likely, for example, to have visited a medical specialist in the last 2 years (Mid-age, 49% versus 54%; Older, 65% versus 72%). There was not a significant difference in health service use between respondents and non-respondents from the younger age group.

A proportion of this difference may be explained by the fact that some women who were selected may no longer be living in Australia or may have died, as the Medicare database is not routinely linked to emigration records or the National Death Index in Australia.

Although we were not able to ascertain reasons for non-response (because we were not allowed to know any details about the selected women), we were able, through comparison with the 1996 census data, to confirm that the participants in each of the cohorts are reasonably representative of the general population of women of the same age in Australia (see Table 4-3). There is some response bias in terms of overrepresentation of women with tertiary education and under-representation of some groups of immigrant women.

This information and Table 4-3 are taken from Brown, W. J., Dobson, A. J., Bryson, L., & Byles, J. E. Women's Health Australia: on the progress of the main cohort studies. *Journal of Women's Health & Gender-Based Medicine*, 1999; 8(5): 681-688.

4.4.2 Sample for the longitudinal study

4.4.2.1 Retention and representativeness of the sample

Some women only completed Survey 1 in 1996 and did not provide any contact details (532 Younger women, 383 Mid-age women and 508 Older women). Hence, the numbers of women actually enrolled in the ALSWH were 14,247 Younger women, 13,716 Mid-age women and 12,432 Older women.

Table 4-3 Socio-demographic characteristics of the Younger, Mid-age and Older respondents and for women of the same age in the general population (ABS Census, 1996).

	Young (18 - 23 years)		Mid-age (45 - 50 years)		Older (70-75 years)	
	WHA %	ABS %	WHA %	ABS %	WHA %	ABS %
Number	14,762	759,680	14,072	734,155	12,804	377,152
Main current employment status						
Employed full-time	31.3	32.4	36.1	36.0	NA	
Employed part-time	19.2	26.4	30.1	28.5	NA	
Worked (without pay)/employed (other)	1.9	1.3	7.0	2.0	NA	
Unemployed	6.4	10.5	1.9	4.0	NA	
Total not in labour force	39.4	26.3	21.6	27.0	NA	
Not stated	1.8	2.7	3.3	2.5	NA	
Highest qualification completed						
No post school qualification	69.8	69.3	63.1	61.8	79.8	70.4
Trade/Apprenticeship	2.4	7.9	3.5	7.0	3.7	2.7
Certificate/Diploma	15.1	6.0	15.9	8.7	7.3	3.3
University degree	12.1	7.7	16.3	11.6	4.0	2.4
Other (not stated, inadequately described)	0.6	9.1	1.2	10.8	5.2	21.2
Aboriginal/Torres Strait Islander						
Non Indigenous	97.9	94.9	98.1	96.7	91.6	93.7
Aboriginal or TSI	1.6	2.7	0.8	1.1	0.3	0.4
Not stated	0.5	2.5	1.1	2.1	8.1	5.9
Country of birth						
Australia	88.6	77.8	69.0	62.6	68.5	66.4
Other English speaking	3.5	4.1	13.9	11.6	12.4	11.0
Other Europe	1.3	1.6	8.7	11.0	9.7	12.7
Asia	3.6	10.6	4.3	8.2	1.8	3.3
Other/not stated	3.0	6.0	4.2	6.5	7.6	6.5
Present marital status						
Married	8.2	9.0	75.1	73.0	54.7	48.9
Separated/divorced	0.0	1.1	13.2	18.7	6.3	6.8
Widowed	0.0	0.2	2.1	2.7	35.2	39.9
Never married	79.0	89.8	3.9	5.6	3.2	4.4
De Facto (not collected by ABS)	12.0	-	5.7	-	0.6	-
Present housing situation						
House	74.3	79.4	84.7	89.2	76.7	79.3
Flat/apartment/unit	20.0	14.0	7.1	6.5	19.4	12.9
Other	5.7	6.6	8.2	4.3	3.9	7.9

Among the Younger women, 69% responded to Survey 2 in 2000, 65% to Survey 3 in 2003 and 67% have responded to Survey 4 in 2006 (see Table 4-4). This retention compares well with other surveys of this highly mobile age group. The major reason for non-response among the Younger women was that the research team was unable

to contact the women (21% of eligible women at Survey 2, 28% at Survey 3 and 21% at Survey 4), despite using all possible methods of maintaining contact. Women in their twenties are characterised by high levels of mobility, change of surnames on marriage, often not having telephone listings and not being registered to vote and making extended trips outside Australia for work, education or recreation.

Table 4-4 Participation and retention of Younger women.

	Survey 1	Survey 2	Survey 3	Survey 4
Age in years	18-23	22-27	25-30	28-33
Eligible at previous survey		14247	14116	13886
Ineligible				
deceased between surveys		22	10	15
frailty (e.g. intellectual disability)		3	6	4
withdrawn before mailout survey date		106	214	311
Total ineligible		131	230	330
Eligible at current survey		14116	13886	13556
Non-respondents				
withdrawn from the project		124	200	171
contacted but did not return survey		1332	653	1371
unable to contact participant		2972	3952	2869
Total non-respondents		4428	4805	4411
Respondents				
completed survey	14247	9688	9081	9145
Retention rate as % eligible		68.6%	65.4%	67.5%

Demographic characteristics (country of birth, marital status, education, employment and lone person household) of the Younger respondents at Survey 1 (1996) and Survey 2 (2000) were compared with those of women of the same age in the Australian population, using data from the 1996 and 2001 Censuses respectively. The comparisons revealed few differences however there was some under-representation of women from non-English language countries at both surveys, a not unexpected finding given that Medicare routinely excludes overseas students. The disparity in education increased between 1996 and 2001. Whereas at the 1996 Census almost 70% of young women had no post school qualifications (ALSWH and the general population), 31% and 49% had no post school qualifications in the ALSWH sample in 2000 and the 2001 Census respectively. Some of these differences will be due to overseas graduates returning home and Australian graduates working overseas. ALSWH women were less likely to be employed compared to women of the same age in the 1996 Census (52% versus 60%) but more likely to be employed than women of the same age in the 2001 Census (85% versus 67%).

Retention has been much higher among the Mid-age women; 91% responded to Survey 2 in 1998 and 84% responded to Survey 3 in 2001 and Survey 4 in 2004 (see Table 4-5). To date, 10282 Mid-age women have responded to Survey 5 in 2007. The major reasons for non-response among Mid-age women was that the research team was unable to contact the women (6%, 7% and 8% of eligible women at Survey 2, Survey 3 and Survey 4 respectively) and non-return of questionnaires by women

who could be contacted (2%, 8% and 7% of eligible women at the second, third and fourth Surveys). Mid-age women typically lead busy lives often working, as well as caring for parents and their children. The women who could not be contacted were more likely to be separated, divorced or widowed.

Table 4-5 Participation and retention of Mid-age women.

	Survey 1	Survey 2	Survey 3	Survey 4
Age in years	45-50	47-52	50-55	53-58
Eligible at previous survey		13716	13606	13309
Ineligible				
deceased between surveys		50	66	88
frailty (e.g. dementia, stroke)		7	14	14
withdrawn before mailout survey date		53	217	229
Total ineligible		110	297	331
Eligible at current survey		13606	13309	12978
Non-respondents				
withdrawn from the project		156	155	136
contacted but did not return survey		254	999	886
unable to contact participant		858	929	1051
Total non-respondents		1268	2083	2073
Respondents				
completed survey	13716	12338	11226	10905
Retention rate as % eligible		90.7%	84.3%	84.0%

Data from the 1996 and 2001 Censuses were used to compare demographic characteristics (country of birth, marital status, education, employment and lone person household) of women of the same age in the Australian population with Mid-age respondents at Survey 1 (1996) and Survey 3 (2001). There were few differences, however there was some under-representation of women from non-English language countries and women who were separated or divorced at both surveys.

Of the Older women, 91% responded to Survey 2 in 1999, 85% to Survey 3 in 2002 and 84% to Survey 4 in 2005 (see Table 4.6). Among Older women the major reason for non-response was non-return of the questionnaire (4%, 8% and 7% of eligible women at Surveys 2, 3 and 4 respectively) although increasingly the participant can not be contacted (3% at Surveys 2 and 3 and 6% at Survey 4). Non-respondent women tended to report poorer self-rated health at Survey 1 than respondents.

Table 4-6 Participation and retention of Older women.

	Survey 1	Survey 2	Survey 3	Survey 4
Age in years	70-75	73-78	76-81	79-84
Eligible at previous survey		12432	11535	10187
Ineligible				
deceased between surveys		529	569	769
frailty (e.g. dementia, stroke)		106	264	380
withdrawn before mailout survey date		262	515	508
Total ineligible		897	1348	1657
Eligible at current survey		11535	10187	8530
Non-respondents				
withdrawn from the project		311	385	267
contacted but did not return survey		481	860	592
unable to contact participant		309	295	513
Total non-respondents		1101	1540	1372
Respondents				
completed survey	12432	10434	8647	7158
Retention rate as % eligible		90.5%	84.9%	83.9%

Demographic characteristics (country of birth, marital status, education and lone person household) of the Older respondents at Survey 1 (1996) and Survey 3 (2002) were compared with those of women of the same age in the Australian population, using data from the 1996 and 2001 Censuses respectively. Comparisons showed few differences. There was some under-representation of women from non-English speaking countries in the ALSHW sample at both surveys. Comparisons are difficult for marital status and educational qualifications due to the high level of missing data in the Census.

5. DATA LINKAGE

Approximately half of the ALSWH participants have provided explicit written consent for ongoing linkage of ALSWH data and data from the Medicare Benefit Scheme or Pharmaceutical Benefits Scheme. Each year we obtain data from Medicare Australia and conduct in-depth analyses to examine use of health services and medications in relation to the information provided by these women on their health, chronic conditions (including co-morbidity) and their social and demographic circumstances. These data will form the basis for the major report to the Australian Government Department of Health and Ageing in 2008. They do however have potentially significant limitations. Women who have provided consent to access their Medicare Australia data may differ from women who have not so that our findings may be biased. Also the reduced sample size means that we cannot adequately analyse data related to less common conditions services or medications.

To overcome these limitations we continue to explore options for data linkage for all ALSWH participants. Indeed, with the approval of the Universities Human Research Ethics Committees, since 2004 we have advised participants in newsletters and letters accompanying surveys that we aim to link all of these data unless they ask us not to do so (i.e., an opt-out process). To date only 7 women have told us they do not wish their data to be used in this way.

Negotiations with the Department of Health and Ageing and Medicare Australia to achieve full data linkage have, nevertheless, being protracted due to differing concerns about privacy legislation and changes to policy and personnel. These negotiations are ongoing.

Additionally, for the Pilot Survey for Survey 5 of the Older cohort we tested a process of asking participants to consent to a wider range of data linkage including cancer registers and data relating to aged care services. Of the 144 respondents of the pilot study, 128 provided explicit signed consent, 14 did not sign the relevant section, and 2 indicated that they did not wish to consent. As a result, a request for consent to this wider range of data linkage will be included in the main Survey for the Older cohort in 2008.

6. MAJOR REPORTS

6.1 Women's weight – Findings from the Australian Longitudinal Study on Women's Health. Executive summary

Authors: Lyn Adamson, Wendy Brown, Julie Byles, Catherine Chojenta, Annette Dobson, David Fitzgerald, Richard Hockey, Deborah Loxton, Jennifer Powers, Melanie Spallek, Bree Waters, and Melanie Watson

Report prepared for the Australian Government Department of Health and Ageing

The Australian Longitudinal Study on Women's Health (ALSWH) is a longitudinal population-based survey funded by the Australian Government Department of Health and Ageing. The project began in 1996 and involves three large, nationally representative, cohorts of Australian women representing three generations:

- Younger women, aged 18 to 23 years when first recruited in 1996 (n=14247)
- Mid-age women, aged 45 to 50 years in 1996 (n=13716)
- Older women, aged 70 to 75 years in 1996 (n=12432) (Lee et al. 2005).

The women have now been resurveyed at least four times over the past 10 years providing a large amount of data on women's lifestyles and health outcomes.

Table 6-1 Schedule of Surveys for the Australian Longitudinal Study on Women's Health.

	Younger	Mid-age	Older
Survey 1	(1996) 18-23 yrs	(1996) 45-50 yrs	(1996) 70-75 yrs
Survey 2	(2000) 22-27 yrs	(1998) 47-52 yrs	(1999) 73-78 yrs
Survey 3	(2003) 25-30 yrs	(2001) 50-55 yrs	(2002) 76-81 yrs
Survey 4	(2006) 28-33 yrs	(2004) 53-58 yrs	(2005) 79-84 yrs
Survey 5	(2009) 31-36 yrs	(2007) 56-61 yrs	(2008) 82-87 yrs
Survey 6	(2012) 34-39 yrs	(2010) 59-64yrs	(2011) 85-90 yrs
Survey 7	(2015) 37-42 yrs	(2013) 62-67 yrs	(2014) 88-93 yrs

This report has been prepared on the basis of discussions between the ALSWH research team and staff of the Department of Health and Ageing and presents findings on women's weight from four surveys of the three cohorts. The following research questions are addressed:

- What are the trends in women's weight, height and body mass index (BMI) among the three age groups of participants in the ALSWH over the first eleven years of the study?
- What factors are predictive of weight change?
- What are the effects of weight and weight change on women's health?
- What are the effects of weight and weight change on health care usage?

The report includes summaries of published and unpublished papers, as well as primary analyses. Case studies of individual women who have commented in their surveys on the topic of weight change are included to illustrate the findings of this report.

The report uses the cut-off for BMI categories (underweight, healthy weight, overweight and obese) as defined by the WHO. To classify area of residence, the Rural, Remote and Metropolitan Areas classification scheme (RRMA) was used. As a measurement for mental and physical health, the two summary measures mental health component score (MCS) and physical health component score (PCS) were used.

6.1.1 Summary of major findings

6.1.1.1 Trends in women's weight, height and body mass index

Over the period of the study there has been an overall increase in the women's weight, particularly for women in the Younger cohort. While these women had the lowest BMI at the start of the study, they have gained an average of 6.32 kg over ten years (between Survey 1 in 1996 and Survey 4 in 2006). Mid-age women have gained 3.43 kg in 8 years (between Survey 1 in 1996 and Survey 4 in 2004). In contrast, Older women have lost an average of 1.67 kg in nine years (between Survey 1 in 1996 and Survey 4 in 2005). These data are only provided for women in each cohort who answered questions on height and weight on all four surveys. Women were more likely to be categorised as "healthy weight" at Survey 1 than women who did not provide data for all four surveys.

Changes for Younger women

At Survey 1, Younger women had the lowest average weight and BMI. At this time, less than 1 in 10 of the Younger women were underweight, almost 7 in 10 were in the healthy weight range, and 2 in 10 were classified as overweight or obese. By Survey 4, less than 4 in 100 were classified as underweight, and almost 4 in 10 were classified as overweight or obese.

With an average weight of 62.7 kg at Survey 1, the Younger women were almost 6kg lighter than women in the Mid-age cohort. They were also taller, and so their BMI was considerably lower than the Mid-age cohort, with the Younger women having an average BMI of 22.8 which is well within the healthy weight range. Over subsequent surveys there have been clear increases in weight among women in the Younger cohort, and the average BMI for these women increased to 25.03 which is just into the overweight range. The proportion of women in the healthy weight range was reduced from 67.7% to 56.9%, and the proportion of women in the obese range more than doubled, from 6.0% at Survey 1 to 15.8% at Survey 4.

The rapid increase of weight in this cohort means that the BMI pattern for the Younger women aged 28-33 years of age is fast approaching the pattern seen for the Mid-age cohort when they were 45-50 years of age. If this rate of weight gain continues, the cohort of Younger women will be substantially heavier than the Mid-age women by the time they reach 45.

Changes for Mid-age women

At Survey 1, Mid-age women had the highest average weight and BMI. At Survey 1, almost 4 in 10 Mid-age women were classified as overweight or obese. This prevalence increased to almost 6 in 10 by Survey 4. The rate of weight gain for the Mid-age women was not as rapid as observed among the Younger cohort, but there was a steady increase in the proportions of women classified as overweight or obese at each survey, and a corresponding decrease in the proportions in the healthy weight range.

Changes for Older women

The Older women showed an average decrease in weight over the four surveys. However, they also showed a decrease in height (around 1.85 cm). As a consequence of these two anthropometric changes, the average BMI for the Older women did not change greatly across the first three surveys, although there was a reduction in average BMI at Survey 4. Between Surveys 1 and 4, the main changes in BMI categories for women in the Older cohort were a slight increase in the proportion classified as obese (increasing from 12.4% to 13.4%), a reduction in the proportion classified as healthy weight (from 51.1% to 49.2%) and an increase in the proportion classified as underweight (from 2.2% to 4.3%).

6.1.1.2 Predictors of weight change

Energy balance, the net effect of energy intake (through diet) and energy expenditure (through physical activity), is one of the major factors affecting weight and weight change among women in the cohorts. However, the prevalence of these factors varies according to sociodemographic, lifestyle and other personal factors. Findings also suggest that strategies aimed at changing eating behaviours and physical activity should be age-group specific and be related to other lifestyle factors.

Energy intake and diet

Energy intake is one of the major predictors of weight and weight change. In the Younger and Mid-age cohorts, women with lowest energy intake had lowest weight and women with highest energy intake had highest weights throughout the study period. Among Younger women, those with greater energy intake gained more weight from Survey 1 to Survey 4 (7.4 kg), than did women with lower energy intake (5.7 kg). Diet and energy intake were not assessed among women in the Older cohort. Intakes of food and nutrients varied significantly across socio-demographic groups, with unmarried women, and women in "labouring occupations" (e.g. cleaner, factory worker, kitchen hand) having poorer nutrition intake.

Physical activity

Throughout the study period, physical activity levels have declined among Younger women, particularly among those women who were already overweight at Survey 1. In contrast, physical activity levels have increased among Mid-age women and particularly among those who were overweight at Survey 1. Physical activity levels have declined among Older women. Compared with women in the 'high' physical activity group, Mid-age women who reported doing less than recommended levels of

('moderate') physical activity were about 1.5 times more likely to gain weight at twice the average rate. High physical activity did not appear to carry additional advantage when compared with moderate activity.

Sitting time is used as an indicator of physical inactivity, and is strongly associated with weight. The difference in average weight of women who reported sitting less than three hours per day and those who reported sitting for more than eight hours a day at Survey 3 was 2.61kg among Younger women, 5.36kg among Mid-age women, and 6.64kg among Older women. Younger and Mid-age women who increased their sitting time gained most weight and those who decreased their sitting time by more than three hours per day gained weight at the slowest rate.

Other personal and lifestyle factors associated with weight and weight change

A number of other lifestyle factors were associated with weight and weight change:

- Among Younger women, weight was associated with ever having a baby at Survey 1, and changes in weight were associated with having a baby between Survey 1 and subsequent surveys. Younger women who have had children gained 2-3kg in addition to the 4kg weight gained by women who had not had children up to Survey 3.
- Younger and Mid-age women showed greater weight gain in the period around quitting smoking than women who did not change their smoking habits during the study period.
- Mid-age women who had a hysterectomy before 1996 had higher BMI than those who have not had a hysterectomy. However, there is no evidence that having had a hysterectomy leads to increased weight gain.

Sociodemographic factors associated with weight and weight change

In the Younger and Mid-age cohorts, women in rural areas showed higher weight gain than women in urban areas. However, in the Older cohort there was very little difference in BMI or weight according to area of residence.

In all three cohorts, women with a university degree had lowest weights and BMI throughout the study period compared to women with no formal qualifications, who had highest weights and BMI. However, there is no evidence of differences in weight change over time between women with different qualifications.

6.1.1.3 Weight, weight change, and health and wellbeing

Composite scores for physical and mental health were obtained from the Short-Form 36 (SF-36) health profile, and were used to provide measures of general health and wellbeing. According to these scores, women in all three cohorts experienced declining physical health over the course of the study, however, those who were underweight and women with healthy weight had better physical health than overweight and obese women at Survey 1. Weight loss between two surveys was associated with improving physical health for the Mid-age cohort. Among the Younger women, those who gained weight between two surveys had deteriorating physical health, whereas those with stable weight did not show a significant change in their physical health.

Mental health improved over time for the Younger and Mid-age cohorts. In all three cohorts, mental health for Survey 1 was poorest for women who were underweight. Among the Mid-age and Older women, women in the healthy weight range had better mental health than women in the obese category. Best mental health was reported by women in all three cohorts who had a stable weight throughout the study period. Weight loss between two surveys resulted in deteriorating mental health for the Mid-age and Older cohort. Mid-age women with unstable weight patterns also reported poorer mental health. Among Younger women, weight loss between surveys was not a common trajectory. Younger women who gained weight between surveys had poorest mental health in this cohort.

6.1.1.4 Weight, weight change, and health care usage

There are clear associations between weight and health care usage (total charges, number of Medicare claims, number of GP visits). Among Younger women, these associations are less strong than among the other age groups, and there is no difference in total charges (aggregate total cost in dollars incurred by each participant) according to BMI category. Younger women in the obese group made more Medicare claims for GP visits than Younger women in the healthy weight group. Among Mid-age women, women in the obese group had higher total charges, higher total Medicare claims, and more GP visits at each Survey when compared to women in the healthy weight range. Women in the obese group also had more Medicare claims and more GP visits than women in the overweight group at all surveys, and had higher total charges than overweight women at Survey 4. In 2004, total charges for women in the obese group were around $130 higher per woman (on average) than charges for women in the overweight group. Mid-age women who maintained a stable weight across all surveys tended to have lower charges, fewer GP visits and fewer total Medicare claims.

There were also associations between physical activity and health care usage, and there was some evidence that these associations varied according to BMI category. Younger women in the 'none' physical activity group had higher total charges than women in the 'moderate' and 'high' physical activity categories. The difference in total charges between the 'none' and the 'high' physical activity groups was around $200 per woman for 2003.

Total charges for the Mid-age cohort were higher at all surveys for women in the 'none' physical activity group compared to women in the 'high' physical activity group. Women in this group also had more GP visits and more total Medicare claims at all surveys compared to all other physical activity groups. Mid-age women in the 'low' physical activity group made more claims if they were obese compared to women with healthy weight.

6.1.2 Discussion

This report emphasises the growing problem of obesity among Australian women. The longitudinal data provided by the study show the rapid increase in weight among Younger women. This problem is underestimated by simple cross-sectional comparisons. Indeed, cohort differences in weight and BMI at Survey 1 would suggest the Younger women had healthier weight profiles than the Mid-age women. As the Younger women age, however, their weight is increasing rapidly and their

weight profiles now resemble those of the Mid-age 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 demonstrates 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 and there is potential for considerable cost savings, at a population level, if trends in overweight and obesity could be reversed.

An exploration of the factors contributing to overweight and obesity suggests that while energy balance is important, through attention to diet and physical activity, other contextual factors must also be taken into account.

There are also key life events that signal times when women may be more susceptible to weight gain (such as the periods following childbirth). Women's health promotion may need to emphasise the particular importance of healthy eating and adequate physical activity following these events. Quitting smoking is also another key event when women seem to gain weight, and the case studies reveal the tensions women feel about these competing health risks. Strategies are needed to help women quit smoking, and receive the benefits of this healthy change, without trading the risks of smoking for risks associated with increasing weight.

6.2 Caring among Mid-age women

6.2.1 Background to the reports

Three reports were commissioned by the Australian Government Department of Health and Ageing to provide information to support policy development for the Employed Carers Innovative Project (ECIP) and also to provide a sound base from which to build more focused research questions on employed carers and carers generally.

Researchers from the University of Queensland were contracted to analyse data from the Australian Longitudinal Study on Women's Health (ALSWH) and provide three reports. The first report examined paid employment and responsibilities for caring for another person with a long-term illness, disability or frailty among 10,905 women aged 53 to 58 who participated in the fourth ALSWH Survey for Mid-age women (Report 1, see Technical Report #27, December 2006). The preliminary report showed that carers, particularly those who lived with the person they were caring for, had less involvement in the workforce, more involvement with caring for children, less social support, and more negative outcomes in terms of mental health, optimism, stress, sleep problems and physical symptoms. Live-in carers were also heavy users of health services.

The second report (outlined below) examined changes in caring roles and employment. The report identified patterns of caring and employment, focusing on transitions in caring, that is, women who took up caring between Surveys 3 and 4 or those who stopped caring, compared to those who are carers or non-carers at both surveys. The findings of this report suggested that women who were non-carers at both surveys were more likely to work full-time, while carers at both surveys were more likely not to work, or to work part-time compared with non-carers; and that women who started caring were more likely to cut down on their hours of work than those who did not start caring, while women who stopped caring were more likely to increase working than those who did not.

The final report (outlined below) presents documentation and results of a pilot sub-study of women's caregiving and employment transitions and the role of health services in lessening the impact of caregiving on women's lives.

6.2.2 Changes in caring roles and employment in Mid-life: Findings from the Australian Longitudinal Study on Women's Health. Summary of findings

Authors: Janneke Berecki, Jayne Lucke, Richard Hockey, and Annette Dobson.

Detailed Report Prepared for the Australian Government Department of Health and Ageing, Carers Project, Report 2.

6.2.2.1 Caring

- Most women (75%) did not provide care for an ill, frail or disabled person.

- Women who provided care were almost three times more likely to care for someone living elsewhere than for someone living with them.
- More than half of women providing care at Survey 3 or Survey 4 did not do so at both surveys. This suggests that caring roles are transient and changeable.
- The intensity of caring remained stable in more than half of women who provided care. Where the level of care changed it was more likely to increase.

6.2.2.2 Employment

- At Survey 3, 33% of women were not in the labour force. At Survey 4 this figure had increased to 39%. A substantial number of women included as 'not in the labour force' actually did unpaid work such as in a family business.
- Women in the labour force were more likely to do full-time than part-time work; however, this difference became smaller at Survey 4.
- Part-time workers were the most changeable in their work status (40%). They more often stopped working than switched to full-time.
- Women not in the labour force were the least changeable in their employment status (only 20% between Survey 3 and 4). Those who changed were most likely to start part-time work.

6.2.2.3 Changing patterns of caring and employment

- Women who did not provide care at either survey were more likely to work full time and less likely not to be in the labour force than those who did provide care at either survey.
- Carers at both surveys were more likely not to work, or to work part-time compared to non-carers.
- Women who started caring were more likely to cut down on working than those who did not start caring.
- Women who stopped caring were more likely to increase working than those who did not stop caring. They were, however, more likely to decrease working than to increase working.

6.2.2.4 Characteristics of carer transition groups

- Women who did not provide care at either survey were more likely to be in the 'manager/professional' occupation group than those who did. They managed more easily on their available income. At Survey 3, those who went on to become carers already had more trouble managing on their available income than those who did not become carers.
- At Survey 3, high levels of stress and feeling rushed or pressured was most common in those who went on to quit caring duties. The non-carers were the least rushed or pressured.
- Non-carers were least likely to care for grandchildren/other people's children. Those who went on to take up caring duties already cared more frequently for children than those who did not take up caring for a frail, ill or disabled person.
- Levels of physical and mental wellbeing were highest in the non-carers. The number of symptoms experienced was highest in the 'Continued Care' group. The number of medical diagnoses was greatest in the 'Continued Care' and the 'Stopped Caring' groups.

6.2.2.5 Employment and taking up caring duties

- Women who quit or reduced work when starting care were more likely to care regularly for children at Survey 3.
- They were also more likely to be stressed, to report only poor to fair health and to report frequent visits to a GP compared to women who maintained hours of paid employment when starting care.

6.2.2.6 Employment and discontinuing care duties

- When caring stopped, women who started participating in the labour force were likely to be in better (self-reported) health compared to those who did not take up work.

6.2.2.7 Policy Implications

- Policy responses to these findings could include greater access to subsidised respite care and approaches that encourage the 'normalisation' of family caregiving for those with a long-term illness, disability or frailty in the same way that the impact of caring for children on work life is 'normal'.
- Flexible working arrangements would enhance the ability of family caregivers to continue to participate in the workforce. For example, greater availability of part-time work arrangements and job sharing.
- Greater access to carers' leave, including the option to negotiate an extended period of paid or unpaid leave, similar to provisions for maternity leave, would also enable carers to maintain their involvement in work.

6.2.3 Service use and the impact of family caregiving on Mid-age women from the Australian Longitudinal Study on Women's Health. Overview and summary of recommendations

Authors: Melanie Watson, Jayne Lucke, and Annette Dobson.

Pilot Sub-study Report Prepared for the Australian Government Department of Health and Ageing, Carers Project, Report 3

6.2.3.1 Aims of this report

This report provides the documentation and results of a pilot substudy designed to pilot test Survey procedure and instruments to examine Mid-age women's caregiving and employment transitions and the role of health services in lessening the impact of caregiving on women's lives.

The aim of the full substudy will be to answer the following research questions:

1. What is the broad impact of caring on women's lives?
    - How do live-in carers, non live-in carers and non-carers differ on sociodemographic, health and lifestyle characteristics?
    - How do carers who are engaged in different levels of caring differ on sociodemographic, health and lifestyle characteristics?

2. How do women manage the transition to caring, particularly in relation to their labour force participation?
3. What services do women currently use?
    - How do live-in carers, non live-in carers and non-carers differ on health service utilisation characteristics?
    - How do carers who are engaged in different levels of caring differ on health service utilisation characteristics?
4. What services lessen the negative impact of caring on the lives of carers?

6.2.3.2 Method and findings

Pilot study-specific questions were:

1. Which questions are difficult to answer?
2. How can the survey instrument be improved?
3. Is the response rate among carers adequate? If not, how can this be improved?
4. Are the data collection procedures appropriate? If not, how can they be improved?

All 355 women in the Mid-age pilot sample for the Australian Longitudinal Study on Women's Health (ALSWH) were contacted by mail and invited to participate in the survey.

Data collection was conducted over three months and 296 completed surveys were returned (response rate 83.9%).

Data analysis involved basic descriptive frequency counts of ordinal and categorical variables, and mean and standard deviation calculations for continuous scale scores.

Levels of missing data were not high and few participants found the questions difficult to answer, difficult to understand, irrelevant or too personal.

6.2.3.3 Recommendations

1. That the MOS 6-item measure of social support is used in the full substudy in preference to the DSSI.
2. That further assessment of the usefulness of the neighbourhood connections scale is conducted before including it in the full substudy.
3. That further assessment of the usefulness of Question 18 is conducted before including it in the full substudy.
4. That consideration is given in the full sub-study to the format of questions asking about health service use and access in order to minimise missing data.
5. That arthritis, Parkinson's disease and hearing impairment be added to the list of conditions in Question 48.
6. That a 'don't know' option is added to the list of potential carers in Question 49.
7. That the format of Question 50 is reviewed.

8. That a ‘don’t know’ option is added to the list of potential carers in Question 51.
9. That Question 52 is removed.
10. That consideration is given in the full substudy to the format of questions asking about health service use and access for care recipients in order to minimise missing data.
11. That the instruction ‘circle all that apply’ for Question 18 (and Question 60 which has the same format) is carefully placed if this format is used for the full sub-study.
12. That the list of practitioners in Questions 20 and 62 are expanded as suggested.
13. That Question 30 is retained in the full sub-study.
14. That Question 41 is reviewed for the full sub-study.
15. That Question 50 is redesigned to allow participants to circle as many on each line as apply.
16. That the full substudy includes a question about receipt of carers pension or carers allowance.
17. That the questions about carer status are clarified for the full substudy in order to minimise confusion about the definition of a carer.
18. That the full substudy employ a design whereby participants are selected with the aim of recruiting three equal sized groups:
    - Carers who live with the person they care for;
    - Carers who do not live with the person they care for;
    - Non-carers.
19. That the sample size selected for the full sub-study be increased by 10% to take into account possible misclassification of carers and non-carers.
20. That a sample of 1,500 should be randomly selected from participants in the fifth Survey for Mid-age women, comprising
    - 500 carers who live with the person they care for;
    - 500 carers who do not live with the person they care for;
    - 500 women who do not provide care.
21. That the recruitment strategy remains unchanged for the full substudy.
22. That the full substudy be conducted over 15 months during 2008 or 2009.
23. That the full substudy be funded to the level of $97,767.96.

7. DISSEMINATION OF STUDY FINDINGS

7.1 Website

The ALSWH study web site, maintained at the University of Newcastle, can be viewed at www.alswh.org.au. Each month the website content is updated with current lists of collaborators, ongoing and completed analyses, reports, and abstracts of all accepted and published papers. The password protected sections of the website for 'Collaborators' and 'Investigators and Staff' are also routinely revised with minutes of meetings, project notes and other internal documents. This year a short survey has been added to the website in order to assess the impact that the project has on policy development. In particular, the research team are interested in hearing about usage of the project's findings and results that would not normally be covered by the PSA approval process - such as using information from databooks or reports in grant applications, to develop policies, or in other publications. The results of the survey will be available in the coming months.

7.2 Communication with study participants

The 2007 newsletter was mailed to all participants in November. This newsletter includes information on the use of complementary and alternative medicine by the Young women and on how diverse the Young women's lives are becoming. Special features for the Mid-age women included the growing incidence of caring and the impact of caring on employment patterns this group of women. For the Older women, the newsletter reported on the experiences of widowhood and on the role of volunteering in these women's lives (see Appendix 4).

7.3 2008 ALSWH desk calendar

The 2007 Achievement Report takes the form of a desk calendar for 2008 (see Appendix 5). Four thousand copies will be produced and distributed through ALSWH, DOHA and Office for Women mailing lists to individuals, organisations and groups interested in women's health.

The page for each month outlines a different research theme with a link to a page on the Study website which will provide further information updated during the year. The research themes include the following topics:

- Partner violence and the health of Australian women;
- Younger women and reproductive health;
- Employment and retirement amongst mid-age women;
- Caring and carers;
- Younger women and changes in living conditions;
- Management of chronic conditions;
- Ageing;
- Health service use;
- Physical activity;
- Time use; and
- Complementary and Alternative Medicine.

The milestones and timelines for the calendar are:

- October/November 2007: printing of Calendar
- November 2007: dissemination of Calendar
- January – December 2008 : ongoing upgrade of website

7.4 Publications

7.4.1 Conducting longitudinal research: Practical lessons from the Australian Longitudinal Study on Women's Health. Published in the International Journal Of Multiple Research Approaches Vol 1/2 2007

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

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.

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

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.

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

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.

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

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.

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

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.

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

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.

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

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.

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

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 minimise 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.

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

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.

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

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.

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

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.

7.4.2 Book chapter

Shi Z & Byles J. Fruit and vegetable consumption among mid-age and older women in Australia. In Frank Columbus (Ed). Provisional title: "Nutrition for the Middle-Aged and Elderly. Hauppauge, NY: Nova Science Publishers (Accepted September 2007).

7.4.3 Papers published

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 reanalysis 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) kgm^2) than non-vegetarians (23.7 (23.6–23.8) kgm^2) and tended to exercise more. Semi-vegetarians and vegetarians had poorer mental health, with 21–22% reporting depression compared with 15% of non-vegetarians ($P<0.001$). 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. A 'middle road' prevention strategy for reducing risk of non-communicable chronic disease - Rose revisited. *Bulletin of the World Health Organization.* 2007; 85(11): 886-887.

In light of current worldwide concerns about the obesity crisis and prevention of non-communicable chronic disease, it is timely to revisit the principles advocated by Geoffrey Rose. The essential tenet of his work is that while strategies which focus on high risk individuals (for example, weight loss clinics for obese people) may help these people reduce their risk of chronic disease, the impact on the total burden of disease at the population level may be disappointing. This is because numerous cases of risk-factor related health problems may arise among the many people who are in the middle of the risk distribution. In contrast, by lowering the risk across the whole population the numbers of attributable cases of disease are significantly reduced.

Although this principle is well-documented for conditions like hypertension which have a relatively direct or linear relationship with risk factors such as body mass index (BMI), it is unclear for conditions like diabetes, where incidence rises sharply among people who are in the overweight and obese categories of BMI. To explore this issue, we used data from eight years follow-up of mid-age women in the Australian Longitudinal Study on Women's Health to estimate the reductions in incidence of hypertension and diabetes which would result if the BMI distribution was shifted to the left in various ways.

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 date, 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 Survey 1 and 2 were 2.7%, 2.1% and 1.7% (Younger, Mid-aged and Older cohorts, respectively). Similarly, between Survey 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 Conclusion: 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.

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 prioritises 'choice', not 'equity'. The implications of this shift for the 'work-life balance' social policy agenda are then considered.

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: 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 $\geq$ 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 Mid-age 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 (Survey 1, 1996; Survey 2, 1998; Survey 3, 2001; and Survey 4, 2004). Generalised estimating equations were used to model binary repeated-measures data to assess the impact of BMI at Survey 1 and weight change (Survey 1 to 2; Survey 2 to 3) on 3-year incidence of diabetes at Survey 3 and 4, respectively, adjusting for sociodemographic and lifestyle factors.

Results: BMI at Survey 1 was strongly associated with the development of diabetes by Survey 3 or 4. Compared with women who had a BMI <25 kg/[m.sup.2], those with BMI $\geq$ 25 kg/m^2 had higher incidence of diabetes ($P < 0.0001$), with odd ratios reaching 12.1 (95% C1 7.6-19.3) for women in the very obese group (BMI $\geq$ 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 Health Component Scale, the General Health Questionnaire, Centre 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 Mid-age 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 Mid-age 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 Mid-age 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 osteopath 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 maximised 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 Mid-age 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 11202 Mid-age women, surveyed in 2001. We estimate that 4.5% of Mid-age 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 Mid-age 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 & 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.

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 available

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 non-partner 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 non-partner 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 victimisation.

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 two 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 two 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 emphasise 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; 201(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.

7.4.4 Papers accepted

Byles J. Fit and Well at 80: Defying the stereotypes of age and illness. *Australian Journal of Rural Health.*

While ageing 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 ageing and illness. While an accelerating decline in average physical health was observed over the first six years of the study, an important and large proportion of the women experienced minimal change in their physical health in 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 health care factors that mark out those women who remain "fit and well".

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.*

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 on 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.

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.*

Key Points:

- The strongest predictors of early mortality among older women are current health and health related behaviors.
- Differences in social factors are less predictive of mortality among people who survive to older ages.
- Adopting a healthier lifestyle, by doing more exercise and not smoking, is beneficial even in old age.

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

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.

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

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*.

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. Mid-age women who seek counselling: Psychosocial, health behaviour and demographic profiles. *Counselling and Psychotherapy Research*.

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 versus 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 MD, Russell A & Hodges PW. How common is back pain in women with gastrointestinal problems? *Clinical Journal of Pain*.

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.*

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 young 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-age 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, 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*.

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.

7.4.5 Other reports

Physical activity and health in Mid-age and Older Women. Brown WJ, Burton N & Heesch K. Report prepared for The Office for Women Department of Families, Community Service and Indigenous Affairs, September 2007.

Women and arthritis: The burden of suffering for Older Australian women. Parkinson L, Byles J, Gibson R & Robinson I. Report prepared for Arthritis Australia, June 2007.

7.4.6 Conference presentations

Brown WJ. Trends and changes in physical activity and weight data from the Australian Longitudinal Study on Women's Health. Invited keynote speaker, Ngahuru National Nutrition and Physical Activity Public Health Conference, Rotorua, New Zealand, 23 - 25 May 2007.

Population monitoring of physical activity (PA) and weight status provides a 'snapshot' of population 'risk' at a specific point in time, and repeated surveys can provide useful information about trends in risk over time. In contrast, prospective studies, which collect information from the same people over a period of time, can provide more information about individual changes in behaviours, many of which occur in conjunction with changes in life events and social circumstances. The Australian Longitudinal Study on Women's Health has been collecting data from three large cohorts of women since 1996. The data clearly show that trends in weight and physical activity (PA) differ at the three different life stages (Young, Mid-age and Older adults) covered by this study.

Among Young women (age 22-27 in 2000; N=7498) there was little change in PA over three years from 2000 to 2003 (2000: median 705 (IQR 255-1440); 2003: median 690 MET.mins/week (IQR 270-1470)). In contrast, among Mid-age women (age 51-56 in 2001; N=9167) PA increased between 2001(median 540 (IQR 150-1170) and 2004 (median 720 (IQR 270-1440) so that in 2004 total PA time reported by Mid-age women was very similar to that seen in women 30 years younger. In the Older women (age 73-78; N=7137) median MET.mins/week decreased from 360 (IQR 0-1050) in 1999 to 240 (IQR 0-900) in 2002.

Over the same time period, there was a mean increase in weight in the Younger cohort of 2.2kg (from 64.6 kg (95%CI 64.27-64.94) in 2000 to 66.8 kg (66.44-67.18) in 2003; N=5971); compared with an increase of 0.9 kg (from 70.4 kg (70.08-70.71) in 2001 to 71.3 kg (71.01-71.66) in 2004 (N=8051) in the Mid-age cohort. In the Older

cohort mean weight decreased by 0.5 kg (from 65.1 kg (64.83-65.37) in 1999 to 64.57 kg (664.28-64.85) in 2002.

The mean rate of weight increase in the Mid-age cohort (0.3 kg/year) occurred against a background of increasing PA levels (180 MET.mins/week or about 45 mins/week additional moderate intensity PA). In contrast, the mean rate of weight increase in the Young cohort, (0.73 kg/year), which was more than double that seen in the Mid-age cohort, occurred against a background of little change in median weekly PA (-15 MET.mins/week). The decreasing weight of the Older women (-0.17 kg/year) was accompanied by decreasing levels of PA and probably reflects increasing levels of chronic illness in this group.

These data suggest that, at the population level, early adulthood (22 – 30 years) is a time of marked weight gain and fairly constant levels of PA in women. They point to the importance of greater efforts to increase PA at this life-stage. In contrast, the data suggest that physical activity levels are increasing in Mid-age women (51-59 years), but are not yet sufficient to entirely prevent weight gain at this life-stage.

This presentation will focus on the impact of life events on changes in physical activity at different life stages, and the main contributors to weight gain in Young and Mid-age Australian women.

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.

Prospective data from participants in the Australian Longitudinal Study on Women's Health will be used to provide insight into the utility of prospective data in understanding changing patterns of physical activity (PA) in three cohorts of women (who were 18-23, 45-50 and 70-75 years old at baseline in 1996).

Overall, 47.3% of all participants were categorised as 'active' in 1996, and 47.4% were categorised as 'active' using Survey 4 data from each cohort (2004 for the Mid-age women, 2005 for the Older women and 2006 for the Younger women). These 'overall' data should however be viewed with caution, as patterns of change in PA varied widely in each of the three cohorts. For example, over a period of ten years from 1996-2006, physical activity levels in the Young cohort were static and then declined slightly; while in the Mid-age women PA levels increased markedly and in the Older women PA levels declined significantly.

Similarly, within each cohort, estimates of 'meeting guidelines' can mislead us into thinking that there has been only small or no change in physical activity over time , when in fact there is considerable individual change in PA status. For example, consecutive estimates of 'activity' at subsequent Young surveys suggest that 55% of women were 'active' at Survey 2 (2000; age 22-27) and Survey 3 (2003; age 25-30), and 49.6% were active at Survey 4 (2006; 28-33). These data may lead to the conclusion that about half of all women in the 22-33 year age group are 'active'. However, only 25% of women were actually 'active' at all three times, with more than

half (56.5%) showing changing patterns of activity, and 19% reporting consistent 'inactivity' during this seven year period.

The presentation will include patterns of change in physical activity in the three cohorts, and a brief overview of associated changes in weight over the first ten years of this prospective study.

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. 15th Annual Scientific Meeting of the Australian Society for the Study of Obesity, Canberra, ACT, 31 August - 2 September 2007.

Participants in the Australian Longitudinal Study on Women's Health have now provided data on weight and physical activity (PA) over a period of ten years. These prospective data will be used to provide insight into the changing patterns of weight and physical activity in the three cohorts of participants (who were 18-23, 45-50 and 70-75 at baseline in 1996). At baseline, the Young women were, on average, 6.2 kg lighter than the Mid-age women (62.5 kg v 68.7 kg). After four surveys, average weight in Young women was 69.5 kg, and in the Mid-age women 72.2 kg – a difference of only 2.7 kg. Clearly the Young women are gaining weight faster than their Mid-age counterparts. The average weight of the Older women declined by an average of 1.6 kg over the first nine years of the study.

Over the same periods, physical activity levels were fairly constant in the younger group until the most recent survey (age 28-33), when they showed a marked decline. In contrast, physical activity levels have increased steadily in the Mid-age cohort and declined in the Older cohort.

The increase in weight in the Young cohort (at an average rate of 0.69 kg/year) occurred against a background of steady and then falling PA levels, while the lower rate of weight gain in the Mid-age cohort (average of 0.43 kg/year) occurred against a background of increasing PA. The decreasing weight of the Older women (-0.17 kg/year) was accompanied by decreasing levels of PA and probably reflects increasing levels of chronic illness in this group.

Relationships between these weight and PA data will be presented. At this stage they point to the importance of focusing more attention on the promotion of PA and prevention of weight gain among women in their twenties. Although the trends in PA seen in the Mid-age women are notable, these women are still not sufficiently active to prevent weight gain at this life-stage.

Brown WJ. Physical activity – it's not only about weight loss. Invited presentation. Heart Foundation Parliamentary Session: Benefits of Physical Activity and How to Make Parliament a Healthier Environment, Brisbane, Qld, 8 August 2007.

No Abstract available

Brown WJ, Miller YD & Trost S. Life events and physical activity in young women. 6th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity (ISBNPA), Oslo, Norway, 20 - 23 June 2007.

Background: Although cross-sectional data suggest that women who have young children tend to have lower levels of physical activity (PA) than those who do not, it is not known whether 'having children' or other life events are associated with declining levels of PA in early adulthood.

Purpose: To assess changes in PA in young adult women over a three year period; and associations between life events and changes in PA at this life stage.

Methods: Prospective study of 7498 women participating in the Australian Longitudinal Study on Women's Health, using data collected in 2000 (22-27 years) and 2003 (25-30 years). All data are from mailed self-report surveys.

Results: Just over one third (36.5%) of the sample were categorised as 'active' (≥150 minutes of at least moderate intensity activity per week) and 18.9% as 'inactive' or sedentary at both surveys. Between the two surveys almost one quarter of the women changed their activity status from 'inactive' to 'active' (22.3%) or from 'active' to 'inactive (22.4%). Several life events were independently associated with decreasing PA at this life stage. These included starting work, getting married, and birth of first or subsequent child.

Conclusion: These changing physical activity patterns suggest that it may be possible to encourage inactive twenty-something women to become more active. As some life events are associated with decreasing levels of PA it may be also possible to develop health promotion strategies around these events, to counter the declines in PA that are associated with them.

Brown W, 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.

Understanding dose-response issues in relation to physical activity is important for both the prevention and treatment of chronic health problems. Current guidelines suggest that adults should put together at least 30 minutes of moderate-intensity physical activity on most, preferably all, days, and that, if possible, people should add regular vigorous activity for extra health and fitness. Most of the evidence on which these guidelines were based came from studies involving men. There is currently some debate about the 'dose' of physical activity required for optimal health outcomes in women, and about whether the same dose is required for the prevention of all health outcomes. This symposium will examine recent data from the Australian Longitudinal Study on Women's Health (ALSWH) and the Dose Response to Exercise in Women (DREW) studies, which show variations in the amount of activity associated with health benefits in a range of areas. The symposium will begin with an overview of the ALSWH and the relationships between physical activity and general well-being in Mid-age and Older Australian women. This will be followed by two papers which illustrate differences in the amount of activity associated with improved

physical and mental health outcomes in Australian women. The final paper will describe the DREW study and highlight the relationships between different 'doses' of exercise and improvements in fitness in women.

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.

Our aim was to explore the prospective associations between physical activity and psychological health in Mid-age and Older women who completed mail surveys for the Australian Longitudinal Study on Women's Health. Health outcomes in study 1 were depressive symptoms and mental health in mid-age women. Health outcomes in study 2 were anxiety and depressive symptoms in Older women. Multivariable logistic regression models were used to examine associations between activity reported at an earlier survey and symptoms reported at a later survey (three and five years later for the Mid-age cohort; three years later for the Older cohort). At follow-up, mean depressive symptoms scores decreased and mental health scores increased with increasing levels of activity in the Mid-age women, and there were risk reductions for women active for 60-150 mins/week (OR 0.79, 95% CI 0.66-0.85). Sedentary women who increased their activity by >60 mins/week had a reduced risk of developing poor mental health (OR 0.69, 95%CI 0.58-0.82). Compared with those who remained sedentary, older women who maintained a high activity level or who increased activity over three years had lower symptom scores ($p < 0.01$). Those who decreased their activity had higher scores ($p < 0.05$). Sedentary women who increased their activity by >60mins/week had reduced risk compared with those who remained sedentary ($p < 0.001$). These findings suggest that psychological health benefits can be derived from relatively low levels of activity and when sedentary women increase their activity by as little as one hour per week.

Byles J, Robinson I, Gibson R & Gibson P. Asthma among Older women. 8th Asia/Oceania Regional Congress of Gerontology and Geriatrics, Beijing, China, 21 - 25 October 2007.

Purpose: To estimate the prevalence and incidence of asthma among Older women, and to explore the association between asthma and changes in the health of the women as they age.

Methods: Women are participants of the Australian Longitudinal Study on Women's Health (ALSWH), and have completed four health surveys over the past 10 years. Survival analyses identified relative risk of death among women with asthma and, for survivors, longitudinal modeling techniques assessed changes in health and quality of life according to asthma status.

Results: Baseline data were collected from 12,432 women aged 70 to 75 years in 1996. At this time, 21% of the women in the study reported symptoms of breathing difficulty, and 13% had been told by a doctor that they had asthma. After adjustment for potential confounding factors the relative risk of death for women reporting asthma was 1.13 (95% CI: 1.01 - 1.25). Women with asthma were more likely to be

sedentary, less likely to be underweight, and more likely to be overweight. They were more likely to have high anxiety and depression scores than other women, and more likely to have three or more comorbidities. Women with asthma were also more likely to report their health as fair or poor, and had lower values on quality of life subscales.

Conclusion: Asthma is a major cause of mortality, morbidity and comorbidity among Older women and further efforts are required to improve diagnosis and management of this condition at older ages.

Byles J. Adequacy of treatment for depression among Older Australian women. 8th Asia/Oceania Regional Congress of Gerontology and Geriatrics, Beijing, China, 21 - 25 October 2007.

No Abstract Available

Byles J. An evidence-based approach to falls reduction in residential aged care facilities - Report of a randomised controlled trial 8th Asia/Oceania Regional Congress of Gerontology and Geriatrics, Beijing, China, 21 - 25 October 2007.

No Abstract Available

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

Aims: Urinary incontinence carries major social burden and considerable costs for health care systems. It is also a barrier to exercise in some women. Changes in types of urinary incontinence experienced by women as they get older show a definite tendency to those associated with an overactive bladder i.e. urinary urgency, frequency and nocturia. Changes in continence status have been investigated among a large cohort of Australian women to identify factors associated with incidence of incontinence, and with improvements in continence status in later life and to explore urinary incontinence as a barrier to exercise.

Method: Women participating in the Australian Longitudinal Study on Women's Health (ALSWH), aged 70-75 years in 1996 have completed four health surveys over the past 10 years. Transitions in continence status were defined according to women's reports of "leaking urine" at each survey. General Estimating Equation models were used in longitudinal analyses of the factors associated with changing continence status over time. Earlier studies of Mid-aged and Older women within ALSWH who admitted to being incontinent of urine were surveyed specifically in relation to the coping strategies used. These strategies included reducing sporting and recreational activities and rushing to the toilet.

Results: The 1996 baseline surveys involved 12,432 women aged 70 to 75 years, and 35% of these women reported leaking urine. More in-depth surveys of the women with incontinence have identified associations between incontinence severity and BMI, other urinary symptoms, smoking, hormone replacement therapy, and hysterectomy. Many women who had incontinence employed methods to prevent incontinence that may have other detrimental health outcomes. For example, many women reduced their fluid intake and many avoided physical activity in an attempt to reduce their symptoms. Longitudinal analyses identified incident (new) cases of incontinence among 7.7% of women in the study. Constipation and dysuria were associated with incident incontinence, and cessation of these problems was associated with improvement in continence status. The earlier study exploring coping strategies among 810 incontinent Mid-aged and Older women revealed that Mid-age women often or always: leaked during sport of exercise 62%, avoided recreational (33%) or sporting activities they used to do (23%), rushed to the toilet both day and night (43%). The Older cohort of women (n=415) often or always: leaked during sport of exercise 28% , avoided recreational (14%) or sporting activities they used to do(17%) and rushed to the toilet both day and night (28%). Also of note was the fact that 6% of Mid-age and 5% of Older women admit having tripped, fallen or injured themselves while rushing to the toilet.

Conclusion: The findings have important implications for prevention and management of incontinence at mid and older ages.

Dobson A. Findings from the Australian Longitudinal Study on Women's Health. Understanding health and population over times: Strengthening capacity in longitudinal data collection and analysis in Asia and the Pacific Region, Bangkok, Thailand 24 - 25 May 2007.

No abstract available

Dobson A. Missing data. The joint Scientific Meeting of the AEA and the IEA Western Pacific Region, Hobart, Tasmania, 27 - 29 August 2007.

No abstract available

Dolja-Gore X, Young A & Byles J. Equity in health service costs to women - a longitudinal study (POSTER). 38th Public Health Association of Australia Annual Conference, Alice Springs, NT, 23 - 26 September 2007.

The improvement in equity and accessibility of medical services to all Australians has been a government initiative in recent years. Using data from the Australian Longitudinal study on Women's Health with linked Medicare (MBS) and Pharmaceutical Benefits Scheme (PBS) data we investigate the financial burden to individual women in the community with chronic disease. More specifically, we investigate the out-of-pocket expenses incurred among Mid-age women (aged 53-58) and Old-aged women (79-84) and the out-of-pocket costs that are incurred with diabetes. As more women are diagnosed with chronic diseases each year the

increased use of needed medical services and medications will be realised and these costs will not only burden the individual but have financial implications for the government.

The analysis includes women specifically with diabetes which were last surveyed in 2004 and 2005, (Mid-age, Old-age respectively) and have given consent to the collection of MBS and PBS data for the period 2002-2005. Our study examines the differences in financial costs associated with diabetes by socioeconomic status, educational status and the impact of living in rural/remote areas compared to urban areas. Knowledge of inequities among difference groups in the community may be used to improve out-of-pocket costs of chronic diseases.

Furuya H, Young A, Powers J & Byles J. Alcohol consumption and physical health-related quality of life accounting for death in Older women. 42nd Conference of the Japanese Medical Society of Alcohol and Drug Studies, Ootsu city, Shiga prefecture, Japan, 28 - 29 September 2007.

No abstract available

Heesch K, Byles J, Miller Y & Brown W. Dose-response relationship between physical activity and physical health outcomes. Sixth National Physical Activity Conference, Adelaide, SA, 13 - 16 October 2007.

Few studies have studied prospective associations between physical activity and indicators of physical health in nationally-representative cohorts of community-dwelling women. Our aim was to explore the prospective associations between physical activity and physical health indicators in Mid-age and Older women completing mailed surveys for the Australian Longitudinal Study on Women's Health. Self-reported arthritis served as a physical health indicator in both cohorts of women. Falls to the ground and fractures were additional indicators in the Older women. Multivariable logistic regression models were used to examine associations between physical activity reported at an early survey and each indicator of physical health reported at a later survey (3 and 6 years later for falls and fractures; 3 years later for arthritis). Respondents reporting the respective outcome at the earlier survey were excluded from that analysis. Physical activity was not associated with arthritis in the Mid-age women ($p>0.05$), and the odds of reporting arthritis 3 years later were only lower for Older women reporting the highest physical activity level ($p=0.005$). The highest physical activity level was also associated with decreased risk of a fall 3 years ($p=0.02$) and 6 years ($p=0.03$) later and of a fracture 6 years later ($p=0.01$) in the Older women. These findings suggest that high physical activity levels are required for the primary prevention of arthritis, falls, and fractures in Older women. The findings for falls and fractures should be replicated in Mid-age women. Longer follow-up is required to assess possible associations between physical activity and arthritis in Mid-age women.

Heesch K, Miller YD & Brown WJ. The impact of changes in physical activity on quality of life among mid-age and older women. 6th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity (ISBNPA), Oslo, Norway, 20 - 23 June 2007.

Purpose: Little is known about how changes in physical activity (PA) impact on quality of life (QOL) at the population level. This study examined the influence of changes in PA on QOL among representative samples of community-dwelling women.

Methods: Data were collected from cohorts of Mid-age (50-58 yrs; N=8,437) and Older women (73-81 yrs; N=5,426) who each completed two mailed surveys three years apart for the Australian Longitudinal Study on Women's Health. SF-36 Physical and Mental Component Summary Scores were computed to measure QOL. Based on responses to the Active Australia PA questions at each time period, women were categorised as consistently sedentary, consistently low active, consistently high active, decreasers, or increasers. Separate multivariable logistic regression models were computed for the two cohorts and two outcomes (physical and mental QOL). Models were adjusted for BMI, education, area of residence and QOL score at the first Survey and for changes between assessments in weight (kg) and other health and demographic factors.

Results/findings: In all models, QOL scores were significantly higher among consistently low actives, consistently high actives and increasers than among consistently sedentary and decreasers ($p<.001$). No differences were found between consistently low actives and increasers ($p>.80$).

Conclusion: For Mid-age and Older women, maintaining low PA levels (below current PA guidelines) offers physical and mental health benefits similar to those associated with increased PA. The results support the benefits of increasing PA and preventing PA decline in women with even low levels of PA, for improving QOL at the population level.

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.

This study investigated relationships between subjective sleep complaints and several forms of abuse among a representative sample of Young women (N=14947) who completed the Australian Longitudinal Study on Women's Health third Survey for Young women (2003). The primary hypothesis to be investigated was that a history of abuse in the three years prior to data collection would be related to sleep disturbances at a greater prevalence than among women with no history of abuse. Relative risk analyses were conducted by creating dichotomous variables from all sleep and abuse variables, in order to determine the risk of experiencing sleep problems among women who reported different combinations of abuse occurring in the three years prior to data collection. The results of relative risk analyses showed that women who had experienced any kind of abuse (sexual abuse, emotional abuse,

physical abuse, harassment, severe physical violence or any combination of these) were at greater risk of experiencing a number of sleep disturbances. In particular, the risk of using prescription medication for sleep in the past month was greatly increased among women reporting sexual abuse in isolation (RR = 9.98, CI = 7.18 - 13.86) and among women reporting all five forms of abuse (RR = 4.52, CI = 3.19 - 6.42) when compared with women who reported no abuse in the last three years. Overall, the results demonstrated that women with a history of abuse were at greater risk of experiencing sleep disturbances than women who reported no abuse.

Johnston A, Astbury J, Kennedy G & Bruck D. The relationship between socio demographic variables and sleep problems. The 5th World Congress of the World Federation of Sleep Research and Sleep Medicine, Cairns, Qld, 2 - 6 September 2007.

The link between poor health outcomes and socio-economic status (SES) has long been recognised but there is little data about sleep quality and SES. This study investigated relationships between subjective sleep complaints (7 questions) and key SES variables among a representative sample of Young women (N=14947) who completed the Australian Longitudinal Study on Women's Health, third Survey for Young women (2003). Chi-square analyses assessed overall relationships between variables, and relative risk analyses investigated the risk of sleep problems with differing income and occupational levels, marital status, ethnicity, number of children and living areas. Chi-square results demonstrated that there were significant ($p< 0.05$) associations between all self- reported sleep problems and geographical area, income, marital status, motherhood, and being of Aboriginal descent, and all but one of the associations between occupation and investigated sleep problems. Relative risk analyses were conducted by creating dichotomous variables from all sleep and SES variables. Relative risk results showed that women with no university qualifications, women with weekly income less than $999, women with a lower occupational status, un-partnered women, women of Aboriginal descent, and women with one or more children were at greater risk of reporting a number of sleep disturbances. Overall, all investigated SES and demographic variables were significantly related to sleep measures, suggesting caution when interpreting the relationships between sleep problems and other variables (such as health-related variables). The results support the hypothesis that the impact of lower SES on health outcomes may be partially mediated by sleep problems.

Lucke J, Spallek M & Herbert D. Patterns of contraceptive use after reproductive events: Findings from the Australian Longitudinal Study on Women's Health. Australasian Sexual Health Conference - Mars & Venus at Jupiters Broadbeach, Qld, 8 - 10 October 2007.

This paper examines changes in young women's contraceptive use over nine years in relation to a range of reproductive life events using longitudinal data from the Australian Longitudinal Study on Women's Health (ALSWH).

Little previous research has examined changes in young women's contraceptive use after significant reproductive or health life events. Some research has examined the

reasons that women might discontinue contraceptive use in general and there has been some work investigating contraceptive use after the birth of a child and after the termination of a pregnancy. However other events may also cause a woman to re-evaluate her contraception, for example, the diagnosis of a STI, or having an abnormal pap test.

The ALSWH is a broad-ranging project which examines relationships between many biological, physiological, social and lifestyle factors and women's physical health, emotional well-being, and use of and satisfaction with health services. Women were selected from the Medicare database which includes all citizens and permanent residents using stratified random sampling, with systematic over-sampling of women from rural and remote areas.

This paper presents data from 6,716 women who completed a self-report survey in 1996 when they were aged 18-23, and again in 1999, 2002 and 2005. Multinomial analysis is used to explore patterns of contraceptive use before and after events related to pregnancy and birth (pregnancy, live birth, miscarriage and termination of pregnancy) and health (diagnosis with a sexually-transmitted infection and abnormal Pap test) and the factors associated with changes in contraceptive use. The ALSWH provides an exciting opportunity to examine patterns of contraceptive use over time among women of reproductive age.

McDermott L, Owen N & Dobson A. Reducing from daily to non-daily smoking predicts cessation among Young women. 3rd Queensland Tobacco Control Symposium, Brisbane, Qld, 2 August 2007.

No abstract available

Mishra G, McNaughton S, Brown W, Ball K, Giles G & Dobson A. Dietary patterns among Australian women at different stages of the lifecourse. Joint New Zealand & Australian Nutrition Societies Conference & Annual Scientific Meeting, Auckland, New Zealand, 5 - 7 December 2007.

Background: Food intakes and dietary patterns are known to vary with age but there has been little work investigating whether distinct dietary patterns exist at different stages of the life-course among women.

Objectives: To assess the differences in dietary patterns among two age cohorts of Australian women and assess the variations according to socio-demographic and behavioural characteristics.

Design: Dietary intake was assessed using a 74-item food frequency questionnaire among women aged 50-55 years (n=10580; "Mid-age") in 2001 and aged 25-30 years (n=7460; "Young") in 2003, from the Australian Longitudinal Study on Women's Health. Dietary patterns were identified using factor analysis.

Outcomes: Five dietary patterns in each age group were identified and were similar with the main differences relating to the meat and fish consumption. Patterns

emerging among the Young women were labelled "semi-vegetarian", "fruit", "vegetables & meat", "high fat foods and snacks" and "reduced fat dairy". Among the Mid-age women, the dietary patterns were labelled "vegetables", "vegetarian", "fruit & fish", "high fats foods & snacks" and "reduced fat dairy". Dietary patterns among Young women were associated with education and smoking status, whereas the patterns among Mid-age women showed fewer associations and were more likely to be associated with region of residence. In both the Young and Mid-age women, the "reduced fat dairy" pattern was associated with physical activity.

Conclusion: Future follow-up of these cohorts will help identify whether these differences are age or cohort effects and the impact of these differences on chronic disease outcomes.

Powers J & Young A. Mental health: What is the effect of heavy drinking? Australian Epidemiological Association Annual Scientific Meeting, Hobart, Tasmania, 27 - 29 August 2007.

Heavy drinking is associated with poorer mental health, but which comes first?

Australian Longitudinal Study on Women's Health data are used to investigate the effect of change from moderate drinking to heavy drinking on the mental health of 7,384 women who were moderate drinkers in 1996 (aged 45-50). The women were resurveyed in 1998, 2001 and 2004. Based on self-reported usual frequency and quantity of alcohol consumed, women were categorised as moderate drinkers (up to 14 drinks per week) or heavy drinkers (15 or more drinks per week) by Survey 4. Random coefficient models were used to examine the relative effects of increased drinking, change in marital status, ability to manage on income, smoking status, having a chronic condition and level of exercise on changes in mental health over the four surveys.

Compared with women who remained moderate drinkers (n=7023), women who became heavy drinkers by 2004 (n=361) had significantly poorer mental health in 1996 and their mental health remained poorer. The major negative impacts on mental health were having difficulty managing on income, change in marital status and smoking. Over time, mental health declined further among current smokers and women who became separated, divorced or widowed. Having a chronic condition had a negative impact while exercise, increasing age and education had a positive impact on mental health.

After eight years of follow-up the results suggest that worse mental health precedes heavy drinking and other factors have a greater impact on mental health than higher alcohol consumption.

Rowlands I & Lee C. Psychological predictors of miscarriage among Young Australian women. Society for Reproductive and Infant Psychology, Oxford, England, 10 September 2007.

Introduction: In understanding the psychological sequelae of miscarriage, longitudinal research which assesses women prior to miscarriage is vital.

Method: This study uses the Australian Longitudinal Study on Women's Health to examine the psychological health of women before and after miscarriage. The first analysis involved 7,790 Young women who responded to Survey 2 in 2000 (aged 22-27). Women were categorised into 3 groups: No Miscarriage, Previous Miscarriage and Future Miscarriage (these women would go on to have their first miscarriage before the next survey). The second analysis used 7, 261 women who responded to Survey 3 (aged 25-31), categorised into two groups: No Miscarriage and Recent Miscarriage.

Results: At Survey 2, both the Previous and Future Miscarriage groups were more likely to report feeling that life was not worth living, and to have a previous diagnosis of depression or anxiety, than women in the No Miscarriage group. At Survey 3, however, there were no psychological differences between women who went on to have a miscarriage (Recent Miscarriage group, formerly Future Miscarriage group) and the No Miscarriage group when pre-existing differences were taken into account.

Conclusion: While women who experience miscarriage may experience psychological distress, the longitudinal analysis suggests that the distress is evident before the miscarriage occurs. We suggest that some women find the entire process of preparing for pregnancy and motherhood distressing, and it is this pre-existing emotional vulnerability, rather than the pregnancy loss, that explains elevated levels of distress in other research.

Salale V, Doiron D, Fiebig D, Savage E & Young A. Family formation and the demand for private health insurance. 6th World Congress of the International Health Economic Association, Copenhagen, Denmark, 8 - 11 July 2007.

This paper investigates the role of family formation in particular the effect of children – actual and desired - on the purchase of private health insurance. A unique panel data set of Young Australian women (under 30 years old) is used and the model of insurance explicitly accounts for state dependence and unobserved heterogeneity. We find evidence of differential demand for insurance by Young women based on actual and desired numbers of children. Women with and without children who desire more children are more likely to purchase insurance. Effects are quantitatively important. Also the effect is stronger for those with children and for those who are currently pregnant. The different effects on joining and leaving cover show the importance of modeling dynamics in insurance. Other important factors determining the demand for insurance include income, access to hospitals, education, and country of birth. For this age group, there is little evidence of adverse selection in the usual sense as those more likely to be insured have higher self-reported health and fewer chronic conditions.

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.

The qualitative analysis of open ended data collected as part of a large scale quantitative research project raises issues about the gendering of methodology and the nature of the relationship between researchers and the researched. While feminist critics have argued that quantitative research is impersonal and post-structuralist critics are concerned with heightened surveillance, this analysis of women's spontaneous writing from the Australian Longitudinal Study on Women's Health suggests the possibility of a trusting relationship which despite or even because of its distant and confidential nature, may be for some women a source of emotional support, a feeling of belonging and feedback about their life progress. As such, the project itself may be a source of 'social support' and health benefit.

Van Poppel MNM, Miller YD & Brown WJ. Is physical activity beneficial for menstrual problems? Results from the Australian Longitudinal Study on Women's Health. 6th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity (ISBNPA), Oslo, Norway, 20 - 23 June 2007.

Background: Physical activity is often used as therapy for menstrual symptoms, but the evidence for the effectiveness is not convincing, because of methodological flaws and inconsistent results of previous studies.

Objective: To assess the relationship between changes in physical activity and self-reported menstrual symptoms.

Methods: Data from the second (2000) and third (2003) Surveys of the Australian Longitudinal Study on Women's Health were used. Data from 5,139 Young women were included in the analyses. In ordinal regression models, the relationship between changes in physical activity of at least moderate intensity and premenstrual tension, severe period pains, and irregular or heavy periods was determined.

Results: No relationship between changes in physical activity and premenstrual tension, irregular or heavy periods, or severe period pains were found in ordinal regression analyses.

Conclusion: In this prospective study, changes in physical activity were not related to menstrual symptoms. This finding needs to be confirmed by other methodologically sound studies.

7.5 Media

7.5.1 Press

Date	Media	Title	ALSWH Collaborator
30/03/07	The Sydney Morning Herald	Time and motion	Professor Wendy Brown
18/04/07	The West Australian Metro	Secret # 2: Women were on their feet all the time	Professor Wendy Brown
18/04/07	The West Australian Metro	Secret # 5: Women have oestrogen	Professor Wendy Brown
19/04/07	Australian Associated Press General News	Qld: Exercise delays onset of arthritis in elderly, doctors find	Professor Wendy Brown
24/04/07	M2 Presswire	New study: Activity is key to Arthritis management	Professor Wendy Brown
03/05/07	Townsville Bulletin	Weighing up changes	Dr Lauren Williams
09/05/07	Westside News	Overcome arthritis	Professor Wendy Brown
25/05/07	The Advertiser	Working on marriage	Professor Lois Bryson
07/07/07	The Newcastle Herald	Question of equality hangs on for dear life	Professor Julie Byles
10/07/07	The Newcastle Herald	Gender indicator of health outcome	Professor Julie Byles
26/09/07	The Newcastle Herald	Record funds for research	Professor Julie Byles

7.5.2 Television & radio

Date	Media	Title	ALSWH Collaborator
04/06/07	NBN News Gold Coast	06.00 News Malnutrition and its effect on the elderly	Professor Julie Byles
04/06/07	NBN News Gosford	06.00 News Malnutrition and its effect on the elderly	Professor Julie Byles
04/06/07	NBN News Newcastle	06.00 News Malnutrition and its effect on the elderly	Professor Julie Byles
04/06/07	NBN News Tamworth	06.00 News Malnutrition and its effect on the elderly	Professor Julie Byles
13/09/07	4EB Queensland (QUT News)	Health risks of the oral contraceptive pill	Dr Jayne Lucke

8. ARCHIVING

The project team has a policy of archiving with the Australian Social Sciences Data Archive (ASSDA) at the Australian National University on an annual basis. Each year we archive the most recently completed data set and any new data sets that have been created, and may re-archive earlier data sets if there have been changes to these.

To date, data have been archived for Surveys 1, 2, and 3 of the Younger, Mid-age and Older cohorts and for Survey 4 of the Mid-age and Older cohorts. The data set for Survey 4 of the Younger cohort will be archived in 2008.

The files most recently deposited with ASSDA consisted of:

1. completed ASSDA forms
2. Old 4 Survey
3. Old 4 level 'A' and 'B' data sets in both SAS and text format
4. Old 4 formats and labels in text format
5. the latest version of the Data Dictionary and the Data Dictionary Users Guide
6. the most recent Old 4 level 'A' and 'B' Participation Status datasets in both SAS and text format and a description file
7. Participation Status data set formats in both SAS and text format
8. the most recent heights and weights data sets for all cohorts, Young, Mid-age, and Older, in both SAS and text format, and a format file for each.

As well as being a valuable and reliable off-site backup of all ALSWH data, archiving will make the data available for future use by other researchers, subject to certain conditions.

9. PROJECT STAFF JUNE – DECEMBER 2007

Research Centre for Gender, Health and Ageing, 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
Research Assistants	Mrs Catherine Chojenta Ms Jenny Helman
Publicity Officer/Executive Assistant	Mrs Lyn Adamson
Administrative Assistants	Ms Melanie Moonen
Casual Project Assistants	Ms Amy Sales Ms Jackie Sales Ms Monica O'Neill Ms Hannah Brooke Ms Penne Cappas Ms Liz Kent Ms Claire Rooney

At the University of Queensland, Dr Leigh Tooth returned from maternity leave in October. Ms Danielle Herbert joined ALSWH in June 2007 as a Research Assistant.

School of Population Health, University of Queensland	
Project Director	Professor Annette Dobson
Senior Research Fellows/Project Coordinators	Dr Jayne Lucke Dr Leigh Tooth
Research Fellow	Dr Janneke Berecki
Data Manager-Surveys	Mr David Fitzgerald
Research Project Officer/Administration	Ms Bree Waters
Administrative Assistant	Ms Leonie Gemmell
Research Officers/ Statisticians	Mr Paul Chang Mr Richard Hockey Ms Melanie Spallek Ms Melanie Watson Ms Danielle Herbert

10. APPENDICES

10.1 Appendix 1. Steering Committee minutes June – November 2007

MINUTES
Steering Committee face-to-face meeting
University of Queensland
Wednesday 20 June 2007
9.00 am – 3.00pm
Chair: Prof Annette Dobson
Minutes: Bree Waters & Leonie Gemmell

1. Welcome and apologies

- Present: Annette Dobson, Julie Byles, Deb Loxton, Lois Bryson, Penny Warner-Smith, Christina Lee, Anne Young, Jayne Lucke, Bree Waters and Leonie Gemmell.
- Apologies received by Wendy Brown

2. Minutes and matters arising

- *ACTION: Amend 3.1 from previous minutes to read 'Tessa indicated to Annette that Jackie Ball is the Department officer who is able to advise the delegate to authorise access to the data'.*

2.1 Actions from previous meeting

- Major Report B has been amended and resubmitted to DoHA.
- The June 2007 Technical Report deliverable was completed and distributed by the due date.
- Work is continuing on the Carers Contract Deliverable 2, with JG currently working on it.
- DL distributed the Old 5 pilot survey to Steering Committee members.
- UQ staff enjoyed a productive visit to UN.
  - *ACTION: JL to continue discussions with WB regarding the Curves collaboration once WB is back from overseas.*

3. Strategic Issues

3.1 Departmental Review of ALSWH

- *ACTION: JL & DL to coordinate the review documentation*
- *ACTION: Get information about the ways study findings have been used from TP and distribute to the Steering Committee members.*

3.1.1 (a) Outcomes of the study to date

- *ACTION: DL to liaise with TP regarding data collection about study impact to avoid potential duplication*

- *ACTION: DL to produce a framework Review document that everyone can contribute to.*

3.1.2 (b) Future directions

- *ACTION: DF to consult with Anne Russell regarding her experience with attrition in the Nurses and Midwives e-cohort Study.*
- *ACTION: AD to communicate with candidates regarding a potential post-doctoral placement with ALSWH.*

3.2 ALSWH in Perspective

- *ACTION: XDG to update comparisons between consenters and non consenters for records linkage.*
- *ACTION: DL to include active consent for Old 5 pilot based on wording from 45 and up Study.*

3.3 Research Directions

- *ACTION: Steering Committee members to provide feedback about the updated 'Research Directions' document at next Steering Committee meeting.*
- *ACTION: Schedule separate brainstorming session to explore possible methods to validate major diagnoses.*

3.4 Longitudinal data maintenance

- This item was not addressed.

3.5 Strategies for dealing with overlapping EOIs

- *ACTION: DL to coordinate discussions between Pauline Chiarelli and Jane Fisher to discuss their overlapping EoIs and the need for the work to be finished by the end of 2008 to be included in Major Report D.*

3.6 Major Report C: Medications

- *ACTION: Xenia DG to compare the PBS data with self report data in the Olds.*
- *ACTION: XDG to fill in the tables of the Major Report C document.*
- *ACTION: XDG or RG to work on contraceptives data.*
- *ACTION: ALSWH needs 2006 PBS data. XDG to communicate with Medicare.*
- *ACTION: Explore the setting up of a test file of dummy PBS data that can be used to familiarise staff with the data*
- *ACTION: JB to amend plan including timelines and responsibilities with the aim of presenting a final outline to the next Project Advisory Committee meeting.*

3.7 Conference presentation strategy

- *ACTION: CL to find out who the Women's Mental Health group are and distribute this information to the Steering committee members.*

4. Reports and Deliverables

4.1 June Deliverables (Tech Report No 28 and Major Report B)

- This item was not addressed.

4.2 Physical activity report

- This item was not addressed.

4.3 Carers Reports (due 1 July 2007 and 1 October 2007)

- This item was not addressed.

4.4 Achievements Report (draft due 27 July; final due 30 September 2007)

- *ACTION: DL to circulate a summary of monthly topics and people responsible.*

Topic	Author(s)	Month
Overview	DL	January
Caring & Carers (MO)	JL	February
Partner violence (YMO)	DL	March
Reproductive health (Y)	JL	
Changes in living conditions (Y)	CL	
Employment and retirement (M)	PWS & JB	
Ageing (O)	JB	
Chronic conditions (YMO)	JB & AY	
Health service use (YMO)	JB & AY	
Physical activity and weight (YMO)	WB & AD	
Time use (YMO)	LB & PWS	
CAM (YMO)	AY	

- *ACTION: All involved authors to submit a 2 paragraph summary (about 150 words) and graph about their topic to DL before 19th July 2007.*
- *ACTION: Those authors writing for the first three months of the year are to submit their web page information to DL before 19th July 2007.*

4.5 2006/2007 Financial Statement (due 28 September 2007)

- This item was not addressed.

5. Publications

5.1 Book

6. Operational Issues

6.1 Surveys

- This item was not addressed.

6.2 Staffing

- This item was not addressed.

7. For information

7.1 Budget Reports

7.2 PSA Report

8. AOB

- No other business was reported

9. Next Meeting

The next Steering committee is a teleconference on 18th July 2007.

MINUTES
Steering Committee meeting
University of Queensland
Wednesday 18 July 2007
9.00 - 10.08 am
Chair: Prof Julie Byles
Minutes: Leonie Gemmell

1. Welcome and apologies

- Present: Julie Byles, Deb Loxton, Lois Bryson, Penny Warner-Smith, Jayne Lucke, Anne Young, Christina Lee, Wendy Brown, Bree Waters and Leonie Gemmell.
- Apologies received by Annette Dobson.

2. Minutes and matters arising

2.1 Actions from previous meeting

- The minutes from the previous meeting have been amended.
- The production of an extra version of SC minutes as dot points is in progress for use in Technical Reports.
- JL and WB will meet with the Director of Operations, Yvonne Parsons, to discuss specific options for collaboration.
- The review documentation was discussed at item 3.1
- Items relating to communications with Tessa Pascoe must await her return – 30th July.
- DF contacted Anne Russell regarding attrition in the Nurses and Midwives e-cohort study. Although it is too early for any useful information about participant attrition, she mentioned that 2.5% of the population had responded.
- AD: Communication with candidates regarding potential post-doctoral placements in the area of health economics – to be discussed at next meeting
- WB advised that it was proving difficult arranging an appointment with Nicola Roxon, the Shadow Minister for Health. WB is trying to arrange an appointment with the Minister for next Friday whilst she is in Melbourne.
    - *ACTION: BW to send WB copies of current Newsletter, Annual report and Achievements reports so WB can present these to the Minister.*

- It was suggested that a letter be drafted to politicians in Canberra who have been supportive of the study expressing thanks for their support and advising that the study is under review.
- XD has commenced work on updating comparisons between consenters and non consenters for linkage, which is continuing.

- DL has added a consent question to the Old 5 pilot taken from the 45 and Up Study, awaiting final ethics clearance. The paragraph relating to linkage has been removed to avoid confusion.
- The issue of overlap between Pauline Chiarelli and Jane Fisher's EoI's is currently being resolved, and it is likely that Chiarelli will focus on the relationship between Caesarean section and back pain and Fisher will examine the remaining variables.
- XD has submitted a report comparing PBS data with self report data in the Older cohort. This is ongoing.
- XD is continuing with the tables of the Major Report C document.
- XD has made contact with Medicare regarding 2006 PBS data and is awaiting a response.
- JB is continuing with modification of Major Report C plan (see Item 4.5).
- CL has investigated the value of attending the Women's Mental Health Conference. The group has a strong psychiatric treatment focus and there is some uncertainty of the benefit of attending. It was suggested that direct contact be made with organisations such as the Black Dog Institute and Beyondblue instead.
- DL advised that the draft Achievements Report will be finalised next week. Calendar pages are due to DL this week (19th July).

3. Strategic Issues

3.1 Departmental Review of ALSWH

- *ACTION: BW to circulate the review document outline to committee members*
- *ACTION: DL to discuss the review with Tessa upon her return to work on 30.07.07*
- *ACTION: WB to distribute previous review recommendations to the Steering Committee members.*

4. Reports and Deliverables

4.1 Physical activity report

4.2 Carers Report 3 (due 1 October 2007)

4.3 Achievements Report (draft due 27 July; final due 30 September 2007)

4.4 2006/2007 Financial Statement (due 28 September 2007)

4.5 Major Report C (draft due April 2008)

- *ACTION: Establish Major Report C Working Group (JB)*

5. Publications

5.1 Book

- *ACTION: JB to circulate book flyer to Steering Committee members.*

5.2 Other publications

6. Operational Issues

6.1 Surveys

6.1.1 Old 5 Pilot Survey

6.1.2 Young 4 Survey

6.1.3 Mid 5 Survey

6.2 Staffing

6.2.1 UQ

6.2.2 UN

7. For information

7.1 Budget Reports

7.2 PSA Report

- *ACTION: BW to update the database to reflect that MoU's for AY's CAM EoI's (W060 & W061) are to be held over until funding has been approved.*

8. AOB

- *ACTION: DL to send around website survey outline to Steering Committee members for comments/suggestions.*

9. Next Meeting

- It was agreed that the next Steering Committee meeting would be via teleconference on 22 August 2007. The next face to face Steering Committee meeting will be arranged later in the year, probably after the Review.

MINUTES
Steering Committee meeting
University of Queensland
Wednesday 22 August 2007
9.00 – 10.15 am
Chair: Prof Annette Dobson
Minutes: Leonie Gemmell

1. Welcome and apologies

- Present: Annette Dobson, Julie Byles, Lois Bryson, Jayne Lucke, Anne Young, Wendy Brown, and Leonie Gemmell.
- Apologies received by Christina Lee, Deb Loxton and Penny Warner-Smith

2. Minutes and matters arising

2.1 Actions from previous meeting

- WB reported on her visit Canberra. WB first met with Julie Bishop and her advisor Anna McEachern who were both familiar with and supportive of the study. Next WB met with Nicola Roxon and her advisor who had little knowledge of the study. Nicola Roxon enquired if there was anything that WHA could supply that could be used in speeches over the coming weeks. It was agreed that suitable material could be identified to be submitted to both parties.
    - *ACTION: WB will contact advisors from both parties to find out what information they would find useful.*

- Progress on the review work is on hold until further notice from DoHA.
- DL distributed the website survey outline to Steering Committee members for comments/suggestions. The online survey has been available on the website for two weeks however the response has been poor to date and members reported not being able to activate the survey.
    - *ACTION: JB to ask CC to follow up on the problem*

- JB has circulated book flyer to Steering Committee members.
- BW has updated the EoI database to reflect W060 & W061 being held over until funding approved.
- It has not been appropriate to pursue potential post-doctoral candidates in the area of health economics as a number of changes have been taking place within the School. However, this can now be pursued.
    - *ACTION: AD to follow up with potential candidates for post-doctoral placements in the area of health economics*

- The overlap issue between Chiarelli/Fisher EOIs has been resolved.

- The Physical Activity report was sent to FACSIA on 1st August and the invoice has been raised.

3. Strategic Issues

3.1 Departmental Review of ALSWH

3.2 Medicare and other data linkage

- *ACTION: AY will work with XD-G to pursue a response from Medicare regarding data linkage.*

4. Reports and Deliverables

4.1 Carers Report 3 (due 1 October 2007)

4.2 Achievements Report (draft due 27 July; final due 30 September 2007)

- *ACTION: Richard Hockey to update prevalence figures for diabetes for the chronic disease page of the Achievements Report.*

4.3 2006/2007 Financial Statement (due 28 September 2007)

4.4 Major Report C (draft due April 2008)

5. Publications

5.1 Book

5.2 Other publications

6. Operational Issues

6.1 Surveys

6.1.1 Old 5 Pilot Survey

6.1.2 Young 4 Survey

6.1.3 Mid 5 Survey

6.2 Staffing

6.2.1 UQ

6.2.2 UN

7. For information

7.1 Budget Reports

7.2 PSA Report

8. AOB

8.1 WHA representation at the Australian Women's Health Network Summit 2007.

- *ACTION: WB and DL to let LG know if they want her to arrange payment of registration fees etc.*

8.2 Trademark process: Women's Health Australia

- *ACTION: JB to follow up with Lyn Adamson to investigate trade marking the WHA logo.*

8.3 Meeting with Curves

- *ACTION: WB to write back to Curves with a range of project options for Curves to sponsor.*

9. Next Meeting

Next Steering committee teleconference 19 September 2007

MINUTES
Steering Committee meeting
University of Queensland
Wednesday 19 September 2007
9.00 am – 10.10am
Chair: Prof Annette Dobson
Minutes: Leonie Gemmell

1. Welcome and apologies

- Present: Annette Dobson, Julie Byles, Lois Bryson, Jayne Lucke, Anne Young, Christina Lee, Deb Loxton, Penny Warner-Smith and Leonie Gemmell.
- Apologies received from Wendy Brown

2. Minutes and matters arising

2.1 Actions from previous meeting

- AD advised that WB's meetings in Canberra were very positive and productive. WB met with Nicola Roxon who was not well informed of the study. WB was able to build on the existing relationship with Julie Bishop and her advisor.
- The web based survey is now accessible and working efficiently.
- AD advised that she has approached Rosemary Korder regarding taking up a post-doctoral placement in the area of health economics, however, Rosemary does not wish to move from her residence in Canberra. AD has since approached Amanda Neill who is considering the opportunity and will visit UQ in October.
- A quote has been received and accepted for the updated Medicare data.
    - *ACTION: AY to check with XD-G that the files have been received from AG*

- RH has updated prevalence figures for diabetes for the chronic disease page of the Achievements Report (calendar).
- DL & JL are attending the Australian Women's Health Network Summit on Thursday 20 September.
- JB advised that investigation is continuing on the trade marking status of the WHA logo.
- JL reported that WB has written back to Curves with some suggestions for Curves to sponsor a PhD / Post Doctoral position within the study. There has been no response to date.

3. Strategic Issues

3.1 Departmental Review of ALSWH

3.2 Medicare and other data linkage

3.21 Information for participant newsletter

3.2.2 DVA Ethics Committee report

- *ACTION: AY to send JL a copy of the document that was submitted to the Department of Veterans' Affairs in 2004 for reference in preparation of the progress report.*

3.2.3 Opt In consent for data linkage

3.3 Project Advisory Committee

- *ACTION: DL to report to PAC regarding opt-in consent for Old5*

3.3.1 The progress of the Older 5 Survey

3.3.2 The progress of the Young 5 Survey

3.3.3 Major Report C outline and issues for discussion

- *ACTION: JB to update outline and brief AD, JL & DL regarding progress on Major Report C*

3.3.4 Possible research themes for the next funding agreement

4. Reports and Deliverables

4.1 Carers Report 3 (due 1 October 2007)

4.2 Achievements Report (draft due 27 July; final due 30 September 2007)

4.3 2006/2007 Financial Statement (due 28 September 2007)

- *ACTION: JL to send the UQ financial statement to the Department of Health and Ageing*

4.4 Annual Report (draft due for completion end November 2007; final due 28 February 2008)

- *ACTION: JL to talk to WB about the inclusion of the Physical Activity Report in the Annual Reportt*

4.5 Technical Report #29 December 2007 (due 20 December 2007)

4.6 Young 4 Data Book (due 20 December 2007)

4.7 Major Report C (draft due April 2008)

4.8 Newsletter draft

5. Publications

5.1 Book

5.2 ISBN/ISSN numbers for reports

5.3 Other publications

6. Operational Issues

6.1 Surveys

6.1.1 Old 5 Pilot Survey

6.1.2 Young 4 Survey

6.1.3 Mid 5 Survey

6.2 Planning for substudies

6.2.1 Substudies in the older cohort

6.3 Staffing

6.3.1 UQ

6.3.2 UN

7. For information

7.1 Budget Reports

7.2 PSA Report

8. AOB

8.1 Trademark process: Women's Health Australia

8.2 Impact of drought on health

9. Next Meeting

Next Steering committee teleconference 17 October.

MINUTES
Steering Committee meeting
University of Queensland
Wednesday 17 October 2007
9.00 am – 9.45 am
Chair: Prof Annette Dobson
Minutes: Leonie Gemmell

1. Welcome and apologies

- Present: Annette Dobson, Leigh Tooth, Jayne Lucke, Christina Lee, Penny Warner-Smith, Deb Loxton and Leonie Gemmell.
- Apologies received from Wendy Brown, Anne Young, Julie Byles and Lois Bryson.

2. Minutes and matters arising

2.1 Actions from previous meeting

- Request for Medicare data: XD-G has prepared a list of participant ID's to send to Medicare to distinguish who to include and exclude from the data extraction.
- DVA Ethics: JL has sent a short report to the Department of Veterans' Affairs (DVA). The report will be discussed at a DVA meeting scheduled for December and any feed back will be delivered there after.
- DL: advised that a report to PAC regarding opt-in consent for Old 5 has been prepared and is on the agenda for the PAC meeting scheduled for tomorrow.
- A two page outline of what will be included in Major Report C has been prepared and is on the agenda for the PAC meeting scheduled for tomorrow (also attached to these minutes).
- DL: advised that the UN Financial Statement was submitted to the Department of Health and Ageing on September 28 which was the deliverable date
- WB is happy for the Physical Activity Report to be included in the Annual Report.
    - *ACTION*: JL to liaise with Nicola Burton for executive summary of the Physical Activity Report.

3. Strategic Issues

3.1 Medicare and other data linkage

3.1.1 DVA Ethics Committee report

3.1.2 Opt in consent for data linkage

3.2 Membership of the SC

3.2.1 Thank you to LB/PWS

3.2.2 Future

- *ACTION*: CL to approach Nancy Pachana regarding joining the Steering Committee.
- *ACTION*: DL to approach sociologists regarding joining the Steering Committee.

3.3 Project Advisory Committee Meeting

4. Reports and Deliverables

4.1 Carers Report 3

4.2 Achievements Report

4.3 2006/2007 Financial Statement (due 28 September 2007)

4.4 Annual Report (draft due for completion end November 2007; final due 28 February 2008)

4.5 Technical Report #29 December 2007 (due 20 December 2007)

4.6 Young 4 Data Book (due 20 December 2007)

4.7 Major Report C (draft due April 2008)

- On track for due date.

4.8 Newsletter draft

- *ACTION:* DL to request LA to research into organisations with a similar name to WHA.

5. Publications

5.1 Book

5.1.1 Launch

5.2 Other publications

6. Operational Issues

6.1 Surveys

6.1.1 Old 5 Pilot Survey

6.1.2 Young 4 Survey

6.1.3 Mid 5 Survey

6.2 Staffing

6.2.1 UQ

- *ACTION:* AD will contact Dr Amanda Neill regarding her intentions to take up a part-time research fellowship with ALSWH.

6.2.2 UN

7. For information

7.2 Budget Reports

7.2 PSA Report

8. AOB

8.1 Trademark process: Women's Health Australia

8.2 Meeting dates 2008

9. Next Meeting

The next Steering committee teleconference is scheduled for 21 November 2007 at 9am Qld time and 10am NSW and VIC time.

MINUTES
Steering Committee meeting
University of Queensland
Wednesday 21 November 2007
9.00 am – 10.00am QLD time
Chair: Prof Annette Dobson
Minutes: Leonie Gemmell

1. Welcome and apologies

- Present: Annette Dobson, Leigh Tooth, Jayne Lucke, Julie Byles, Deb Loxton, Wendy Brown, Anne Young and Leonie Gemmell.
- Apologies received from Christina Lee.

2. Minutes and matters arising

2.1 Actions from previous meeting

- JL: received an executive summary of the Physical Activity Report from Nicola Burton and has forwarded this on to BW for inclusion in the Annual Report.
- CL approached Nancy Pachana regarding joining the Steering Committee and NP is happy accept.
- LA has carried out a search on organisations with a similar name to WHA and found the Australian Women's Health Magazine was most similar.
- AD is yet to contact Amanda Neill regarding her decision of taking up a part-time research fellowship with ALSWH.
    - *ACTION:* AD will advise members once a decision is concluded.

3. Strategic Issues

3.1 Membership of the SC

- *ACTION:* Locate current Terms of Reference for the Steering Committee and circulate to members for comment.

3.2 Medicare and other data linkage

3.3 Feedback from Project Advisory Committee Meeting and Departmental Seminars

- *ACTION:* DL will circulate a document outlining the details of the sections wishing to commission research and the area of interest.

3.4 Strategy for ALSWH representation at Public Health Congress, Brisbane, 6-9 July 2008

- *ACTION:* JL/LT to contact the organisers of the Public Health Congress to find out whether it will be possible to submit a proposal for an ALSWH symposium.

3.5 Steering Committee face-to-face meeting in July 2008 in Brisbane

3.6 Date for March 2008 Steering Committee/Book Launch

4. Reports and Deliverables

4.1 Annual Report (draft due for completion end November 2007; final due 28 February 2008)

4.2 Technical Report #29 December 2007 (due 20 December 2007)

4.3 Young 4 Data Book (due 20 December 2007)

4.4 Major Report C (draft due April 2008)

4.5 Newsletter draft

5. Publications

5.1 Book launch

5.2 Other publications

6. Operational Issues

6.1 Surveys

6.1.1 Old 5 Pilot Survey

6.1.2 Mid 5 Survey

6.2 Staffing

6.2.1 UQ

6.2.2 UN

7. For information

7.3 Budget Reports

7.2 PSA Report

8. AOB

8.1 Trademark process: Women's Health Australia

9. Next Meeting

Next Steering committee teleconference 16 January 2008 at 9am QLD time and 10am NSW time.

Use and Costs of Medications and Other Health Care Resources

The Australian Longitudinal Study on Women's Health (ALSWH) is a longitudinal population-based survey funded by the Australian Government Department of Health and Ageing. The project began in 1996 and involves three large, nationally representative, cohorts of Australian women representing three generations:

- Younger women, aged 18 to 23 years when first recruited in 1996 (n=14247) and now aged 29-34 years
- Mid-aged women, aged 45 to 50 years in 1996 (n=13716), now aged 56-61
- Older women, aged 70 to 75 years in 1996 (n=12432), now aged 81-86.

The women have now been resurveyed at least four times over the past 11 years providing a large amount of data on the women's lifestyles, use of health services and health outcomes.

This report will be prepared on the basis of discussions between the ALSWH research team and staff of the Department of Health and Ageing and will present findings on use and costs of medications and other health care resources from four surveys of the three cohorts.

The report makes use of Pharmaceutical Benefits and Medicare data that are linked to survey data that provide details on the women's health, health behaviours, and social circumstances. Combined, these data provide unique and rich information on health service use by particular sub-groups of women, longitudinal changes and health outcomes.

The report will have the following aims:

- To describe the major trends in medication use and costs among the three age groups of women in the ALSWH according to urban, rural and remote area of residence?

- For common conditions, to assess factors associated with medication use by women with:

  - ❒ Diabetes
  - ❒ Asthma
  - ❒ Arthritis
  - ❒ Depression
  - ❒ Cardiovascular Disease

  This work will:

  - ❒ Describe medications used for the index condition
  - ❒ Identify co-medication that may enhance or interfere with the management of the index condition
  - ❒ Compare costs of medication and other health services for women with different conditions

- ❒ Assess health outcomes associated with medication use for selected conditions

- For common medications, to assess factors affecting the women's long-term use of:

  - ❒ Statins
  - ❒ Bisphosphonates
  - ❒ Proton Pump Inhibitors
  - ❒ HRT

- To assess the uptake of new health care items and the impact of these items on women's use of health care services, costs, and health outcomes:

  - ❒ 75+ health assessment
  - ❒ Annual Cycle of Care for Diabetes

- To examine the use of allied health and complementary and alternative medical care by women in the three cohorts.

The Report will include summaries of published and unpublished papers, as well as primary analyses. The results for each section will be illustrated by relevant qualitative data provided by the women describing their experience in relation to medication use and health service access.

ALSWH publications relating to this report will be provided as a supplement. Additional Appendices will provide current information about ALSWH data (i.e., the study design, attrition and retention rates, data sources), and some of the definitions and measurements used in the report.

10.2 Appendix 2. Monthly newsletters May 2007 – October 2007

Monthly Progress Notes for Research Team, Associates and Colleagues
May 2007

Here's the latest from Women's Health Australia.

Report on Strategic Issues

Reports and Deliverables

The June 2007 contract deliverables were completed during May and have now been received by the Department of Health and Ageing. These are:

- *Technical Report No. 28*, and
- *Major Report B*: *Women's Weight*

Achievements Report: This report will take the form of a calendar with links to detailed web pages. A sample has been produced with discussions continuing about the twelve topics to be covered. Among others, these will include reproductive health, carers, retirement & employment, time use, violence, ageing and chronic diseases. A draft is due on 27th July with the final report due in September.

Carers Study Contract: Work continues on the detailed report on trends in caring and employment over time (Deliverable 2). The sub-study report (Deliverable 3) is also underway and data collection has begun. During May The University of Queensland Medical Research Ethics Committee approved the sub-study protocol and the sub-study materials were prepared by University of Newcastle project staff.

Project News

Surveys
Older 5 Pilot Survey: Final decisions regarding the Older 5 Pilot were due Monday 28th May, and these are now being incorporated into the Older 5 Pilot Survey. Formatting and proofing of the survey will then take place. Any last minute comments should be addressed to Deb (deborah.loxton@newcastle.edu.au)

Mid 5 Survey: Data collection is going very well. Targeted reminders have been sent to 3,654 women but already 71% of surveys have been received and the first data set has been received from Datatime.

Website Updates

The 2006 Annual Report has now been distributed to our list of stakeholders, and an electronic copy can be found on the website: http://www.alswh.org.au/Reports/annual_reports.html.

The data dictionary supplement has undergone a substantial review, and has been specially formatted for the web. It can be viewed at http://www.alswh.org.au/InfoData/dictsupp.html.

Data Issues

Important Reminder: Please make sure you have password protection on all ALSWH data, including any that is held on CD, DVD or USB drives, and that data are not accessible to anyone who has not signed a confidentiality statement. This is necessary in order to comply with our ethics committee approval and the study Privacy Protocol.

Other Activities

People, meetings and visitors

This month we farewelled Dr Anne Young, Project Statistician at the University of Newcastle. Anne has been with the project for many years and will be greatly missed, although she remains an active investigator and member of the Steering Committee. Anne takes up a position as Manger, Quality Assurance and Improvement with the DVC (Academic) at the University of Newcastle. We wish her the very best in this exciting new role.

Congratulations to David Fitzgerald who has been appointed Data Manager – Surveys at The University of Queensland. David has been working with the project as a Statistician since December 2006 and has a strong background in data management and statistics.

That's all for this month! Don't forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Jayne Lucke
Senior Research Fellow

Monthly Progress Notes for Research Team, Associates and Colleagues
June 2007

Here's the latest from Women's Health Australia.

Report on Strategic Issues

Department of Health and Ageing Population Health Division restructure

There has been a restructure in the Department of Health and Ageing's Population Health Division which has resulted in the management of the Australian Longitudinal Study on Women's Health being moved to the Gender and Reproductive Health Section, Population Health Programs Branch. Fortunately Tessa Pascoe will continue to manage the Study for the Department. Some ALSWH staff and investigators met with Tessa, Andriana Koukari (Assistant Secretary for the Population Health Programs Branch), and Lyn Williams (Director for the Gender and Reproductive Health Section) at the University of Queensland on Tuesday 3rd July.

ALSWH Review

The Department of Health and Ageing requires a review of the Study this year prior to the next funding agreement. The Review will be conducted during the next few months and provide advice to the Australian Government on:

(a) the outputs and outcomes of the Study to date, including their quality, impact, policy relevance and value for money; and,
(b) options for future directions.

Preparations are underway and further details will be provided as they are known.

Future Directions

The face-to-face Steering Committee was held on Wednesday 20th June and members spent some time reviewing the ALSWH Research Directions. Issues considered important for future work include:

- Aged care
- Caring for adults

- Mental health issues and access to services
- Weight and obesity
- Fertility and reproductive health
- Medications and health service use
- Rural health and the impact of climate change
- Emerging uses of new technologies
- Validation of self-reported conditions

The updated Research Directions will soon be available on the website.

Reports and Deliverables

Achievements Report: This report will take the form of a calendar with links to detailed web pages.

A reminder to all those who are working on calendar pages that these are due to Deb Loxton by Thursday 19th July.

Carers Study Contract: The detailed report on trends in caring and employment over time (Deliverable 2) has been completed. The sub-study (for Deliverable 3) is progressing well with 208 (69.3%) surveys received, one withdrawal and one woman declining to participate. The thank you/reminder has been sent and data entry is about to start.

Project News

Surveys
Older 5 Pilot Survey: This has now been sent for printing.

Mid 5 Survey: 9,528 (77%) surveys have been received and there will be approximately 2,600 telephone reminders conducted in mid-July.

Data Issues

University of Queensland: The survey data on the UQ shared drive are now password protected and sorted by IDalias. Young 4 data has been confirmed to be scanned correctly in the matching of key profile variables.

University of Newcastle: David Fitzgerald has sent updated B Level datasets for all phases and cohorts. These data have the MCS_us, PCS_us. MCS_abs, and PCS_abs, added onto each. The formats and labels have not changed. These datasets are on K drive for those able to access the UN network.

External data users may need to get updated data from David Fitzgerald at UQ or Anna Graves at UN.

Important Reminder: Please make sure you have password protection on all ALSWH data, including any that are held on CD, DVD or USB drives, and that data are not accessible to anyone who has not signed a confidentiality statement. This is necessary in order to comply with our ethics committee approval and the study Privacy Protocol.

Other Activities

People, meetings and visitors

A series of face-to-face meetings were held at the University of Queensland over Tuesday 19th and Wednesday 20th June including the Steering Committee Meeting, the Data Management Group meeting and a number of other meetings between UN and UQ staff to progress work in a number of areas. The two days involved a total of 23 members of staff and investigators and provided a very valuable forum for catching up with each other as well as addressing important strategic issues face-to-face. Thanks to everyone who contributed to the success of the two days.

Prof Annette Dobson presented findings from the Australian Longitudinal Study on Women's Health in Thailand at '*Understanding Health and Population over times: Strengthening capacity in longitudinal data collection and analysis in Asia and the Pacific region*', May 24-25, 2007. Royal Benja Hotel, Bangkok, The Conference was part of an effort initiated in 2000 by the Institute for Population and Social Research (IPSR), Mahidol University with support from the Wellcome Trust under its Health Consequences of Population Change Program.

This month we welcomed Danielle Herbert to the team at the University of Queensland. Danielle is working as a Research Assistant and will be completing her PhD in the area of infertility. Both Danielle and Janneke Bereki visited the University of Newcastle in early June to meet the UN team and learn about the survey processing procedures.

That's all for this month! Don't forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Jayne Lucke
Senior Research Fellow

Monthly Progress Notes for Research Team, Associates and Colleagues
July 2007

Here's the latest from Women's Health Australia.

Strategic Issues

Reports and Deliverables

Major Report B: Women's Weight: Findings from the Australian Longitudinal Study on Women's Health: Final comments have been received from the Department of Health and Ageing and are currently being incorporated into the final version of the report.

Achievements Report: The draft report has been sent to DoHA with the final version due on 30th September.

Carers Study Contract: The pilot sub-study (for Deliverable 3) is progressing well with 261 (73.9%) surveys received. Telephone reminders are in progress.

Project News

Surveys
Older 5 Pilot Survey: The Pilot Survey is ready to be printed pending approval from the ethics committee.

Mid 5 Survey: 78.9% of participants have responded so far and over 2,000 reminder phone calls have been made. An extra mailout to 681 participants is in progress.

Data Issues

New datasets: A new demographic dataset is available for the Older 4 cohort and the Cause of Death Codes have been updated with codes that became available recently.

Archiving of datsets: The annual archiving of ALWSH data was done this month. The data was sent to the Australian Social Science Data Archive (ASSDA) at the Australian National University and they have confirmed receipt. The archived data included the most recent Old 4 dataset, Heights and Weights, and the Data Dictionary

and were sent as both SAS datasets and text files. The SAS datasets with their formats and labels are converted at ASSDA into SPSS files. For further information please contact David Fitzgerald.

Important Reminder: Please make sure you have password protection on all ALSWH data, including any that are held on CD, DVD, USB or portable hard drives, and that data are not accessible to anyone who has not signed a confidentiality statement. This is necessary in order to comply with our ethics committee approval and the study Privacy Protocol.

Projects Approved

These projects were approved by the Publications, Substudies and Analyses Subcommittee during the period from April – June 2007.

New projects:

- A184 - Investigating methods of analysing longitudinal qualitative data collected via free-text comments. Loxton D, Adamson L & Brown W
- A185 - An examination of trends in women's sexual and reproductive health over ten years: findings from the ALSWH. Lucke J, Dobson A & Herbert D.
- A188 - Intake of fruit and vegetables and its association with SES and health outcomes. Byles J & Shi Z.
- A189 - Height loss in elderly women. Dobson A, Spallek M & Berecki J.
- A190 - Size and structure of social networks in older women: changes over time. Pachana N, Dobson A & Watson M.
- A191 - The association of memory with chronic illness, physical and mental health and caregiver status in older women. Pachana N & Dobson A.
- W059 - Longitudinal study of sleeping difficulty and medication use among older women. Byles J & Mishra G.
- W060 - Women's use of CAM for pregnancy and birthing: a natural mixed-methods study. Young A, Adams J, Sibbritt D, Pirotta M, Cohen M & Broom A.
- W061 - CAM use among Mid-age women: a national mixed-method study across the urban-rural divide. Young A, Adams J, Sibbritt D, Pirotta M, Cohen M, Broom A & Humphreys J.

Project amendments and updates:

- W055 - Validation of survey measures of depression, anxiety and cognitive impairment in the older cohort. Pachana N, Lee C, Koloski N, Tang C & Hart C.

Publications

These papers have been accepted and/or published during the period from April – June 2007.

Accepted for publication;

- Tooth L, Hockey R, Byles J, & Dobson A. Multi-morbidity indexes predict mortality, health service use and health-related quality of life in older women. *Journal of Clinical Epidemiology*
- van Poppel MNM, Miller YD, Dobson A & Brown WJ. The relationship between changes in physical activity and menopausal symptoms: results from the Australian Longitudinal Study on Women's Health. *Menopause*
- Brown WJ, Hockey R & Dobson A. A 'middle road' prevention strategy for reducing risk of non-communicable chronic disease - Rose revisited. *Bulletin of the World Health Organization*

Published:

- Kelaher M, Dunt D, & Dodson S. Unemployment, contraceptive behaviour and reproductive outcomes among young Australian women. *Health Policy*, 2007; 82(1): 95-101.
- 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: 170-173.
- Brown W. (2007). Weight gain data support the case of activation of Australian women. In F Fu and R Robertson (Eds) "Marketing Sport and Physical Activity". Hong Kong: Professional Publications Co. pp15-22.
- 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.
- Sibbritt D, Adams J & Young A. 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.
- Carrigan G, Barnett A, Dobson A, & Mishra G. Compensating for Missing Data from Longitudinal Studies Using WinBUGS. *Journal of Statistical Software*, 2007, 19(7).

Other Activities

People, meetings and visitors

Advance publicity is in progress for the forthcoming special issue of the *International Journal of Multiple Research Approaches* featuring the Australian Longitudinal Study on Women's Health.
Conducting Longitudinal Research: Practical lessons from the Australian Longitudinal Study on Women's Health. Staff and investigators from the ALSWH wrote the eleven papers included in this special issue and are looking forward to seeing the end result in November this year.
This special issue of *International Journal of Multiple Research Approaches* (vol. 1/2) will help both novice and experienced researchers, from academia, government departments, private and public sectors to establish and conduct a longitudinal study. Offering direction and advice concerning the efficient conduct of longitudinal

research studies, *Conducting Longitudinal Research* fills a gap in the research methodology literature. More details and a copy of the order form are available at http://mra.e-contentmanagement.com/archives/vol/1/issue/2/marketing/conducting-longitudinal-research-practical

That's all for this month! Don't forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Jayne Lucke
Senior Research Fellow
www.alswh.org.au

Monthly Progress Notes for Research Team, Associates and Colleagues
August 2007

Here's the latest from Women's Health Australia.

Strategic Issues

ALSWH Review

Action for the Review is on hold pending advice from the Department of Health and Ageing about whether or not the Review will take place.

Reports and Deliverables

Major Report B: Women's Weight: Findings from the Australian Longitudinal Study on Women's Health: This report has now been finalised and sent to the Department of Health and Ageing.

Carers Study Contract: Janneke Berecki and Jayne Lucke travelled to Canberra on Friday 10th August to present the findings of Report 2: *Changes in Caring Roles and Employment in Mid-age* and report on progress with Report 3: *Service use and the impact of family caregiving on Mid-aged women*. The third report is due on 1st October and is progressing well with data collection now complete. The final dataset for the pilot sub-study includes 296 surveys, representing a response rate of 84%.

Major Report C: A working party has been formed to work towards Major Report C which will focus on Medication Use and Health Service Use. The first draft of the report is due to the Department of Health and Ageing in April 2008.

Project News

Surveys
Older 5 Pilot Survey: Approval has been received from both University of Newcastle and University of Queensland Ethics Committees to conduct this survey. This time the participants have been asked to provide written consent for their data to be linked

with hospital services records and chronic conditions registries. 186 surveys were mailed on Friday 24th August.

Mid 5 Survey: Approximately 10,165 surveys have been received representing more than 80% of participants. Phoning for missing page data is still in progress and once that is complete a preliminary data set will be prepared.

Website Update

New website survey: Next time you visit the ALSWH website www.alswh.org.au you will notice an invitation to complete an online survey. In order to assess the impact that the project has on policy development a short survey has been developed. We would especially like to hear about usage of our findings and results that would not normally be covered by the PSA approval process - such as using information from databooks or reports in grant applications, to develop policies, or in other publications. The results of the survey will be available in the coming months.

Data Issues

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Other Activities

Mars and Venus: Does Gender Matter in Ageing? July 9-10 2007

This conference was convened by the University of Newcastle Research Centre for Gender, Health and Ageing in association with the Australian Association of Gerontology and the Network for Ageing Well, and attracted researchers from all over Australia and from overseas. The 87 participants considered ways in which effects of ageing are not equal between men and women, and how these differences might be further exagerated through interaction with socieconomic status and background. As noted by the Honorable Kristina Keneally in opening the conference, "gender matters more in older age because of the accumulation of effects across the life course".

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 workshop was convened to contrast these studies and their findings (a report of this workshop is under editorial review for publication in the Medical Journal of Australia).

Proferred 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, and sexuality in residential aged care. A special workshop provided "an insider's view" on the Australian Longitudinal Study on Women's Health and provided detailed insight into the conduct of a large longitudinal study.

More information about the conference and the presentations is available at the Ageing Well website:
www.ageingwell.edu.au

New telephone numbers for University of Newcastle office
Please update your records with these new numbers:

Name	**Phone Number**
Lyn Adamson	02 4913 8873
Julie Byles	02 4913 8643
Cath Chojenta	02 4913 8876
Xenia Dolja-Gore	02 4913 8880
Anna Graves	02 4913 8869
Jenny Helman	02 4913 8755
Stacey Hosking	02 4913 8877
Elizabeth Kent	02 4913 8872
Deb Loxton	02 4913 8946
Melanie Moonen	02 4913 8744
Daniel Odd	02 4913 8879
Jenny Powers	02 4913 8884
Fax	02 4913 8888

That's all for this month! Don't forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Jayne Lucke
Senior Research Fellow
www.alswh.org.au

Monthly Progress Notes for Research Team, Associates and Colleagues
October 2007

Here's the latest from Women's Health Australia.

Strategic Issues

ALSWH Review and Funding Update

The Department of Health and Ageing has received confirmation from the Office of Prime Minister and Cabinet that the Budget Measure component of the ALSWH funding ($600,000 annual Administered funding) is available until 2015. Therefore the Department has decided to suspend the planned 2007 review and to reconsider a review at a later time. This is very exciting news for the project as we can start to plan for the future with a greater sense of security than ever before.

Project Advisory Committee

The Project Advisory Committee meeting was held in Canberra on the 18th October. Some of the major items discussed included:

1. New Younger cohort: The Committee was supportive of our proposal to recruit a new 18-23 year old cohort – clearly our cohort names will need to be revised. Further work is needed to develop the best way to collect data from this new group of women but we hope to work towards an initial survey in 2010.
2. Data Linkage Update: The Department of Health and Ageing reported that there may be a way forward regarding the ongoing data linkage problems. An application to the departmental ethics committee is in progress for submission early in 2008.
3. Major Report C: The outline of this report, examining use and costs of medications and other health care resources, was discussed.
4. Promotional Activities:
    a. *Achievement Report 2007*: Promotion of the calendar was discussed with existing plans to distribute it to over 2000 people listed on the mailing lists of the Department of Health and Ageing, the Office for Women and ALSWH. Wider distribution to the general public was also discussed.

b. *Departmental Seminars*: The Department of Health and Ageing is planning a two-day seminar event in Canberra in November to promote ALSWH. This will include an inter-departmental seminar on the Physical Activity report and Major Report B (Women's Weight) as well as sessions on 'Using the ALSWH' and an open day presenting a range of ALSWH outputs with researchers on hand for informal discussions.
c. Other promotional activities include the release of the Physical Activity report and Major Report B and the development of Research Summary Sheets on topic areas relevant to particular program areas within the Department.

5. The next PAC meeting is planned for February 2008 and the agenda will include further discussion about the new Younger cohort, planning for Young 5, an update on the progress of Old 5, Major Report D, and the new funding agreement.

Reports and Deliverables

Technical Report No. 29: The deadline has now passed for submissions for the December 2007 Technical Report. If you have submissions outstanding please return all your information to Bree Waters as soon as possible. The information provided for the December Technical Report is also used for the *Annual Report* for 2007 so it is important that we have a complete update of all project activities to reflect everyone's hard work during the year.

Project News

Surveys

Older 5 Pilot Survey: Of 186 surveys sent out, 141 have been returned so far (76%). Seven participants have withdrawn and two do not wish to participate at this time. We are still waiting to hear from 36 participants. The new opt-in consent process appears to be working well with 125 consenting to data linkage, only two women have not consented and fourteen have not ticked either 'yes' or 'no'. This survey is due to be completed at the end of November.

Mid 5 Survey: Around 83% of the surveys have been returned and another 330 targeted reminders have been sent out. Checking of missing pages is complete with 4.8% of surveys having missing pages.

Projects Approved

These projects were approved by the Publications, Substudies and Analyses Subcommittee during the period from July – October 2007.

New projects:

- A192 - Long term health effects of caesarean surgery. Loxton D, Donath S & Fisher J.
- A193 - Alcohol consumption during pregnancy. Loxton D & Powers J.
- A194 - A comparison of the performance of the Goldberg Anxiety and Depression Scale in both mid-aged and older women. Pachana N, Dobson A, Koloski N & Watson M.
- A195 - Bisphosphonates and comedications. Dobson A, Byles J, Berecki J, Spallek M, Hockey R, Dolja-Gore X & Gibson R.
- A196 - Proton-pump Inhibitors & comedications. Dobson A, Byles J, Berecki J, Spallek M, Hockey R, Dolja-Gore X & Gibson R.
- A198 - Women's use of the emergency contraceptive pill. Loxton D, Lucke J, Taft A, Hobbs M & Amir L.
- A199 - Weekend warriors: frequency of physical activity and selected health outcomes in mid-age and older women. Brown W, Heesch K & Chang P.
- A200 - Changes in prevalence estimates for physical inactivity and smoking over a ten year period and associated impact on estimates of population attributable risk from these behaviours. Brown W, Heesch K, Bauman A & Chang P.
- A201 - Does sitting cause weight gain? (and if so how much weight gain does sitting cause...or how much sitting is required to cause how much weight gain?!). Brown W, Dobson A, Watson M & van Uffelen J.
- A202 - Women in their 70s: weight, weight change and health related quality of life. Brown W, Dobson A, Mishra G & van Uffelen J.
- A203 - What is an optimal weight for women aged 70-75? Brown W, Dobson A, Mishra G & van Uffelen J.
- A205 - The impact of health on lifetime earnings, labour force experience and retirement and the effects of all these factors on the degree of income and health inequalities post retirement. Byles J, Richardson S & Flavel J.
- A206 - Changes in workforce participation among mid-age Australian women: the impact of socio-economic, behavioural, environmental and health-related factors. Byles J, Pit S & Schofield D.
- A207 - Continuity and change in tobacco use among young women: a 10 year prospective analysis. Dobson A, Owen N & McDermott L.
- A208 - Regional variation in the health of elderly Australian women. Dobson A, Vagenas D, McLaughlin D & Byles J.

Project amendments and updates:

- A049A – Weight Loss Practices of Mid-Aged Women: Longitudinal Data Analysis. Williams L, Germov J & Young A.

Publications

These papers have been accepted and/or published during the period from July – October 2007.

Accepted for publication;

- CORRECTION: van Poppel MNM & Brown WJ. It's my hormones doctor - does physical activity help with menopausal symptoms? *Menopause* (PREVIOUSLY REPORTED AS: van Poppel MNM, Miller YD, Dobson A & Brown WJ. The relationship between changes in physical activity and menopausal symptoms: results from the Australian Longitudinal Study on Women's Health. *Menopause*.)
- Clemens S, & Matthews S. A comparison of a food frequency questionnaire method and a quantity frequency method to classify risky alcohol consumption in women. *Alcohol and Alcoholism*.
- Ford J, Spallek M & Dobson A. Self-rated and healthy lifestyle are the most important predictors of survival in elderly women. *Age and Ageing.*
- Heesch K, Byles J & Brown W. Prospective association between physical activity and falls in community-dwelling older women. *Journal of Epidemiology and Community Health.*
- Smith MD, Russell A & Hodges PW. How common is back pain in women with gastrointestinal problems? *Clinical Journal of Pain*.

Published:

- 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.
- Byles J, Gibson R & Parkinson L. Driving myself: main forms of transport among older women in rural and remote Australia. Published in Conference Proceeding for the *9th National Rural Health Conference*, Albury, NSW, 7th - 10th March 2007.
- 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.
- 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.
- McDermott L, Dobson A, & Owen N. Occasional tobacco use among young adult women: a longitudinal analysis of smoking transitions. *Tobacco Control*. 2007; 16: 248-254.
- 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.
- Smith M, Russell A & Hodges P. Is there a relationship between parity, pregnancy, back pain and incontinence? *International Urogynecology Journal* (advanced online publication) doi 10.1007/s00192-007-0421-x Published online: 31 July 2007

- 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.
- Yorkston E, Russell A & Turner C. Longitudinal predictors of changes to illicit drug use among young Australian women. *Addiction*. 2007; 201(11): 1798-1803.
- Young A, Byles J, Lowe J & Dolja-Gore X. Health care for women with diabetes living in rural areas. Published in Conference Proceeding for the *9th National Rural Health Conference*, Albury, NSW, 7th - 10th March 2007.
- Young A, Dolja-Gore X. Access to health services for mid-aged women in rural Australia: evidence of improvement? Published in Conference Proceeding for the *9th National Rural Health Conference*, Albury, NSW, 7th - 10th March 2007.

Data Issues

Dataset update: The final dataset for Young 4 is now available. More information is available from David Fitzgerald at d.fitzgerald@sph.uq.edu.au.

Important Reminder: Please make sure you have password protection on all ALSWH data, including any that are held on CD, DVD, USB or portable hard drives, and that data are not accessible to anyone who has not signed a confidentiality statement. This is necessary in order to comply with our ethics committee approval and the study Privacy Protocol.

Other Activities

Conferences

ALSWH has been represented at a number of recent conferences including the AEA/IEA Conference in Hobart (27-29 August), the Public Health Association Conference in Alice Springs (23-26 September) and the Australasian Sexual Health Conference on the Gold Coast (8-10 October).

Staff news

That's all for this month! Don't forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Dr Jayne Lucke
Senior Research Fellow
www.alswh.org.au

10.3 Appendix 3. Old 5 – pilot study materials

Barcode
Overprint Area

women's health

australia

Fifth Survey for Women over 80

2007

How to complete this survey

This is the fifth "pilot" survey for women aged over 80. As the purpose of the project is to look at changes over time, some of the questions are the same as those in previous surveys.

Please answer every question you can.
If you are unsure about how to answer a question, mark the response for the closest answer to how you feel.

Please write any comments or important information on page 22 only. We are not able to read comments written elsewhere throughout the survey.

Please read the instructions above each question ***very carefully.***
Some require you to only answer those options which are applicable to you.
Other questions require you to mark one answer on each line.
The questions may also refer to different time periods.

INSTRUCTIONS:

- **Use a black / blue pen**
- **Do not fold or bend this survey**

Cross the boxes like this:

In general, would you say your health is: *(Mark one only)*

Excellent ☐
Very good ☐
Good ☒ ← *You would cross this box if you think your health is good*
Fair ☐
Poor ☐

Print clearly in the boxes like this:

What is your postcode? *(PRINT clearly in the boxes)*

2	3	0	8

Correct mistakes like this:

When you go to a General Practitioner:
(Mark one on each line)

	Always	Most of the time	Some-times	Rarely or never
Do you go to the same place?	☒	☐	☐	☒

If you make a mistake simply scribble it out and clearly mark the correct answer with a cross.

If you need help to answer any questions, please ring 1800 068 081
(This is a FREECALL number)

women's health is about using health services

1. In the LAST 3 YEARS have you been diagnosed with or treated for: *(Mark all that apply)*

		Yes
a	High blood pressure (hypertension)	☐
b	Osteoarthritis	☐
c	Osteoporosis	☐
d	Parkinson's Disease	☐
e	Angina	☐
f	Heart attack	☐
g	Other heart problems	☐
h	Diabetes (high blood sugar)	☐
i	Asthma	☐
j	Bronchitis / Emphysema	☐
k	Stroke	☐
l	Macular Degeneration	☐
m	Glaucoma	☐
n	Cataract	☐
o	Skin cancer	☐
p	Other cancer	☐
q	Depression	☐
r	Anxiety / Nervous disorder	☐
s	Alzheimer's Disease or Dementia	☐
t	None of these conditions	☐

2. Have you had any of the following operations or procedures? *(Mark all that apply)*

		In the last three years	More than three years ago
a	Hysterectomy	☐	☐
b	Repair of prolapsed vagina, bladder or bowel	☐	☐
c	Eye surgery (including cataract surgery)	☐	☐
d	Hip surgery for hip replacement	☐	☐
e	Hip surgery for broken hip	☐	☐
f	Bone density test	☐	☐
g	Other surgery *(Please write on the line)*	☐	☐
	.....		
h	No operations or procedures	☐	☐

3. **How many times have you consulted a family doctor or another general practitioner in the LAST 12 MONTHS?** *(Mark one only)*

None	☐
1 or 2 times	☐
3 or 4 times	☐
5-8 times	☐
9-12 times	☐
13-15 times	☐
16-19 times	☐
20 or more times	☐

4. **Have you been admitted to hospital in the LAST 12 MONTHS?** *(Mark all that apply)*

a	No	☐
b	Yes but I did not spend the night	☐
c	Yes I spent at least one night	☐

5. **Have you consulted any of the following people for YOUR OWN HEALTH in the LAST 12 MONTHS?** *(Mark all that apply)*

		Yes
a	A physiotherapist	☐
b	A podiatrist or chiropodist	☐
c	An occupational therapist	☐
d	None of these people	☐

6. **Which of the following types of cover do you have for health services (excluding your Medicare card):** *(Mark all that apply)*

		Yes
a	Private health insurance for hospital cover	☐
b	Private health insurance for ancillary services / extras cover (eg dental, physiotherapy)	☐
c	Department of Veterans' Affairs Gold Card	☐
d	Department of Veterans' Affairs White Card	☐
e	Commonwealth Seniors Health Card	☐
f	Pensioner Concession Card	☐
g	None of these	☐

The questions on this page ask only about NOW – how your health is NOW and about how your health limits certain activities NOW.

7. In general, would you say your health is *(Mark one only)*

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor

8. Compared to one year ago, how would you rate your health in general now? *(Mark one only)*

- ☐ Much better now than one year ago
- ☐ Somewhat better now than one year ago
- ☐ About the same as one year ago
- ☐ Somewhat worse now than one year ago
- ☐ Much worse now than one year ago

9. The following questions are about activities you might do during a typical day. Does YOUR HEALTH NOW LIMIT YOU in these activities? If so, how much? *(Mark one on each line)*

		Yes, limited a lot	Yes, limited a little	No, not limited at all
a	VIGOROUS ACTIVITIES, such as running, lifting heavy objects, participating in strenuous sports	☐	☐	☐
b	MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	☐	☐	☐
c	Lifting or carrying groceries	☐	☐	☐
d	Climbing SEVERAL flights of stairs	☐	☐	☐
e	Climbing ONE flight of stairs	☐	☐	☐
f	Bending, kneeling or stooping	☐	☐	☐
g	Walking MORE THAN ONE kilometre	☐	☐	☐
h	Walking HALF a kilometre	☐	☐	☐
i	Walking 100 metres	☐	☐	☐
j	Bathing or dressing yourself	☐	☐	☐

■

10. During the PAST 4 WEEKS, have you had any of the following problems with your work (including your work outside the home and housework) or other regular daily activities AS A RESULT OF YOUR PHYSICAL HEALTH? *(Mark one on each line)*

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	☐	☐
b	Accomplished less than you would like	☐	☐
c	Were limited in the kind of work or other activities	☐	☐
d	Had difficulty performing the work or other activities (for example it took extra effort)	☐	☐

11. During the PAST 4 WEEKS, have you had any of the following problems with your work or other regular daily activities AS A RESULT OF ANY EMOTIONAL PROBLEMS (such as feeling depressed or anxious)? *(Mark one on each line)*

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	☐	☐
b	Accomplished less than you would like	☐	☐
c	Didn't do work or other activities as carefully as usual	☐	☐

12. During the PAST 4 WEEKS, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours or groups? *(Mark one only)*

Not at all	Slightly	Moderately	Quite a bit	Extremely
☐	☐	☐	☐	☐

13. How much BODILY pain have you had during the PAST 4 WEEKS? *(Mark one only)*

No bodily pain	Very mild	Mild	Moderate	Severe	Very severe
☐	☐	☐	☐	☐	☐

14. During the PAST 4 WEEKS, how much did PAIN interfere with your normal work (including both work outside the home and housework)? *(Mark one only)*

Not at all	A little bit	Moderately	Quite a bit	Extremely
☐	☐	☐	☐	☐

15. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the PAST 4 WEEKS:
(Mark one on each line)

		All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a	Did you feel full of life?	☐	☐	☐	☐	☐	☐
b	Have you been a very nervous person?	☐	☐	☐	☐	☐	☐
c	Have you felt so down in the dumps that nothing could cheer you up?	☐	☐	☐	☐	☐	☐
d	Have you felt calm and peaceful?	☐	☐	☐	☐	☐	☐
e	Did you have a lot of energy?	☐	☐	☐	☐	☐	☐
f	Have you felt down?	☐	☐	☐	☐	☐	☐
g	Did you feel worn out?	☐	☐	☐	☐	☐	☐
h	Have you been a happy person?	☐	☐	☐	☐	☐	☐
i	Did you feel tired?	☐	☐	☐	☐	☐	☐

16. During the PAST 4 WEEKS, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities (like visiting friends, relatives, etc)? *(Mark one only)*

All of the time	Most of the time	Some of the time	A little of the time	None of the time
☐	☐	☐	☐	☐

17. How TRUE or FALSE is EACH of the following statements for you?
(Mark one on each line)

		Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a	I seem to get sick a little easier than other people	☐	☐	☐	☐	☐
b	I am as healthy as anybody I know	☐	☐	☐	☐	☐
c	I expect my health to get worse	☐	☐	☐	☐	☐
d	My health is excellent	☐	☐	☐	☐	☐

18. How tall are you without shoes? ☐☐☐ cms **OR** ☐ ft ☐☐ ins

19. How much do you weigh without clothes or shoes?

☐☐☐ kgs **OR** ☐☐ stones ☐☐ pounds

20. Do you have any of these sleeping problems?
(Mark all that apply)

		Yes
a	Waking up in the early hours of the morning	☐
b	Lying awake for most of the night	☐
c	Taking a long time to get to sleep	☐
d	Worry keeping you awake at night	☐
e	Sleeping badly at night	☐
f	None of these problems	☐

21. Do you have: *(Mark all that apply)*

		Yes
a	Difficulty seeing newspaper print, even with glasses?	☐
b	Difficulty recognising people across the road, even with glasses?	☐
c	Difficulty in hearing a conversation, even with a hearing aid?	☐
d	Difficulty speaking?	☐
e	None of the above?	☐

22. What is your date of birth? *(Please write date in boxes)*

Day	Month	19	Year
☐☐	☐☐		☐☐

23. Have you had any of the following problems in the LAST 12 MONTHS?
(Mark one on each line)

		Never	Rarely	Some-times	Often
a	Stiff or painful joints	☐	☐	☐	☐
b	Back pain	☐	☐	☐	☐
c	Problems with one or both feet	☐	☐	☐	☐
d	Breathing difficulty	☐	☐	☐	☐
e	Indigestion / heartburn	☐	☐	☐	☐
f	Chest pain	☐	☐	☐	☐
g	Urine that burns or stings	☐	☐	☐	☐
h	Passing urine more than twice during the night	☐	☐	☐	☐
i	Leaking urine	☐	☐	☐	☐
j	Constipation	☐	☐	☐	☐
k	Poor memory	☐	☐	☐	☐
l	Dizziness, loss of balance	☐	☐	☐	☐
m	Difficulty swallowing	☐	☐	☐	☐
n	Problems with teeth or gums	☐	☐	☐	☐
o	Anxiety / panic attacks	☐	☐	☐	☐

24. When you get your medication from the pharmacy is it:
(Mark all that apply)

		Yes
a	Still in its original individual containers?	☐
b	Already prepared into your daily doses?	☐
c	Packaged another way? *(Please write on the line)*	☐
	.....	
d	I do not take medication	☐

25. Do you experience a strong feeling of urgency to empty your bladder? *(Mark one only)*

- ☐ No
- ☐ Yes →

How much are you bothered by this? *(Mark one only)*

- ☐ Not at all
- ☐ Slightly
- ☐ Moderately
- ☐ Greatly

26. Do you leak when you cough or sneeze or during physical activities? *(Mark one only)*

- ☐ No
- ☐ Yes →

How much are you bothered by this? *(Mark one only)*

- ☐ Not at all
- ☐ Slightly
- ☐ Moderately
- ☐ Greatly

27. Do you ever leak even small amounts (drops) of urine? *(Mark one only)*

- ☐ No
- ☐ Yes →

How much are you bothered by this? *(Mark one only)*

- ☐ Not at all
- ☐ Slightly
- ☐ Moderately
- ☐ Greatly

28. How often do you experience urine leakage? *(Mark one only)*

- ☐ Never
- ☐ Less than once a month
- ☐ One or several times a month
- ☐ One or several times a week
- ☐ Every day and / or night →

How much urine do you lose each time? *(Mark one only)*

- ☐ Drops or little
- ☐ More than drops

29. In the past four weeks have you had to change your underwear due to leaking stool (faeces)? *(Mark one only)*

- ☐ Yes
- ☐ No

30. Compared with when you were in your twenties, how good are you at: *(Mark one on each line)*

		Much better now	Some-what better now	About the same	Some-what worse now	Much worse now
a	Remembering the name of a person just introduced to you?	☐	☐	☐	☐	☐
b	Recalling telephone numbers or other numbers that you use on a daily or weekly basis?	☐	☐	☐	☐	☐
c	Recalling where you put objects (such as keys) in your home?	☐	☐	☐	☐	☐
d	Remembering specific facts from a newspaper or magazine article you have just finished reading?	☐	☐	☐	☐	☐
e	Remembering the item(s) you intend to buy when you arrive at the shops?	☐	☐	☐	☐	☐
f	In general, how would you describe your memory compared to when you were in your twenties?	☐	☐	☐	☐	☐

31. In the LAST 12 MONTHS, have you: *(Mark all that apply)*

		Yes
a	Slipped, tripped, or stumbled? (not including falls to the ground)	☐
b	Had a fall to the ground? (does *not* include stumbles / trips)	☐
c	Been injured as a result of a fall?	☐
d	Needed to seek medical attention (eg doctor, hospital) for an injury from a fall?	☐
e	Had any other injury from an accident at your home? (eg burns, cuts, bruises)	☐
f	Broken or fractured any bone/s?	☐
g	None of these	☐

32. In our last survey, we asked about major events you had experienced. This question is about events you may have experienced in the LAST THREE YEARS. *(Mark all that apply)*

		Yes
a	Major personal illness or injury	☐
b	Major surgery (not including dental work)	☐
c	Major decline in health of spouse or partner	☐
d	Death of spouse or partner	☐
e	Death of your child	☐
f	Major decline in health of other close family member or friend	☐
g	Death of other close family member or friend	☐
h	Decreased income	☐
i	Moving house	☐
j	Being robbed	☐
k	Moving into hostel / institution	☐
l	Spouse / partner moving into hostel / institution	☐
m	Been pushed, grabbed, shoved, kicked or hit	☐
n	None of these events	☐

You are half way through. Time for a cuppa?

The following section asks more questions about your health and your community.

Often, there are no 'right' or 'wrong' answers – we are interested only in your opinion or feelings.

If you feel uncomfortable about answering a question, just leave it and go on to the next one, but please try to finish the survey if you can.

These questions are about the amount of physical activity you did LAST WEEK.

33. How many *times* did you do each type of activity LAST WEEK?
*Only count the number of times when the activity lasted for 10 minutes or more. (If you did **not** do an activity, please write "0" in the box)*

a	**Walking briskly** (for recreation or exercise, or to get from place to place)	☐☐ times
b	**Moderate leisure activity** (like social tennis, golf, bowls, recreational swimming, dancing)	☐☐ times
c	**More vigorous leisure activity** (that makes you breathe harder or puff and pant)	☐☐ times
d	**Vigorous household or garden chores** (that make you breathe harder or puff and pant)	☐☐ times

34. If you add up all the times you spent in each activity LAST WEEK, how much time did you spend ALTOGETHER doing each type of activity?
*(If you did **not** do an activity, please write "0" in the box)*

a	**Walking briskly** (for recreation or exercise, or to get from place to place)	☐☐ hours	☐☐ minutes
b	**Moderate leisure activity** (like social tennis, golf, bowls, recreational swimming, dancing)	☐☐ hours	☐☐ minutes
c	**More vigorous leisure activity** (that makes you breathe harder or puff and pant)	☐☐ hours	☐☐ minutes
d	**Vigorous household or garden chores** (that make you breathe harder or puff and pant)	☐☐ hours	☐☐ minutes

■

35. How many serves of vegetables do you usually eat each day?
(Mark one only)

A serve = half a cup of cooked vegetables or a cup of salad vegetables

None	1 serve	2-3 serves	4 serves	5 serves or more
☐	☐	☐	☐	☐

36. How many serves of fruit do you usually eat each day?
(Mark one only)

A serve = one medium piece or two small pieces of fruit or one cup of diced pieces

None	1 serve	2-3 serves	4 serves	5 serves or more
☐	☐	☐	☐	☐

37. How many glasses / cups of non-alcoholic drinks do you usually have each day (eg juice, tea, coffee, water, milk etc)?
(Mark one only)

0-2 glasses	3-5 glasses	6-8 glasses	9 or more glasses
☐	☐	☐	☐

38. Which of the following groups have you sought advice or help from in the LAST 6 MONTHS? *(Mark all that apply)*

		Yes
a	Food services (eg Meals on Wheels)	☐
b	Nursing or community health services	☐
c	Respite services (in home, day centre, or inpatient)	☐
d	Homemaking services (eg home care services, laundry services)	☐
e	Home maintenance services (eg odd jobs, gardening)	☐
f	Counselling or other mental health services	☐
g	Ambulance service	☐
h	Support and advisory groups (eg Arthritis Foundation, Pensioner Advisory Service, Older Women's Network)	☐
i	None of these groups	☐

39. What is your main (or most common) means of transport?
(Mark one only)

- Car (you drive) ☐
- Car (someone else drives) ☐
- Taxi ☐
- Bus ☐
- Train or tram ☐
- Other ☐

40. Do you use any aids for getting around?
(Mark all that apply)

		Yes
a	Motorised scooter	☐
b	Wheelchair (motorised or not)	☐
c	Walking frame	☐
d	Walking stick / podstick / pylon	☐
e	Four point stick / quad stick	☐
f	Crutch or crutches	☐
g	Other *(Please write on the line)*	☐
	.....	
h	I do not use any aids for getting around	☐

41. Do you have a problem with transport?
(Mark one on each line)

		Yes	No
a	Getting to places at night	☐	☐
b	Getting to local shops and services	☐	☐
c	Getting beyond your local neighbourhood	☐	☐

42. Do you regularly NEED help with daily tasks because of long-term illness, disability or frailty (eg personal care, getting around, preparing meals etc)? *(Mark one only)*

Yes ☐
No ☐

43. In the last month HAVE YOU HAD ANY DIFFICULTY (for example, needing to take extra time, changing the activity or using a device to help you) in completing any of these activities?
(Mark one on each line)

		No difficulty	Some difficulty	Unable to do
a	Grooming (eg brushing hair, applying make-up)	☐	☐	☐
b	Eating (eg cutting meat, lifting glass or cup, opening milk carton)	☐	☐	☐
c	Bathing or taking a shower	☐	☐	☐
d	Dressing your upper body	☐	☐	☐
e	Dressing your lower body	☐	☐	☐
f	Getting up from a chair	☐	☐	☐
g	Walking inside the house	☐	☐	☐
h	Using the toilet	☐	☐	☐
i	Shopping for personal items or groceries	☐	☐	☐
j	Doing light housework (eg cleaning, washing-up)	☐	☐	☐
k	Doing heavy housework (eg vacuuming, yard work)	☐	☐	☐
l	Managing money (eg writing cheques or keeping accounts)	☐	☐	☐
m	Preparing meals	☐	☐	☐
n	Taking medications	☐	☐	☐
o	Using the telephone	☐	☐	☐
p	Doing leisure activities or hobbies	☐	☐	☐

44. In the last month have you needed HELP FROM ANOTHER PERSON to carry out any of these activities?

(Mark one on each line)

		Yes	No
a	Grooming (eg brushing hair, applying make-up)	☐	☐
b	Eating (eg cutting meat, lifting glass or cup, opening milk carton)	☐	☐
c	Bathing or taking a shower	☐	☐
d	Dressing your upper body	☐	☐
e	Dressing your lower body	☐	☐
f	Getting up from a chair	☐	☐
g	Walking inside the house	☐	☐
h	Using the toilet	☐	☐
i	Shopping for personal items or groceries	☐	☐
j	Doing light housework (eg cleaning, washing-up)	☐	☐
k	Doing heavy housework (eg vacuuming, yard work)	☐	☐
l	Managing money (eg writing cheques or keeping accounts)	☐	☐
m	Preparing meals	☐	☐
n	Taking medications	☐	☐
o	Using the telephone	☐	☐
p	Doing leisure activities or hobbies	☐	☐

women's health is about your home and neighbourhood

45. a **What is your RESIDENTIAL postcode?** (where you live) | | | | |

b **What is the postcode of your POSTAL ADDRESS?** (if different from residential) | | | | |

46. Which of the following best describes your housing situation? Do you live in:

(Mark one only)

- A house ☐
- A flat / unit / apartment / villa / townhouse ☐
- Mobile home / caravan / cabin / houseboat ☐
- Retirement village / self care unit ☐
- Nursing Home ☐
- Hostel ☐
- Other ☐

47. Who lives with you?

(Mark all that apply)

- **a** No one, I live alone ☐
- **b** Spouse or partner ☐
- **c** Own children ☐
- **d** Other family members ☐
- **e** Non-family members ☐

48. Do you do any volunteer work for any community or social organisations (eg fundraising, community welfare, church activities, organising groups or classes)?

(Mark one only)

- Every day ☐
- Every week ☐
- Every month ☐
- Less than once a month ☐
- Not at all ☐

49. How do you manage on the income you have available?
(Mark one only)

- It is impossible ☐
- It is difficult all the time ☐
- It is difficult some of the time ☐
- It is not too bad ☐
- It is easy ☐

50. What is your PRESENT marital status?
(Mark one only)

- Married ☐
- De facto (in a relationship) ☐
- Widowed ☐
- Separated ☐
- Divorced ☐
- Never married ☐

51. In the past three years have you been widowed?
(Mark one only)

- Yes ☐
- No ☐

52. Do you regularly PROVIDE care or assistance (eg personal care, transport) to any other person because of their long-term illness, disability or frailty? *(Mark all that apply)*

a	Yes, for someone who lives with me ☐
b	Yes, for someone who lives elsewhere ☐
c	No, I do not provide care ☐

53. Do you regularly provide (unpaid) care for grandchildren or other people's children?
(Mark one only)

- Yes, daily ☐
- Yes, weekly ☐
- Yes, occasionally ☐
- No, never ☐

54. The following questions are about the support you receive from other people. *(Mark one on each line)*

		Often	Some-times	Never
a	How often do your children, spouse or relatives make you feel loved and cared for?	☐	☐	☐
b	How often do your friends make you feel loved and cared for?	☐	☐	☐
c	How often do you feel that your children, spouse or relatives listen to your worries?	☐	☐	☐
d	How often do you feel that your friends listen to your worries?	☐	☐	☐
e	How often can you count on your children, spouse or relatives to help with daily tasks like giving you a lift, shopping, or helping with household chores?	☐	☐	☐
f	How often can you count on your friends to help with daily tasks like giving you a lift, shopping or helping with household chores?	☐	☐	☐
g	How often do your children, spouse or relatives give you advice or information about medical, financial, or family problems?	☐	☐	☐
h	How often do your friends give you advice or information about medical, financial, or family problems?	☐	☐	☐

55. How often have you experienced the following events? *(Mark one on each line)*

		Never	Once	More than once
a	I was ignored or not taken seriously because of my age	☐	☐	☐
b	I was patronised or "talked down to" because of my age	☐	☐	☐
c	I was denied medical treatment because of my age	☐	☐	☐

56. These questions are about getting on with other people:
(Mark all that apply)

		Yes
a	Are you sad or lonely often?	☐
b	Do you feel uncomfortable with anyone in your family?	☐
c	Do you feel that nobody wants you around?	☐
d	Has anyone close to you tried to hurt you or harm you recently?	☐
e	Has anyone close to you called you names or put you down or made you feel bad recently?	☐
f	Are you afraid of anyone in your family?	☐
g	None of the above	☐

57. In the past month, have you: *(Mark one on each line)*

		Yes	No
a	Gone to the movies, theatre, concerts, lectures?	☐	☐
b	Gone to a sporting event?	☐	☐
c	Played cards, bingo, pool, or some other game?	☐	☐
d	Eaten out at a restaurant?	☐	☐
e	Attended a religious service?	☐	☐
f	Attended a class or course?	☐	☐
g	Used a computer / internet?	☐	☐

58. In the past month, what activities have you done? Have you:
(Mark one on each line)

		Yes	No
a	Taken care of houseplants or done any outdoor gardening?	☐	☐
b	Worked on a hobby or handiwork, like sewing, knitting or woodworking?	☐	☐
c	Painted pictures or played a musical instrument?	☐	☐
d	Exercised with a group (eg yoga, walking, aqua-aerobics)?	☐	☐
e	Written letters, poetry etc, read, did crosswords etc?	☐	☐
f	Done any paid work?	☐	☐
g	Other *(Please write on the line)*	☐	☐

.....

59. Did someone help you fill in this survey? *(Mark one only)*

No ☐

Yes, but I told them the answers I wanted ☐

Yes, but the helper answered for me using his / her own judgement ☐

60. What was the MAIN reason for your needing help to fill in this survey?
(Please describe)

.....

Have we missed anything?

In our last survey, thousands of women told us important things about their health and use of health services. If there is ANYTHING else you would like to tell us about changes in your health (especially in the LAST 3 YEARS) please write on the lines below.

Thank you for taking the time to complete this survey

If you are concerned about any of your health experiences and would like some help, please contact:

- Your nearest Women's health centre or community health centre.
- Your general practitioner for advice about who would be the best person in your community for you to talk to.

If you feel distressed NOW and would like someone to talk to, you could ring Lifeline on 13 1114 (local call).

Consent

I agree to the research team following health and other records relating to me, including hospital and health service use records and cancer registers and other chronic conditions registers as described to me in the accompanying letter. I also understand this means I agree to Medicare releasing information concerning services provided to me under Medicare, the Department of Veterans' Affairs, the Pharmaceutical Benefits Scheme and the Repatriation Pharmaceutical Benefits Scheme, including past information, until the end of the study or for the duration of my involvement in the study, as outlined in the enclosed letter.

(Mark one only)

Yes ☐ **No** ☐

Please sign below and send the completed survey back to us in the envelope supplied as soon as possible. We will detach the consent form and store it in a separate locked room.

I consent to the researchers 'matching' the information provided in this survey with that given in the previous surveys so that any changes in my health can be noted.

Signature: _____ **Date:** / /

What is your Maiden Name? *(Please print in the boxes)*

Help us keep in touch!

We plan to survey women in your age group again in three years' time. Sometimes we lose touch with participants. It would be helpful if you could give us details of a relative or friend who will be able to help us find you.

Name:

Address:

Postcode:

Phone: (home) ( ) **Relationship to you:**

Thank you for taking the time to complete this survey

You are a valuable contributor to women's health research

If you have any questions you can contact us by telephoning

1800 068 081

(FREECALL)

or writing to us at the address below.

No stamp required
if posted in Australia

Women's Health Australia
Reply Paid 70
Hunter Region MC
NSW 2310

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

Australian Longitudinal Study on Women's Health

The University of Newcastle, Callaghan NSW 2308.
Phone: 02 4923 6872 Fax: 02 4923 6888 Email: whasec@newcastle.edu.au
Web: http://www.alswh.org.au

Postal Address:
Women's Health Australia
Reply Paid 70
Hunter Region MC NSW 2310

women's health australia

Ph: 1800 068 081
Email: whasec@newcastle.edu.au
Web: www.alswh.org.au

Title Firstname Surname ID
Preaddress
Address
Town State Postcode

Dear Title Surname Date

Thank you for your help with the Women's Health Australia project. In 1995 you were invited to participate as one of our "pilot" respondents. We've asked you several times now to help us by completing a draft version of the survey that goes to over 7,000 women in your age group across Australia. We use your answers to the questions, and your comments about the survey to make improvements before sending it out to the entire group. Your help and feedback have played a major role in the success of the project so far.

We intend to survey women in your age group for the fifth time during 2008. Once again we would appreciate your help in developing the questions for that survey. If you are willing to help, please fill out the enclosed survey and return it to us in the envelope provided. Please complete the enclosed Evaluation Form and return it with your survey. Please call 1800 068 081 if you have any questions.

An important aspect of this Study is the observation of your health over time and the linking of information you have given us in questionnaires with a number of other sources of information about your past, current and future health, medication, treatment and use of health services.

For example:

Health Services Records
- *Hospital and pathology records*
- *Ambulance services data*
- *Aged care data (including Home and Community Care data)*
- *Breast, cervical and bowel cancer screening records*

Chronic Conditions Registers
- *Cancer registers*
- *Diabetes registers*
- *Dialysis and transplant registers*
- *Disability information*
- *Infectious diseases notifications*

PTO

As part of this process, we would like to link your survey data with data collected by Medicare (ie Medicare, Health and Department of Veterans' Affairs data, Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme data). Again, any information used from these data sources will be treated completely confidentially and used for health research only. If you agree to take part in this aspect of the project, please tick the 'yes' box on the last page (23) of the enclosed survey. If you would rather not take part in this aspect of the project, simply tick 'no'. Your decision about taking part in the data linkage is entirely up to you, and your decision will not affect your participation in the Women's Health Australia project.

Your continuing participation in this project is, of course, voluntary, and we very much appreciate your contribution. However, if at any time you would like to discontinue your involvement, please telephone or write to us. If we do not hear otherwise, we will continue to include you in the project.

Thank you again for all your help, we hope to hear from you soon.

Yours sincerely

Professor Annette Dobson
Project Director

If you have any complaints about this project and would prefer to discuss these with an independent person, you should feel free to contact the University of Newcastle's Human Research Ethics Officer (02) 4921 6333 or write to them at the University of Newcastle, University Drive, Callaghan, NSW, 2308. You could also contact the University of Queensland's Human Research Ethics Officer on (07) 3365 3924 or write to them at the University of Queensland, St Lucia, QLD, 4072. The proposed research using Medicare information will be conducted in accordance with relevant privacy requirements and other legislation protecting this information and is subject to final approval being granted by government and university ethics committees.

The Australian Electoral Commission (AEC) has supplied name, address, gender and age-range information for this medical research study in conformity with Item 2 of subsection 90B(4) of the Commonwealth Electoral Act 1918 and subregulation 9(a) of the Electoral and Referendum Regulations 1940. The information has been provided by the AEC on a confidential basis and will not be forwarded on or sold or otherwise disclosed or used for any purpose other than to contact participants for this medical research project.

women's health australia

As outlined in the letter accompanying this survey, you are one of our pilot group.
As well as completing the survey, we would like to know what you think of it.
We may make changes before sending it to others in your age group in 2008.
Please help by answering the questions below.

1. Were there any questions you found difficult to understand? Yes / No
   If Yes, which questions were they and why?

_____

_____

_____

_____

2. Were there any questions you didn't want to answer? Yes / No
   If Yes, which questions were they and why?

_____

_____

_____

_____

3. Were there any questions you found too personal or not relevant? Yes / No
   If Yes, which questions were they and why?

_____

_____

_____

_____

Please turn over ➔

4. Would you be willing to complete the survey online (on the internet) in the future?

Yes / No

5. Would you prefer to do the survey over the telephone?

Yes / No

Why?

_____

_____

_____

_____

6 Do you have any other comments about the survey wording, layout or anything else?

_____

_____

_____

_____

_____

_____

_____

_____

Your feedback will help us improve the survey.
Thank you for taking the time to complete this evaluation sheet.

You are a unique and irreplaceable participant in the Women's Health Australia project.

We recently sent you a survey but have not heard back from you.

If you don't have a survey please contact us:

Freecall 1800 068 081

Email whasec@newcastle.edu.au

women's health australia

Did you know that...

68% of older women say they are as healthy as anyone they know

55% of women in your age group regularly work on hobbies such as handicrafts, knitting or woodwork

83% of older women regularly write letters, or read, or do crosswords

Freecall number 1800 068 081

Email whasec@newcastle.edu.au

Website www.alswh.org.au

Address Reply Paid 70,
Hunter Region MC
NSW 2310

Thank you

We have received your completed survey.

Congratulations on your ongoing commitment to the Women's Health Australia project. With your help we have provided accurate information to the government about the health needs of women across Australia.

women's health australia

Did you know that...

19% of older women regularly participate in group activities such as yoga, walking or aqua-aerobics

27% of women in your age group provide care for someone who is ill or disabled

84% of older women regularly take care of houseplants or do outdoor gardening

Freecall number 1800 068 081

Email whasec@newcastle.edu.au

Website www.alswh.org.au

Address Reply Paid 70,
Hunter Region MC
NSW 2310

women's health australia

No stamp required
if posted in Australia

Women's Health Australia
Reply Paid 70
HUNTER REGION MC NSW 2310

HAVE YOUR DETAILS CHANGED?

If you have changed your name, address or telephone number, please advise us of your new details by calling FREECALL 1800 068 081 or by completing and returning this card.

New Title_____First Name_____Middle Name(s)_____
(if changed)

Surname_____Previous Surname_____
(if changed)

Address_____

Suburb_____State_____Postcode_____

Ph(home) (__ __) __ __ __ __ __ __ __ __ Ph(work) (__ __) __ __ __ __ __ __ __ __

Ph(mobile) __ __ __ __ __ __ __ __ __ __

Email_____

ID Number __ __ __ – __ __ __ __ __ – __

Please keep this card in a safe place until you need to contact us.
Your ID number is located on the survey and letter.

Change Made 9.24am - Friday03/02/2006

10.4 Appendix 4. 2007 Participant newsletter

Newsletter 2007

women's health australia

IN THIS ISSUE:

2 Complementary & alternative medicine
Changes in living conditions

3 Caring for carers
Paid work and Mid-age women

4 Experiencing widowhood
Older women as volunteers

5 Medicare information

6 Our 'how to' book
The Men, Women and Ageing study

Current events

The research team would like to take this opportunity to thank each participant for her commitment to the Women's Health Australia project. Your ongoing participation over the years has helped us to inform governments and other agencies about the health needs of all Australian women.

This year the women in the mid-age group have completed their fifth major survey. There has been a great response to this survey, thank you to everyone for taking the time to complete it. If you are in this age group and have not received the survey, please email us at *whasec@newcastle.edu.au* or phone our Freecall number 1800 068 081.

Early in the year the project received extensive media coverage generated by the release of a report to the Australian government on the incidence of chronic illness in Australian women. The research team also recently prepared a report to the Australian government on women and their weight. The findings from these reports and other publications, including reports to federal and state governments and articles published in scientific journals, can be found on our website at *www.alswh.org.au*

We hope you enjoy reading this edition of our newsletter.

A special thank you

Each year some participants are invited to take part in additional surveys. The research team would like to say a special thank you to participants who completed extra surveys this year. The topics covered included:

- a mailed survey about retirement plans that was sent to some participants in the mid-age group
- a mailed survey, followed by a phone interview, that were completed by 259 participants in the older age group
- a mailed survey about caring that was completed by 298 participants from the mid-age group

Fifth major survey for women aged 82 - 87

In March 2008, the women in the older age group will be invited to take part in their fifth major survey for the project. If you are in this age group and have any changes to your address details please let us know. You may use the enclosed change of address card, phone our Freecall number 1800 068 081, or email us at *whasec@newcastle.edu.au*

Women's Health Australia is a non-commerical research project funded by the Australian Government Department of Health and Ageing and has no connection or association with a Pacific Publications (Rodale International) magazine publication called "Australian Women's Health".

Younger

Complementary & Alternative Medicine

Women are major consumers of Complementary and Alternative Medicines (CAMs). Recent research from the Women's Health Australia project indicated that over 20% of the younger women have used yoga or meditation in the last twelve months. A similar number has used aromatherapy oils and prayer or spiritual healing. In the past twelve months 66% had taken vitamins and or minerals, 19% had used herbal medicines and 5% had used Chinese medicines.

Younger women also reported consultations with alternative health practitioners over the past twelve months. Over 38% reported consulting a massage therapist, 14% had been to a chiropractor and 9% had consulted an aromatherapist. Just over 7% had consulted an acupuncturist and 13% had been to a naturopath / herbalist.

The research team has already published some scientific papers on the use of these therapies by mid-age women and the results have shown some interesting differences between users and non-users. For instance, CAM users were more likely than CAM non-users to reside in non-urban areas, to report poorer health, have more symptoms and illness and be higher users of conventional health services.

Given the potential for complementary and alternative medicines to interact with prescription medication, it is important that women discuss their CAM use with all of their health care providers. The research team plans to undertake further research into this topic with the data from the younger age group.

Lifestyle and Diversity

The Women's Health Australia project has found that young Australian women's lives are far more diverse than has ever been the case. Social and demographic changes have resulted in an extended period of exploration and change in which many women move in and out of study and work. Many women choose marriage and motherhood, but cohabitation, unpartnered parenthood and other non-traditional lifestyles are far more common than in previous generations.

In 2006, 53% of the younger women taking part in the survey were married, 18% were living in a de facto relationship, 4% were separated, widowed or divorced and 23% had never been married.

Many younger women are travelling overseas. In 2005 32% of the women who completed the survey had spent time overseas. Of those, 25% had spent more than 2 months out of Australia.

Around one in four of the younger women felt rushed, pressured or too busy every day and half said they never had time on their hands that they didn't know what to do with. Although they are busy, the majority of the younger women appear to be satisfied with most aspects of their lives, with well over 80% expressing satisfaction with work, career, study, family and close personal relationships. The future is looking good for younger women as 78% believe that what they are doing is worthwhile and 76% feel confident about whatever the future may bring.

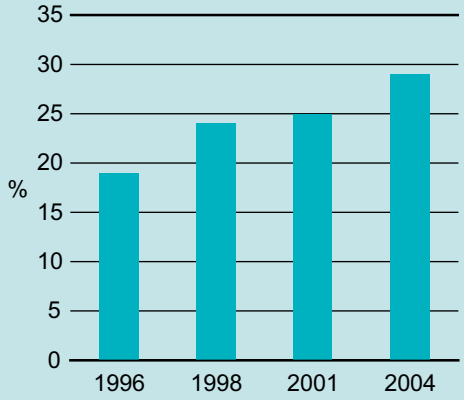
Did you know?

At Survey 3, around a quarter of younger women on the oral contraceptive pill had been using this method for 10 years or more. After adjusting for other factors, no association was found between the use of the pill and symptoms of depression.

Mid-age

Caring for carers

Over the course of the Women's Health Australia project, the number of mid-aged women who care for others has increased. As can be seen on the graph, in 2004 around a quarter of mid-aged women were involved in caring for someone who was frail, ill or disabled. Caring impacts on many facets of the lives of carers and the research team has been undertaking an in depth look at some of these issues.



Percentage of mid-aged women caring for someone of each survey.

To date, results have indicated that women who provide regular care are in poorer health than women who do not provide regular care. Furthermore, compared to non-carers, carers are less economically advantaged. The results from this research also suggest that caring has an impact on the workforce participation of mid-aged women. When mid-aged women commence caring they tend to reduce their participation in the paid workforce. When women cease their caring role, while some return to their former levels of employment, many decrease their work hours. It would also seem that caring for others may accelerate mid-aged women's departure from the workforce.

Some women care for someone with a long term disability, illness or frailty over many years, but for many women their caring role is transitory and may change over time. It is important for policy makers to understand how long and short term caring affects the lives of women. The research team has recently provided a report to the Australian Government on the topic of caring.

Paid work and Mid-age women

As the mid-aged women approach what has traditionally been thought of as the "age of retirement" participants may have observed an increasing number of questions in the surveys about retirement. Mid-aged women now play a larger role in the labour force than ever before and little is known about their plans for retirement.

The results from the WHA project show the increasing role of paid work in mid-aged women's lives. Almost 30% of participants in the mid-age group increased their hours of work between Survey 1 in 1996 and Survey 4 in 2004.

In 2004, 65% of the women then aged 53-58 said that they were not retired, just over 10% had partially retired and about 20% had completely retired. Women who were separated or divorced at that time were less likely to have retired than women who were widowed or married. Compared with women who were not retired, women who were still working were more likely to have more qualifications and to have dependent children living at home. Survey results have shown that making decisions about retirement depends on several factors including health status, retirement of a partner and a need to care for others.

WHA survey results have indicated close links between paid work and women's health. Mid-aged women who were always in paid work between 1996 and 2004 had better physical and mental health scores than other women. However many women commented on the detrimental impact that working long hours and physical labour can have on physical and mental health.

Older

Experiencing widowhood

Women's Health Australia recognises the importance of research into widowhood. Earlier in the project the research team invited women who had experienced the recent death of a partner to complete an additional survey. After the death of a partner, women face many challenges including grief, loss, and overwhelming changes in financial, housing and social circumstances. It is a period of time where women might draw heavily on their resilience and the support and strengths of family and friends.

Women described the period following the death of their partner as a time of shock and bewilderment and noted that it takes time to re-establish a life. Results from the survey confirmed these statements: in the first twelve months following the death of a partner, women scored lower on physical and mental health measures than women who were married. However, women who had been widowed for 12 months had similar health to that of married women. Many women wrote of the following years as being characterised by positive change and a sense of the future.

"For the last few years I have cared for my husband. After years of marriage I lost him a few months ago. I am so lonely now but I see other widows and they are coping. I know I must be able to in time."

For many newly widowed women, social relationships and support from friends and family were integral to their recovery. A common thread was the need to keep busy, and several women wrote of experiencing "good days and bad days".

The women who have participated in our studies have provided valuable insights into their lives after the death of their partners.

Older women as volunteers

Volunteering is a very important aspect in many women's lives. At survey four of the older age group, then aged 79-84 years, 40% of women indicated that they had undertaken some voluntary work. Around half of those women volunteered on a weekly basis.

On the back page of the survey many women took the opportunity to mention what type of voluntary work they undertook. The activities covered a very wide range and included working in opportunity shops, undertaking bush regeneration, delivering meals on wheels, providing administrative support for organisations such as sporting clubs and ex-service organisations, and making craft for church and charity organisations to sell. Women in this age group also teach subjects such as tai chi, computer skills, arts and crafts, English as a second language and tutor in foreign languages.

Volunteering was frequently described as an opportunity to receive, as well as give social support to others. Being useful to the community appears to play a significant role in the promotion of physical and mental well-being. Many women commented that undertaking voluntary work made them feel useful to their communities. Several women living in retirement villages were volunteering within their villages, in libraries and kiosks, as craft teachers and assisting occupational therapists with daily therapies.

WHA research is underscoring the important role that older volunteers play in our community.

Putting information together to improve health and health care services for Australian women

Background

You may remember that during this project we have asked you for permission to receive details from Medicare Australia about your use of Medicare-funded health services. By putting the Medicare data together with the survey data, we have looked at general patterns of use of health services, particularly general practitioner and specialist consultations. Having these data has helped us to write reports about women's access to health services and particularly about how much the services cost according to where women live around the country. These reports have been provided to the government to help improve services for women.

What's new?

Following discussion with Medicare Australia, information held by them may be regularly provided to the research team from 2005 without you needing to consent every time. Other information such as birth and death records, disease registers and hospital discharge records may also be available subject to strict privacy and confidentiality rules. Names and addresses are not included with the information. The project staff analysing these datasets and the survey data have signed confidentiality statements and they have no information in the datasets that could identify an individual person. This research is conducted in accordance with relevant privacy requirements and other legislation protecting this information and is subject to final approval being granted by government and university ethics committees.

What happens next?

You do not need to do anything. However if you have any questions about this process or if you need more information, please call the Freecall number and we will send you a more detailed information sheet. If you have concerns about this new method of data collection, you can opt out of this by phoning the Freecall number 1800 068 081. We will provide updates in future newsletters about our progress and findings and how this research will benefit the health of women now and in the future.

If you have any concerns about this project, and would prefer to discuss these with an independent person, you should feel free to contact the University of Newcastle's Human Research Ethics Officer on (02) 4921 6333 or write to them at Research Branch, The University of Newcastle, University Drive, Callaghan NSW 2308. You could also contact the University of Queensland's Human Research Ethics Officer on (07) 3365 3924 or write to them at the University of Queensland, St Lucia QLD 4072.

Did you know?

We analyse information about medications that you provide on the survey as well as information that is provided by the PBS. Those two sources of information allow us to examine the types of medicine women are using. The PBS data does not provide information about medications that can be bought over-the-counter or that are used as needed – your survey data is an important source of information about the use of these medicines.

The Women's Health Australia team write a 'how to' book

The investigators and staff of the Women's Health Australia project 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.

The book is aimed at both novice and experienced researchers and will assist them to plan, establish and conduct a longitudinal research study. The book may be read from cover to cover, although it is designed so that each section stands alone, allowing the reader a readily accessible guide to overcoming the challenges that occur during longitudinal research.

The book covers a diverse range of topics including planning for a longitudinal study, recruiting personnel, designing surveys, developing accurate record systems, managing data, participant involvement and communicating and disseminating information.

The authors use the Women's Health Australia project as an illustrative example to elaborate on each topic.

The Men, Women and Ageing Study

In 2006, we decided that it would be useful if we could compare some of the data from the older age group with data from a similar aged group of men. The Health in Men Study (HIMS) has been running in Western Australia since 1996 and the surveys that have been used since 2001 have been modelled on those of the WHA older age group surveys. As a result of funding from the *NHMRC / ARC Ageing Well, Ageing Productively Program*, we have initiated the *Men, Women and Ageing* study which will allow us to combine and analyse data from both older men and women. This will allow us to look closely at the factors that contribute to ageing successfully and to see if these differ in men and women. We envisage that this project will add significantly to our understanding of factors which predict continued good health, social engagement, independence and quality of life among older Australian women and men.

Contact Us

Website:
www.alswh.org.au

Email:
whasec@newcastle.edu.au

Freecall:
1800 068 081

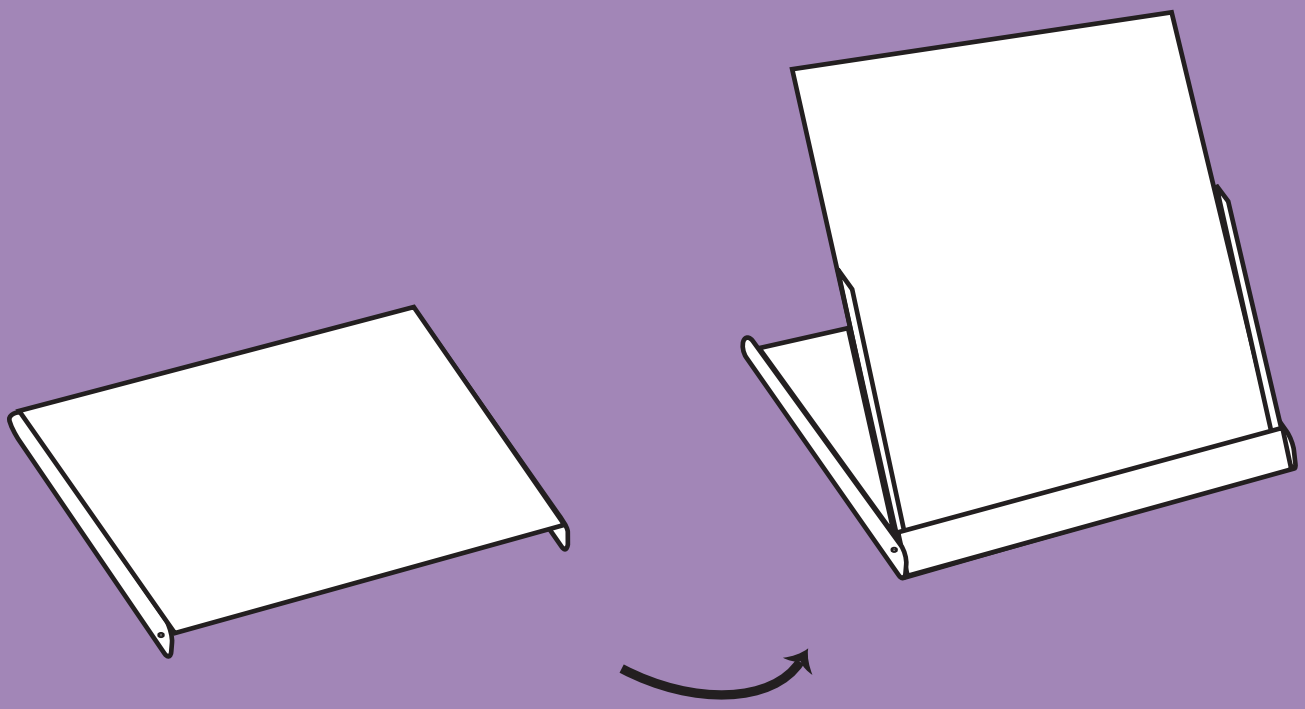
Mail:
Women's Health Australia
Reply Paid 70
Hunter Region MC NSW 2310

10.5 Appendix 5. 2008 ALSWH desk calendar

women's health australia

the australian longitudinal study on women's health

2008 Calendar



To assemble your desk calendar, remove back of CD case, flip it over and replace it.

women's health australia

Women's health is about...
ALSWH overview

for more information please turn over
and go to www.alswh.org.au/calendar

january 2008

sun	mon	tues	wed	thur	fri	sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Funded by the Australian Government
Department of Health and Ageing

The University Of Queensland
AUSTRALIA

THE UNIVERSITY OF NEWCASTLE
AUSTRALIA

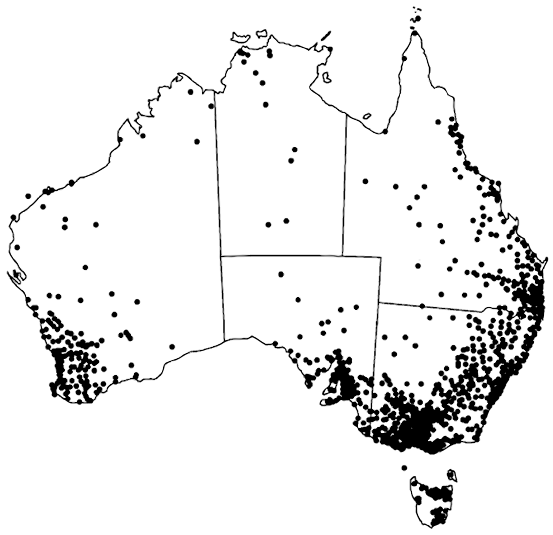
Overview of the Australian Longitudinal Study on Women's Health

The Australian Longitudinal Study on Women's Health (ALSWH, also called Women's Health Australia), follows three age groups of Australian women, known as the Younger, Mid-aged and Older cohorts. Funded by the Australian Government Department of Health and Ageing, the Study began in 1996 and will run for at least 20 years. By taking a social view of health, the study aims to discover the social, psychological, physical and environmental factors that lead to good health, and those that lead to ill-health, in women throughout adult life. The findings are important for the development of policy and practice in key areas for women's health. As the Study embarks on its second decade, it can provide valuable insights into the changing pattern of womens' lives over time.

Over 40,000 women then aged 18-23, 45-50, and 70-75, took part in the first mail survey in 1996. Each cohort initially represented between 2 and 3 per cent of the corresponding total age category of women in Australia. The figure shows the distribution of participants across the country, with each dot representing a postcode where at least one participant is located.

Throughout 2008 some of the study's findings will be featured each month, both in this calendar and on our website.

Location of ALSWH participants.



For further information, go to: www.alswh.org.au/calendar

women's health australia

Women's health is about...
caring and carers

for more information please turn over
and go to www.alswh.org.au/calendar

february 2008

sun	mon	tues	wed	thur	fri	sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	

Funded by the Australian Government
Department of Health and Ageing

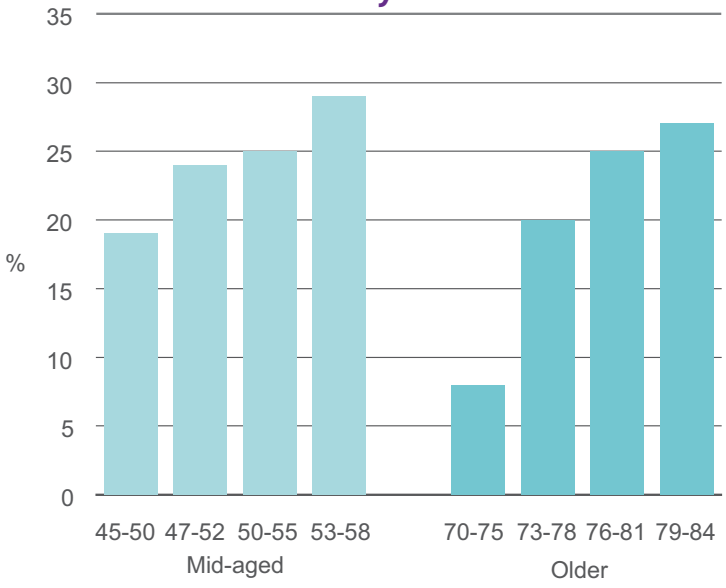
The University Of Queensland
AUSTRALIA

The University of Newcastle
AUSTRALIA

Caring and carers

Around a quarter of mid-aged and older women are involved in caring for someone who is frail, ill or disabled and as the figure shows, the proportion of women who are carers is increasing over time. Women who provide this care are typically less economically advantaged and in poorer health than women who do not provide regular care. Some women care for someone with a long term disability, illness or frailty over many years, but for many women their caring role is transitory and may change over time. Results found by ALSWH include indications that caring has an impact on workforce participation for mid-aged women.[1] For example, women who continued caring were less likely to be working full-time and more likely to be not working, while women who had not been in a caring role were more likely to be working full-time. Commencing a caring role tends to be related to a reduction in workforce participation and when women cease their caring role, while some return to their former employment level, proportionally more decrease their work hours. On balance, caring appears to accelerate women's departure from the workforce. Caring also has an impact on health, wellbeing and lifestyle factors and is discussed further on our website.

Proportion of Mid-aged and Older women providing care to someone with a long term illness disability or frailty from Survey 1 to Survey 4.



References

1. Berecki J, Lucke J, Hockey R & Dobson A. *Changes in Caring Roles and Employment in Mid-life: Findings from the Australian Longitudinal Study on Women's Health.* Report to the Australian Government Department of Health and Ageing, July 2007.

For further information, go to: www.alswh.org.au/calendar

women's health australia

Women's health is about...
partner violence

for more information please turn over
and go to www.alswh.org.au/calendar

march 2008

sun	mon	tues	wed	thur	fri	sat
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Funded by the Australian Government
Department of Health and Ageing

The University Of Queensland
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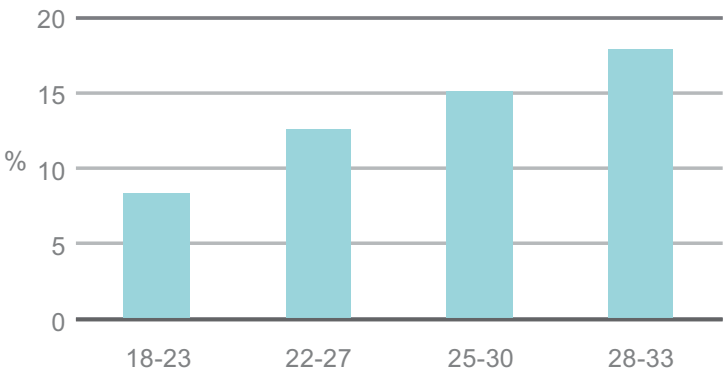
Partner violence and the health of Australian women

The ALSWH has conducted a number of investigations into partner violence, with findings indicating that ever having lived with a violent partner or spouse is associated with poorer psychological and physical health among younger and mid-aged women.[1,2,3] According to the Australian Bureau of Statistics,[4] 5% of 18-24 year old women and 18% of 25-34 year old women have experienced violence by a past partner. The ALSWH has found that as women move from their late teens and early twenties into their late twenties and early thirties, the number of women who have ever experienced partner violence increases, as is shown in the following figure. In 2006, a comprehensive measure of partner abuse was added to the survey of the Younger cohort in order to measure other aspects of partner abuse, such as emotional and financial abuse.

Percentage of 6716 Younger women who have ever been in a violent relationship with a partner or spouse (Survey 1 to Survey 4).



Note: Percentages are weighted to allow for over-sampling in rural and remote areas.

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women's health australia

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ageing

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april 2008

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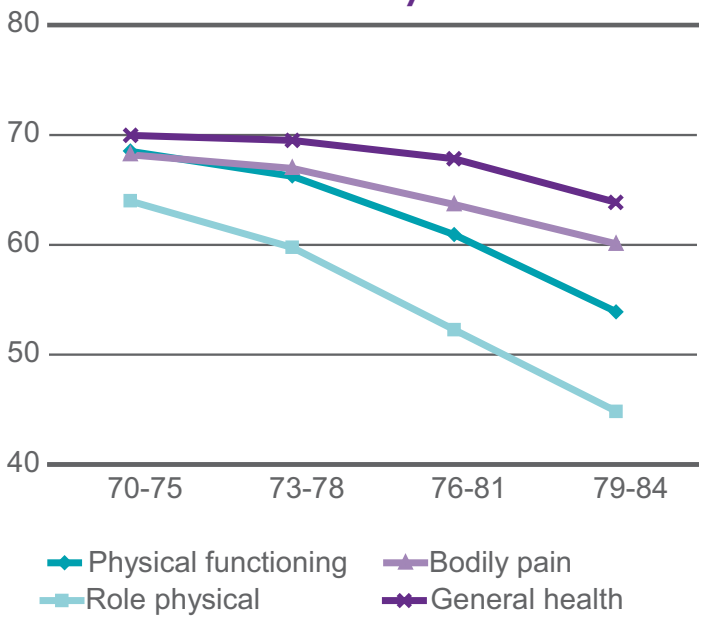
Ageing

Data from the Australian Longitudinal Study on Women's Health provide a long-term view on the health and well-being of women as they age, and help to identify some of the many physical, social, and health care factors that mark out those women who remain healthy and independent. Data for the 6720 women who responded to all four surveys, show an accelerating decline in average physical health over the first nine years of the study (see Figure). However, an important and large proportion of the women experienced minimal change in their physical health in this period. These women who maintained higher levels of health over the duration of the study also had lower than average use of health services and used fewer medications.

Women were most likely to maintain high levels of quality of life into their 80's if they had few symptoms and conditions at the start of the study. The most common symptoms reported by women at all surveys were stiff and painful joints, back pain, difficulty sleeping, eyesight problems, poor memory, tiredness, indigestion, allergies, headaches and constipation. There was little change in reporting of symptoms between surveys, but there were some increases in the proportions of women reporting difficulties with hearing and vision. While chronic disease was a strong risk factor for declining health, many women aged well in spite of longstanding medical conditions.

Proportion of Older women experiencing decline for Surveys 1 to 4.



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employment and retirement

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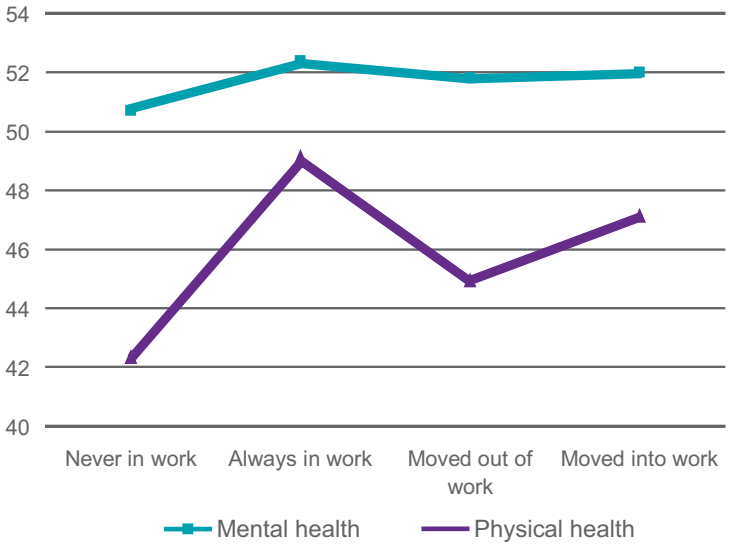
Employment and retirement

ALSWH data show the increasing centrality of paid work in women's lives. Almost 30% of participants in the Mid-aged cohort increased their hours of work over the eight years between Survey 1 in 1996 and Survey 4 in 2004. The data also show that there are close links between paid work and women's health. The figure shows that mid-aged women who were always in paid work between Survey 1 and Survey 4, had higher mental and physical health scores than other women.

In 2004, 65% of 53-58 year old women said they were not retired. Just over 10% said they were 'partially' retired, and about 20% had 'completely' retired. Separated or divorced women were less likely to be retired than were widowed or married women. Women who had not retired were more likely to be separated or divorced than married or widowed. Compared with women who had retired, women not retired were more likely to have more qualifications, and to have dependent children still at home. [1]

The extent to which mid-aged women are involved in childcare for grandchildren[1;2], and the influence that the birth of a grandchild has on women's retirement decisions[1], further reinforce the need for affordable and accessible childcare to facilitate women's options for participation in paid work across all generations.

Physical and mental health scores associated with patterns of paid work of mid-age women between Survey 1 and Survey 4.



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women's health australia

Women's health is about...
changing living conditions

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june 2008

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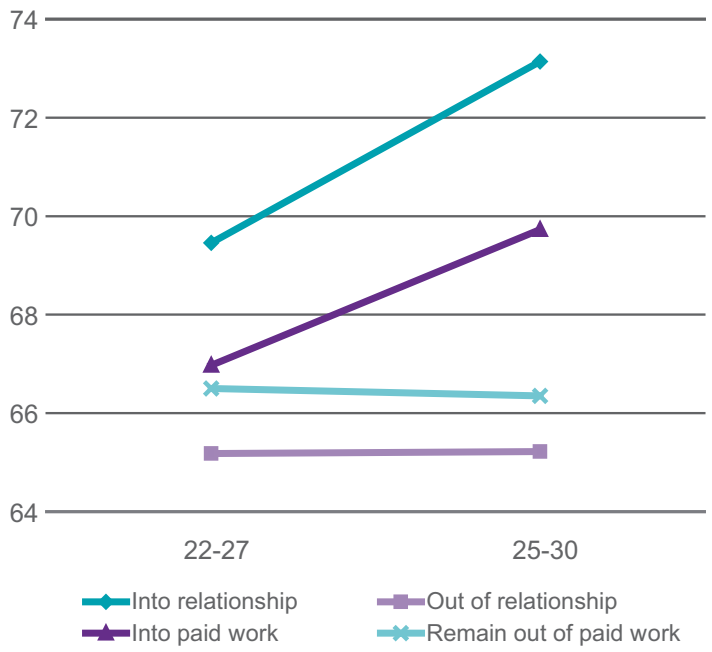
Changing living conditions

The ALSWH has found that young Australian women's lives are far more diverse than has ever been the case. Social and demographic changes have resulted in an extended period of exploration and change when many women move in and out of study and work. Many women choose marriage and motherhood, but cohabitation, unpartnered parenthood, and other non-traditional lifestyles are far more common than in previous generations.

Data collected from the ALSWH Younger cohort in 2000 and 2003, when women were aged 22-27 and 25-30 respectively, revealed the complex nature of their lives. Analysis of life changes and mental health show that women who move into relationships, and those who move from study to paid work, show the largest increases in mental health between Surveys. By contrast, women who remain out of the paid workforce and those who move out of relationships show small but significant decreases in mental health (see figure). The data support the importance of relationships and meaningful work in maintaining women's emotional wellbeing.

Changes in mental health scores (Survey 2 to Survey 3) according to specific life transitions.



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Women's health is about...
time use

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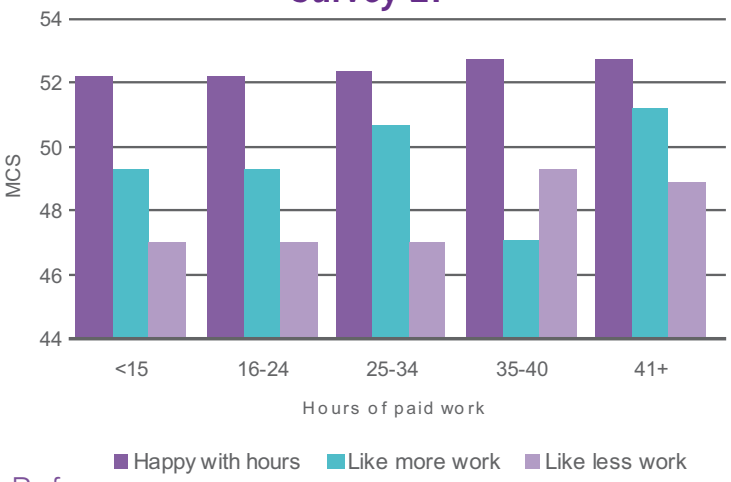
Time use

ALSWH findings include associations between women's health and the way in which they use or manage their time. At Survey 2, employed mid-aged women who were happy with the hours they worked had the highest mental-health scores[1]. These women worked a range of hours, which suggests that it is satisfaction with hours of work, rather than the hours per se, that is important to health. The issue of control is further highlighted by the fact that those with the lowest mental health scores included women who wanted to work more hours as well as those who wanted to work less. The lowest mental health scores, somewhat counter-intuitively, were among those working the lowest number of hours (under 24 hours), but who wished to work even less. The levels were virtually identical however for those working longer hours (25-40), but who wished to work more, highlighting the importance of satisfaction rather than the hours (see figure).

Tiredness is a central issue associated with managing time. In mid-age, fewer women feel 'worn out' all or most of the time, than the number who feel 'tired'. Those who feel worn out 'none' or only 'a little' of the time ranged between 48% and 54% across the four surveys, while those who feel tired 'none' or 'a little' of the time ranged from 32% to 36%[2]. As the women grow older the level of weariness is diminishing which is consistent with reduced nuclear family commitments.

Mental health (MCS) by satisfaction with hours of paid work, mid-age women, Survey 2.



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women's health australia

Women's health is about...
chronic disease

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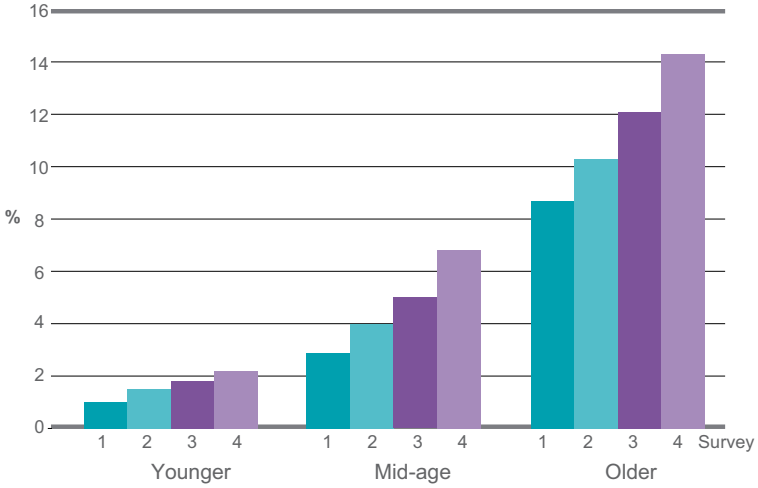
Chronic disease

The ALSWH can report on the prevalence and incidence of a range of chronic diseases and associated risk factors. In all three cohorts of ALSWH women, overweight and obesity were significantly associated with increased prevalence and incidence rates of hypertension, heart disease, diabetes, asthma and arthritis.[1] The impact of education and other aspects of socioeconomic status on women's health is demonstrated by the association between lower levels of education and greater risk of chronic disease in later life. This effect was seen most strongly among women in the Mid-aged cohort for whom less education was associated with higher prevalence of hypertension (at Survey 1) and arthritis, and with prevalence and incidence of diabetes and osteoporosis.

The longitudinal data from the study provide an understanding of how these conditions affect women's quality of life and independence as the women age, and allow the impact of health care and other activities to reduce the burden of these conditions, to be evaluated.[2]

Prevalence of self-reported diabetes, by age cohort for ALSWH women, 1996 to 2006.



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Women's health is about...
physical activity

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september 2008

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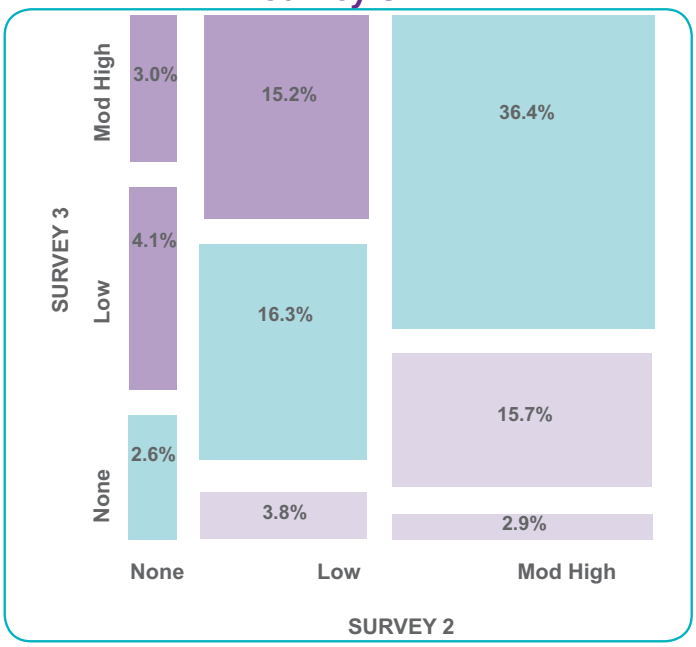
Physical activity

ALSWH research has found that overweight and obesity are consistent risk factors for chronic health problems[1], and physical inactivity is associated with weight gain.[2] The ALSWH allows for the examination of changing patterns of physical activity among Australian women, for example, the mosaic plot shows changes in physical activity between two surveys: only 36.4% of the younger women were categorised as doing 'moderate to high activity' at both surveys, with 16.3% remaining in the 'low activity' and 2.6% remaining in the 'no activity' category at both surveys. Almost a quarter (22.3%) of the younger women moved into a higher physical activity category during this period (from 'no activity' to either 'low activity' or 'moderate to high activity', or from 'low activity' to 'moderate to high activity') while 22.4% moved into a lower category of physical activity. These descriptions of change in activity levels for individuals would not be possible in multiple cross-sectional studies. The ALSWH website offers access to reports that have examined women's levels of physical activity, and to papers that have covered this topic in more detail.

Mosaic plot of change in physical activity in the Younger cohort between Survey 2 and Survey 3.



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Women's health is about...
health service use

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Health service use

The ALSWH regularly collects information about how women rate their access to health care services, including questions about how often they visit the doctor, their access to female GPs, the number of GPs from which to choose, their satisfaction with the GP consultation, and their preference for a female GP.

ALSWH findings have indicated that continuity of GP care was generally better in non-urban areas, especially for women living in large rural centres, however, being able to see their GP of choice was more difficult for women living in non-urban areas.[1] Many women living in regional areas report lower access to female doctors, and this may reduce their willingness to seek help for some conditions which may be treatable (see Table). Although lower ratings were strongly associated with increasing degree of remoteness, there were some improvements over time in ratings for women in Outer Regional areas.[2] Programs to attract and retain doctors in regional areas should include a special focus on access to female doctors.

Percentage of mid-age women rating their access to a female GP as excellent, very good or good, by year and area of residence.

	Year		
Area of residence	**1998**	**2001**	**2004**
Major Cities *(n=2935)*	72.1	72.7	73.1
Inner Regional *(n=3331)*	63.0	64.4	65.6
Outer Regional *(n=1675)*	51.7	57.7	57.8
Remote/Very Remote *(n=307)*	43.2	42.8	44.4

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women's health australia

Women's health is about...
complementary & alternative medicine

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november 2008

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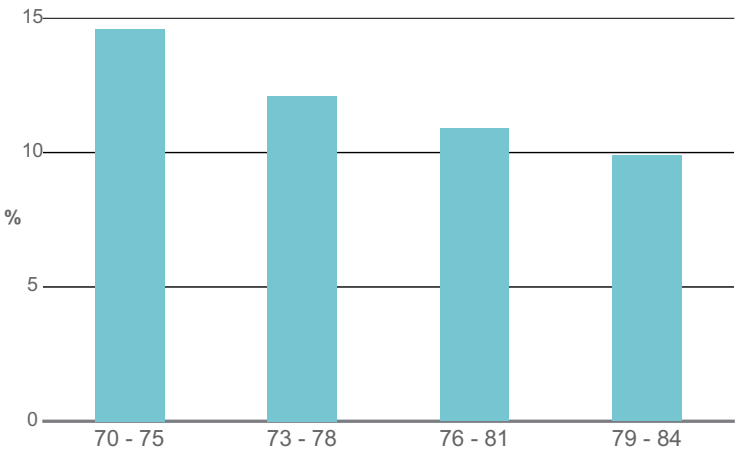
Complementary and alternative medicine

The Australian Longitudinal Study on Women's Health has provided much information about the use of CAM by older women as the age from their early seventies to their earlier eighties. There were 6044 women who answered the question related to consultation with a CAM practitioner at all four survey points.

The figure shows that the percentage of women who consulted a CAM practitioner in the years 1996, 1999, 2002 and 2005 declined with each survey (14.6%, 12.1%, 10.9% and 9.9% respectively). Of these women: none indicated CAM use at all four surveys; 0.6% indicated CAM use at 3 surveys; 7.0% indicated CAM use at 2 surveys; 31.9% indicated CAM use at 1 survey; and 60.5% indicated that they did not use CAM at any survey. The likelihood of women using CAM increases with an increasing number of symptoms, with less physical health, and if they live in a non-urban area.

A number of projects examining CAM use among the other cohorts of women have been completed or are currently in progress and further information is available on the website.

CAM use among older women at Surveys 1 to 4



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Women's health is about... reproductive health

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december 2008

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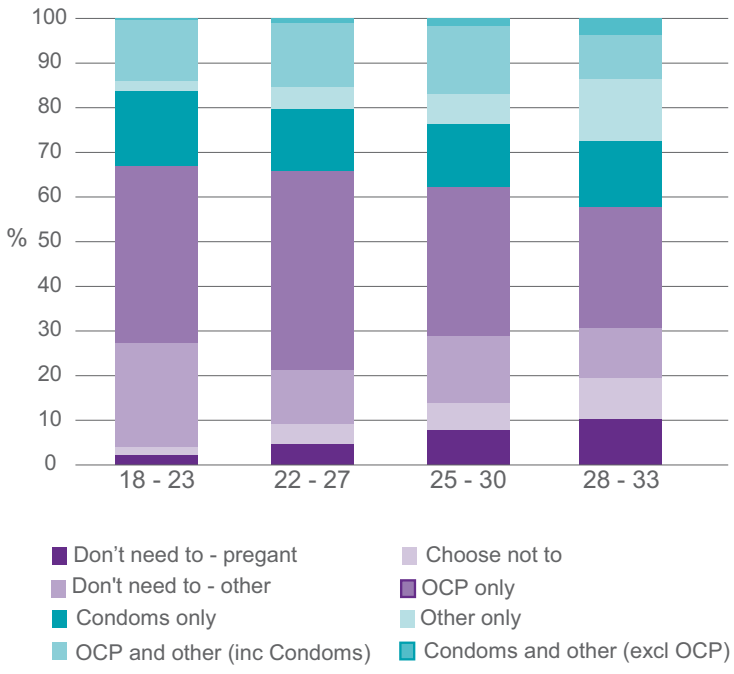
Younger women and reproductive health

The Australian Longitudinal Study on Women's Health is well placed to provide rich information about the reproductive health of women from their early sexual experiences in their late teens and early twenties into decisions about motherhood and fertility in their twenties and thirties. The figure shows the contraceptive choices made by the Younger women at each survey. The proportion of women who are not using contraception increases noticeably across Survey 2 to Survey 4, after a drop between Surveys 1 and 2. Women are more likely to be trying to conceive as they get older and this is evident in the increasing proportion of women who are pregnant or choose not to use contraception. Oral contraceptives are the most commonly used method at each survey but use decreases over time with other methods such as Implanon increasing in popularity. The proportion of women using a condom only has remained steady over time. A number of projects examining sexual and reproductive health are currently in progress and further information is available on the website.

Contraceptive use among Younger women at Surveys 1 to 4



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A detailed description of the background, aims, themes, methods, representativeness of the sample and progress of the study is given on the project web page. Surveys are also available on the website, along with contact details for the research team.

Abstracts of papers published, papers accepted for publication, and conference presentations are also on the project website.

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