

report 24

women's health *a u s t r a l i a*



The Australian Longitudinal Study on Women's Health

June 2005

REPORT 24
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EXECUTIVE SUMMARY

1. This report covers the five-month period from December 2004 until May 2005. The current project contract is due to expire on 30th June 2005 and the research team and staff of the Australian Government Department of Health and Ageing are currently working on details of an anticipated three-year extension.
2. Major project activities during this period have been the commencement of Survey 4 of the Older cohort, and initial planning for Survey 4 of the Younger cohort, to be piloted in the second half of 2005 and administered in 2006. A major activity during this period has been the production of ten Achievements Reports outlining recent policy-relevant findings from the Study. Work on databases has continued, with the finalization of the databook for Survey 3 of the Younger cohort and work continuing on scanning, checking and cleaning of data from Mid-age Survey 4. Progress continues to be made on strategies for linkage of survey data with Medicare unit records, with ethical clearance obtained from the Department of Health and Ageing, Department of Veterans' Affairs, and the Universities of Newcastle and Queensland. The project team has continued to complete all deliverables on time.
3. Survey 4 of the Older cohort, which was initially mailed in March 2005, is under way. At the time of this report, responses had been received from 71% of the Older participants. Three per cent have been identified as non-respondents (including 36 newly identified as deceased) and reminder letters and phone calls are being used to contact the remaining 26%.
4. Two substudies are under way during the reporting period. One of these focuses on time use among young and mid-age couples who juggle work and family. The other addresses the issue of the accuracy of self-report data on height, weight and physical activity, by validating self-reports against direct measurements. Establishing the accuracy of these self-reports substantially increases the value of survey findings and related analyses.
5. Work on methods and measurement continues. This report includes technical information on a number of data quality issues: checking and correcting of Medicare unit record data; validation of self-reports of GP visits; and calculation of variables to represent transitions in labour force participation among the Mid-age women.
6. Analytical work has continued during the reporting period. Work addressing health service use has focused on urban and rural women's access to service, bulk billing patterns among specialists, and the health service use of a number of high-need groups of women. Research on health behaviours has had two main focuses, with work on alcohol consumption and health among all three age groups being completed and work on weight, diet quality and health continuing. The impact of social factors on health and well-being has been addressed through a focus on wellbeing and coping with major life transitions in all three age groups, on reproductive decisions and employment patterns among younger women, on employment and retirement planning among mid-age women, and on social support among older women. An invited Cohort Profile in the distinguished International Journal of Epidemiology is an indicator that the Australian Longitudinal Study on Women's Health is considered an internationally significant project within the research community.
7. A total of 20 papers have been published or accepted for publication in national and international scientific journals during the reporting period, while 18 seminars and conference papers have been presented to scientific and professional audiences both in Australia and

internationally. The reporting period has seen the completion of two postgraduate theses and work continuing on five others. Postgraduate students are an investment in the future of health research and evaluation in Australia. Supported by scholarships and grants from other sources, they add to the project and its outcomes without significant cost to core funds.

1. COLLABORATIVE RESEARCH ACTIVITIES

1.1. SCIENTIFIC MEETINGS AND TELECONFERENCES AMONG 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. In addition to this, a monthly update is provided to all Investigators, staff, students, associates and others with an interest in the progress of the project. Steering Committee membership is flexible and decided on an annual basis, so that a group of about six Investigators are involved at this level at any one time. Current Steering Committee members are:

- Professor Annette Dobson (Chair)
- Professor Wendy Brown
- Professor Lois Bryson
- Professor Julie Byles
- Professor Christina Lee
- Dr Penny Warner Smith
- Dr Anne Young.

Steering Committee meetings during the reporting period have been held by teleconference on 3rd March, 7th April, and 5th May, as well as a face-to-face meeting in Newcastle on 4th February, and another on 14th April which focused primarily on planning for Survey 4 of the Younger cohort.

The Data Management Group takes responsibility for all technical issues involving data quality, derivation of variables, checking and cleaning of data sets, linkage, and archiving. This group is chaired by Dr Anne Young, and current members include Investigators Professor Annette Dobson, Professor Christina Lee and Dr Penny Warner-Smith, as well as staff members Jean Ball (Data Manager- UN), Anne Russell (Data Manager – UQ), Anna Graves (Data Management Assistant – UN), Jenny Powers, Helen Gramotnev, Jess Ford, Richard Hockey (Statisticians), Virginia Wheway, Andrew Hampson, Angela Wood (Assistant Statisticians). The group meets monthly by teleconference.

1.2. KEY NEW RESEARCH FINDINGS

1.2.1. Projects completed and in progress by ALSWH investigators and collaborators

Project:	Use of Enhanced Primary Care services by Older Australian Women
ALSWH Investigators:	Professor Julie Byles & Dr Anne Young
Funding Source:	None

In November 1999, the Australian government introduced Medical Benefits Schedule items for Enhanced Primary Care. These items included case conferencing, complex care plans, and health assessments for those aged 75 years and over. While there are no strict criteria for assessment or prescribed tool, the assessments are supposed to include physical and mental

function, social well-being, medication review, and nutrition. The assessment is designed to be repeated at annual intervals.

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. It is known that access to health services may be influenced by socio-economic and personal circumstances, not just need. This research explores the uptake of health assessments by women aged 75 years and over, who were participating in the ALSWH, from 1999 to 2003. The ALSWH provides a unique opportunity to observe the uptake of these items in a national sample of individuals who have provided pre-assessment data on their health and health care use, as well as their demographic and socio-economic status and to determine whether these factors are associated with assessment. Data sets for 1999-2001 have been analysed and are currently being updated with the 2002 and 2003 Medicare data, to look at longitudinal patterns of use of enhanced primary care services and potential differences in health outcomes.

Project: Characteristics of frequent attenders at general practice
ALSWH Investigators: Dr Anne Young & Dr Virginia Wheway
Funding Source: None

Literature reviews on health service use show that the study of frequent attenders at health care services is an important but understudied area of research. ALSWH has a distinct advantage in conducting this research because of the large sample of community dwelling women, the extensive range of health and sociodemographic variables available, the Medicare service use data, and the longitudinal nature of the study.

The first set of research questions of interest are:

- What are the characteristics of frequent attenders and non-attenders at GP services? (based on S3)
- Who are the 'long-term' frequent attenders and how do they differ from other frequent attenders? (based on data from 1997-2003)
- What is the relationship between mental health and frequent attendance to GPs? (based on S3)
- Are social factors significant in determining frequent attendance? (based on S3)
- What are the patterns of health service use in the 12 months prior to death? (based on 1997-2003 data)

In this analysis, Health Insurance Commission (HIC) data from 1996-2003 are linked to the ALSWH survey data covering the same period. New variables have been created to define frequent attendance. Sociodemographic variables of interest include age, education, area of residence, and holding a health concession card. Lifestyle and health related variables of interest include SF-36 self-rated health, smoking, alcohol consumption, BMI, comorbid conditions, symptoms, mental health (anxiety, depression etc), and social interaction. Health service variables include use of various types of services, costs, access, and satisfaction with services. Datasets have been prepared for 1995-2001 and the data for 2002 and 2003 have just been received from HIC and will be incorporated into the analysis.

Project: Charges and use of bulk billing by specialists in urban and rural areas of Australia.
ALSWH Investigators: Dr Anne Young & Dr Penny Warner-Smith
Collaborative Investigators: Professor Peter Jones (Department of Rural Health, University of Newcastle)
Funding Source: None

The aim of this study is to examine the use of bulk billing and the out of pocket costs for specialists consultations for women in ALSWH. Preliminary analysis of ALSWH survey data linked with Medicare data for 1997-2001 showed, somewhat unexpectedly, that there were higher rates of bulk billing and lower out of pocket costs for specialists' consultations in rural areas compared to urban areas for younger and mid age women. Trends over time in use and costs and urban/rural differences are being examined for attendances to specialists, consultant physicians and psychiatrists. Data for 2002 and 2003 were received in January 2005 and the preliminary paper is being updated with the most recent data.

Project: Quality and accessibility of health care for women in Australia with diabetes.
ALSWH Investigators: Dr Anne Young and Professor Julie Byles
Collaborative Investigators: Dr Julia Lowe (School of Medical Practice and Population Health, University of Newcastle) & Dr Amanda Patterson (Department of Nutrition and Dietetics, Kings College London, UK)
Funding Source: None currently; previously funded by the Diabetes Australia Research Trust

Research has shown that specific education of people with diabetes can improve metabolic control and reduce mortality. Hence, it is important to assess the access to education services of people with diabetes. Women in the Mid-age and Older cohorts who reported having diabetes were sent a postal questionnaire in 2001. The questionnaire included questions about the type and duration of their diabetes, level and frequency of diabetes care including home blood glucose monitoring, foot and eye care, recall of measurement of HbA_{1c}, lipids and retinal screening, and access to diabetes-related health services such as nutrition advice, podiatry services and diabetes education services. The women were also asked a range of questions to assess how they cope with having diabetes. Preliminary descriptive results have been presented at several conferences and the correlates of good knowledge, behaviour and outcomes for women with diabetes are currently being investigated.

Project: Access to health services among women in rural Australia.
ALSWH Investigators: Dr Anne Young; Professor Julie Byles & Dr Penny Warner-Smith
Funding Source: None

It is well known that many people living in rural and remote areas of Australia have limited access to medical services. However, it is often difficult to quantify whether the situation is improving. The focus of this stage of the analysis is the Younger cohort, at Survey 2 in 2000 and Survey 3 in 2003. The research includes looking at trends over time in Medicare data 1995-2001 (use of services, bulk billing, out-of-pocket costs) and self-reported access to services (bulk billing, access to a female GPs, specialists, after hours care etc), according to

changes in area of residence. Qualitative data were also used to complement the quantitative analyses and the preliminary results were presented at the 2005 Rural Health Conference in Alice Springs. Medicare data showed that bulk billing rates for general practice services were lower, and out-of-pocket costs higher, for women living in rural areas. Self-reported access to bulk billing confirmed these results. Younger women who stayed in rural areas (n=2699) were most likely to give poor ratings of their “access to a GP who bulk bills”, and the percentage who were dissatisfied increased from 41% in 2000 to 56% in 2003 (compared with 19% and 47% for younger women in urban areas). The percentage of younger rural women giving poor ratings of their access to a female GP had not changed significantly, with 36% being dissatisfied in 2000 and 39% in 2003 (compared with 20% and 24% for young women in urban areas). Medicare data on use of female GPs and bulk billing for the years 2002 and 2003 are currently being analysed.

Project: The dynamics of private health insurance coverage
ALSWH Investigator: Dr Anne Young
Collaborative Investigators: A/Professor Garry Barrett & A/Professor Robert Conlon (School of Economics, University of New South Wales)
Funding Source: None

Private health insurance (PHI) coverage has recently received substantial media attention and been an area of important policy activism over the past decade. There is a good understanding of the socio-economic factors associated with individuals and families purchasing PHI coverage at a single point in time. However, as the previous research evidence is based on purely cross-sectional survey data, there is a very limited understanding of the factors driving changes at the individual level in PHI coverage over time. If the pool of people who purchase insurance have atypically high health care costs this will lead insurers to increase premiums, which in turn could drive the relatively lower-cost applicants out of the market. Over time a spiral of increasing premiums and declining PHI coverage may develop, which may ultimately result in the collapse of the private insurance market. To fully test this hypothesis, it is necessary to use longitudinal data that tracks people over time.

The analysis is proceeding in several stages:

1. Replicate existing studies of the decision to purchase private health insurance (hospital cover), by treating each wave of the WHA Survey as a separate cross-sectional study
2. Analyse the decision by women to take up and drop cover between successive waves
3. Test for evidence of an “adverse selection spiral” in the decline in PHI cover between 1996 and 1998
4. Analyse the impact of the government’s “life-time community rating” policy introduced in 2000 - and identify the individual and family characteristics associated with the greatest response to the policy initiative.

Descriptive analyses describing the properties of the study sample, and illustrating the patterns of PHI cover, and changes in cover over the study period, have been conducted. Multivariate techniques to estimate the empirical models of PHI choice have also been investigated and analysis is in progress. In particular, the analysis will involve regression techniques and maximum likelihood techniques which are standard in the econometrics literature.

Project:	Characteristics of Complementary and Alternative Medicine (CAM) users according to type of practitioner.
ALSWH Investigators:	Dr Anne Young
Collaborative Investigators:	Dr Jon Adams & Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)
Funding Source:	None

This project builds on previous analyses of CAM use conducted by this research group using the Survey 1 and Survey 2 datasets. The objective of this project is to analyse the Mid 3 dataset. This survey asked about use of CAM practitioners and specified various types of practitioners. We are conducting an analysis of the characteristics of CAM users (by type of practitioner) and associated symptoms and conditions. This work will be of interest to CAM practitioners. In particular, CAM is now a significant practice issue for those delivering cancer care. While various studies have explored the prevalence of CAM use amongst cancer patients, little is currently known about naturopathy/herbalism use by patients with cancer in Australia. In the Mid 3 survey conducted in 2001, women with cancer were found to be more likely to consult naturopaths/herbalists than mid-aged women without cancer. Naturopathy/herbalism consultations appear to be used by the women with cancer alongside and as a supplement to conventional health services. Three papers on CAM use have resulted from this collaboration since 2002, and a fourth paper on naturopathy/herbalism use by women with cancer has been accepted by the European Journal of Cancer Care.

Project:	Indexes of multi-comorbidity.
ALSWH Investigator:	Professor Annette Dobson
Collaborative Investigators:	Dr Leigh Tooth) (School of Population Health, University of Queensland)
Funding Source:	NHMRC Capacity Building Grant

Particularly among the Older cohort, women may have several chronic conditions such as diabetes, asthma and arthritis. We need to be able to assess the aggregate effect of these conditions on other aspects of their lives, such as social participation or mental health. Therefore we have developed and evaluated several indexes which combine information on self-reported diagnoses and symptoms. These are based on data from Survey 2 of the older women, with data from a random sample of half the participants used to develop the index and the remainder used to check its validity.

Separate indexes were developed for different outcomes, such as death in the next five years, use of health services, or quality of life. For each outcome we first conducted a regression analysis with indicator variables for each condition as predictors. From these results we were able to identify those conditions which had a statistically significant association with the outcome and also to estimate coefficients from which we produced simplified weights to reflect the relative importance of the condition.

We found that the indexes varied substantially with the outcome. For example, Alzheimer's disease was an important predictor of mortality, general health, needing help with daily tasks and social functioning, whereas it was not related to numbers of visits to general practitioners or medical specialists. Likewise women's experience of pain, but not their use of health services, was strongly affected by whether or not they reported arthritis or chest pain. In contrast, use of health services was most strongly related to having had cancer or a stroke. As a result of this work, we are now able to identify groups of conditions which jointly affect

women's lives in particular ways – their risk of death, their physical functioning and their social roles.

Project: Australian women and alcohol consumption.
ALSWH Investigators: Dr Anne Young & Ms Jenny Powers
Funding Source: None

The ALSWH provides the opportunity to monitor changes over time in the health and well-being of Australian women, their social circumstances, and their health behaviours, including alcohol consumption. A report on alcohol consumption among ALSWH women from 1996 to 2003 was prepared during 2004 for the Department of Health and Ageing. A clear majority of respondents to the surveys were found to be non-drinkers or drink at low levels of long-term risk, although some of these women reported short-term risk drinking (having five or more drinks on one occasion). Other findings included:

- The majority of women did not change their level of alcohol consumption over 5-7 years between surveys
- Most women who reported consuming alcohol at all surveys were doing so at low levels of long-term risk
- More than a quarter of the Older women remained non-drinkers over the six-year period from 1996 to 2002
- Younger women were more likely than Mid-age or Older women to decrease their alcohol consumption from levels that were risky to their health.

Several papers based on the findings in the alcohol report are currently in preparation, some in collaboration with researchers at Turning Point in Melbourne. The alcohol report was launched by DoHA in March 2005 and led to 22 newspaper articles, 77 radio reports and a segment in a NSW state-wide current affairs program on the Ten Network.

Project: Older women's use of alcohol and their health-related quality of life.
ALSWH Investigators: Professor Julie Byles & Dr Anne Young
Collaborative Investigators: Dr Hiroyuki Furuya (Tokai School of Medicine) & Dr Lynne Parkinson (Centre for Research and Education in Ageing, University of Newcastle)
Funding Source: Hunter Medical Research Institute

There is little evidence of the effects of alcohol consumption among older women on mortality and health. Data on the older cohort from 1996 to 2002 were analysed. Alcohol consumption was the factor of interest and the main outcome measures were survival and health-related quality of life, with adjustment for potential confounders. Compared with the women in the low risk reference category (1-2 drinks per day, 3-6 days per week) women who did not consume alcohol or who drank rarely were more likely to die or if they survived, they had lower health related quality of life scores on General Health and Physical Functioning SF-36 subscales after adjustment for smoking, comorbidity, education, body mass index (BMI) and area of residence. Non-drinkers also scored lower on the Mental Health and the Social Functioning subscales. There were no significant differences in outcomes for women in other alcohol intake categories. Findings for these older women are consistent with current Australian alcohol consumption recommendations for women, and

indicate that moderate alcohol intake may carry some health benefits for older women in terms of survival and quality of life. A paper describing the results has been submitted.

Project:	Diet quality and health service use in the Mid-age cohort of the Australian Longitudinal Study of Women's Health
ALSWH Investigators:	Dr Anne Young
Collaborative Investigators:	Dr Clare Collins (Nutrition and Dietetics, University of Newcastle) & Dr Alison Hodge (Cancer Epidemiology Centre, The Cancer Council Victoria)
Funding Source:	Outside Study Programs (OSPRO), University of Newcastle, in 2004; currently no funding.

Background: Early analyses of the associations between dietary intake and disease outcomes have focused on associations between chronic disease risk and specific nutrients, such as saturated fat, or individual food groups, such as wholegrains or vegetables and fruit, as indicators of an individual's overall diet. Over the last decade, increasing attention has been given to developing methods to assess the whole diet. Available and widely used methods include the Diet Quality Index, the Healthy Eating Index, the Dietary Diversity Score, and the Recommended Food Score. In Australia, there have been only two studies that calculated an overall diet quality score and related it to health or disease, and both these studies have their methodological limitations, while neither is representative of the adult Australian population. This is an important area of research, as indices of dietary quality indicate that there is a reduced risk of morbidity and mortality in groups adhering more closely to National Dietary Guidelines.

Objectives:

- To develop a diet-related summary health score to use within the ALSWH.
- To examine associations with health service use data.
- The hypothesis being tested is that women in the lower quintiles of a diet quality score (DQS) are higher self-reported users of health services, compared to those in the upper quintiles; this will be tested using data from Mid-age Survey 3.

Progress: The preliminary results of this analysis were presented at a Newcastle ALSWH seminar in May 2004. As of April 15 2005, the statistical analyses have been completed. An abstract was accepted for poster presentation at the 23rd National Conference of the Dietitians' Association of Australia in May 2005. Two papers are in preparation. The first reports the method for developing diet variety scores to indicate health advantage and disadvantage, with a further analysis for the sub-group for whom total energy intakes as indicated from the FFQ are likely to be valid. This will be submitted to the Journal of the American Dietetic Association in late May. The second reports the associations with health service use, and will be submitted in the second half of 2005.

Project:	The intake of omega-3 fatty acids in a representative sample of Mid-age Australian women.
ALSWH Investigators:	Dr Anne Young & Dr Virginia Whewy
Collaborative Investigators:	Dr Lesley MacDonald-Wicks; Dr Clare Collins; Dr Lauren Williams & A/Professor Manohar Garg (Nutrition and Dietetics, University of Newcastle)
Funding Source:	None

Background: Dietary intake of long chain omega-3 polyunsaturated fatty acids (PUFA) has been shown to impact favourably on the progression of chronic diseases such as CHD and atherosclerosis, hypertension, type 2 diabetes, and inflammatory and autoimmune diseases such as rheumatoid arthritis and psoriasis. However, omega-3 PUFA make up only a small proportion of the total fat intake and therefore it is likely that the background dietary fat type influences the metabolism of omega-3 PUFA in humans, possibly impacting on any potential health benefits.

The typical Western diet has adequate omega-6 PUFA in the form of vegetable oils (sunflower, safflower, corn and cottonseed oil), but a limited intake of the omega-3 PUFA (flaxseed, canola or soybean oils). The effect of omega-3 fatty acids on chronic disease may be obscured by the concomitant intake of other types of dietary fats. It is recognized that there is competition between the omega-6 and omega-3 PUFA for elongation and desaturation, this competition for the delta-6 desaturase enzyme impacts on the incorporation of longer chain omega-3 PUFA metabolites in tissue, which will affect the impact of these fatty acids on chronic disease.

The greater incorporation of omega-6 PUFA creates a pro-inflammatory, pro-aggregatory environment favourable for disease initiation or progression. Disease such as CHD, type 2 diabetes, and inflammatory diseases such as asthma or psoriasis are examples of diseases that will occur in increased frequency in a pro-inflammatory environment. Therefore the type of fat consumed with the omega-3 is important for the development of chronic disease such as CHD and type 2 diabetes.

Objectives: We plan to examine the fat intake of a representative sample of women in Australia in order to establish:

- Total SFA (saturated fatty acids), omega-6 and omega-3 intake
- Ratios of these fatty acid intakes to one another
- Associations with specific health conditions eg CHD, type 2 diabetes, depression, respiratory illnesses including asthma
- Associations between type of fat intake, and the ratio of the fatty acid groups to indicators of health service use (a group with a low omega 3 intake or a high omega 6 to omega 3 ratio might be expected to have higher rates of disease and higher use of health services)

It is of interest to see if there is an association between type of fat and health outcome, and whether ratios or absolute amounts have the strongest associations with specific conditions known to be associated with low intakes on omega-3-fats. .

Progress: As of end March 2005, a research group has been established to facilitate the progress of this and other similar projects. Through the FFQ reference group, guidelines for dealing with underreporting are being developed and these will be incorporated into these analyses. Alison Hodge has provided additional information, not originally available, which allows us to calculate fatty acid intakes from the FFQ at Mid Survey 3. The data are currently being cleaned prior to commencing the main analyses.

Project: Health costs of inactivity and overweight.
ALSWH Investigators: Professor Wendy Brown; Professor Annette Dobson; Dr Anne Young & Mr Richard Hockey
Funding Source: None

The purpose of this work is to examine one aspect of the health care costs associated with overweight and obesity in Australia, and the extent to which they may be ameliorated by increasing levels of physical activity. We are using Medicare data on the numbers, types and costs of Medicare reimbursable items (predominantly general practice consultations). These data are compared for groups of women categorized according to their body mass index and level of physical activity. Some typical results are shown in Table 1.1, which shows the median benefits claimed in 2001 for women in the Mid-age cohort of the ALSWH.

These preliminary data illustrate that higher levels of physical activity are associated with lower Medicare costs; perhaps to a lesser extent, having self-reported weight near the “acceptable” range is also associated with lower Medicare costs.

Table 1.1. Median Medicare benefits claimed in 2001 by Mid-age women, according to Body Mass Index category and level of physical activity

Categories of Body Mass Index	Level of physical activity			
	Sedentary	Low	Moderate	High
Underweight	\$400	\$320	\$280	\$250
Acceptable weight	\$330	\$270	\$260	\$270
Over weight	\$350	\$300	\$270	\$270
Obese	\$330	\$330	\$300	\$340

While these data are cross-sectional and thus the direction of causality cannot be assessed, the policy implications, if confirmed by more detailed analysis, are that promotion of more leisure time physical activity could potentially lower health care costs.

Project: To what extent does having babies contribute to weight gain in young women?
ALSWH Investigators: Professor Annette Dobson & Mr Richard Hockey
Collaborative Investigators: Dr Yvette Miller (School of Human Movement Studies), University of Queensland) & Dr Leigh Tooth (School of Population Health, University of Queensland)
Funding Source: NHMRC Capacity Building Grant

This work has two stages. First, we have investigated weight change for the period 1996-2003 among young women who had never been pregnant by the time they completed Survey 3. During this time women in this cohort gained on average about half a kilogram per year, and almost all of those who were categorized as “underweight” at the baseline survey had moved into or beyond the “acceptable” weight category. Many more young women had moved into the categories of being “overweight” or “obese”. Factors significantly associated with this trend in weight gain were the expected physiological ones: weight at baseline, energy intake (amount of food consumed) and energy expenditure (measured by leisure time

physical activity). In addition there was the social factor of starting to live with a partner, which is associated with major lifestyle changes.

Secondly, having characterized the major determinants of weight change in women who had never been pregnant, we sought to investigate the additional effects of childbirth. On average, women who had one child were about 2 kilograms heavier than women who had none. Weight change associated with the birth of second or subsequent children was less clear, and indeed the relatively small number of women who had more than one child during this period did not, on average, gain more weight than women who had no children.

The potential value of this work for public health policy is to provide evidence about key factors in the lives of young women that make them susceptible to weight gain, so that prevention efforts can be targeted appropriately.

Project:	Health-related outcomes of weight and weight change among Mid-age women.
ALSWH Investigators:	Professor Annette Dobson; Professor Wendy Brown & Ms Jessica Ford
Collaborative Investigators:	Dr Yvette Miller (School of Human Movement Studies), University of Queensland)
Funding Source:	None

We are analysing initial weight, and changes in weight between successive surveys, among Mid-age respondents, and relating these changes to subsequent reports of newly occurring (incident) cases of various medical conditions which are known to be related to weight. The aim of this work is to tease out, using longitudinal data, the relative importance of initial weight and of shorter-term losses and gains on major conditions such as diabetes, hypertension and incontinence. Women who know they are at risk of weight-related conditions are likely to try to lose weight, often repeatedly, and thus it is only by careful analysis of the temporal order of weight change and diagnosis that the relative contributions of existing weight and weight fluctuations to causation (and prevention) can be sorted out.

We found that women's weight (standardised as Body Mass Index) at Survey 1 in 1996 was a much stronger predictor of their risk of being diagnosed with diabetes or other conditions than were subsequent changes in weight. For example, if a woman was obese at baseline, her risk of subsequently developing diabetes was about 10 times that of another woman whose weight at Survey 1 was in the "acceptable" range, even if she subsequently lost weight.

The public health policy implications of this work are profound. It provides evidence to support the view that the top priority in the fight against overweight and obesity should be establishing optimal weight during childhood and adolescence and maintaining this throughout the life-course. From a population perspective, weight reduction in middle age appears to be likely to have much less impact on health outcomes.

Project:	Validation of self-reported height, weight, and physical activity among mid-age Australian men and women.
ALSWH Investigators:	Professor Wendy Brown & Professor Annette Dobson
Collaborative Investigators:	Ms Nicola Burton, Dr Alison Marshall & Dr Yvette Miller (School of Human Movement Studies, University of Queensland)
Funding Source:	NHMRC Program Grant; Brisbane City Council & Queensland Health

Background: Height, weight, and physical activity are of interest to researchers both as study and outcome variables. Self-report is a common means by which to collect data on these variables from large population-based samples, as in the case of the Australian Study of Longitudinal Study of Women's Health (ALSWH). Such data are, however, vulnerable to mis-estimation, whether intentional or unintentional. Other research has suggested this mis-estimation may be associated with specific sociodemographic characteristics, such as gender, age, body mass index (BMI), health status, and socioeconomic position, as well as physical activity level and weight management intentions. The questionable accuracy of self-reported height, weight, and physical activity data is therefore a potential limitation of this method of data collection. Other, more objective, forms of data collection are, however, more costly and resource intensive, and less practical for large population-based samples. There is a need therefore to compare self-reported and objective methods of collecting data on height, weight, and physical activity, in order to evaluate the validity of the self-report data.

If it can be demonstrated that self-report data are comparable with objective data, then the continued use of the survey data can be justified. If, however, self-report data do not approximate objectively measured data, these variables in the survey data must be questioned, and analyses of ALSWH data which use self-reports of height, weight and physical activity must be re-considered. By investigating the extent of any misclassification of height, weight and physical activity in relation to various sociodemographic variables, we will be able to assess the extent of any potential bias among specific population subgroups. The study will also provide information on the use of a combination of mail methods and individualised visits to collect population-based data.

Objectives:

1. To compare self-reported height, weight and physical activity with objective measurements in a sample of mid age Australian women and men.
2. To determine the extent of 'misclassification' of these variables in relation to body mass index (BMI), health status, and sociodemographic characteristics.
3. To determine the average number of steps per day (weekdays and weekends) taken by mid-age women and men.
4. To assess the validity of survey items assessing sitting time

Progress: As at March 30 2005, this project had been granted ethical clearance, and the team has commenced participant recruitment and data collection.

Project: Vegetarian diets among young Australian women.
ALSWH Investigators: Ms Jenny Powers & Professor Wendy Brown
Collaborative Investigators: Dr Surinder Baines (School of Health Sciences, University of Newcastle)
Funding Source: University of Newcastle Early Research Career Grant

The overall picture of the health of vegetarians appears to be mixed, with some studies reporting better health and others reporting poorer health among vegetarians. In light of the apparent increase in the number of young people choosing a vegetarian-style diet, and the higher prevalence of vegetarianism among younger people and women, there is a need to investigate the health and lifestyle of young vegetarian and non-vegetarian women in the broader community. In 2000, Survey 2 of Younger women (aged 22-27 years) included specific questions about the exclusion of red meat, poultry and fish from their diet and in 2003, Survey 3 of Younger women included the Cancer Council of Victoria's Food Frequency Questionnaire.

Analysis of Survey 2 to date has shown that one in eight Younger women were semi-vegetarian (excluded red meat) or vegetarian (excluded red meat, poultry and fish). Semi-vegetarian and vegetarian women were more likely to be in the healthy Body Mass Index range and to report high levels of physical activity than were non-vegetarians. Although self-reported physical health did not differ for these groups, vegetarians and semi-vegetarians reported poorer mental health than non-vegetarians. Low iron levels and menstrual symptoms were also more common in both vegetarian groups. Subsequent analyses will explore associations between menstrual symptoms and vegetarian-style and other dietary practices. Analyses of Survey 3 data will further investigate vegetarianism and mental health, with a particular focus on the relationship between nutrient profiles and red meat components.

Project: A comparison of the association between socioeconomic position and cardiovascular disease risk factors in three Australian birth cohorts: Findings from the Australian Longitudinal Study on Women's Health.
ALSWH Investigators: Professor Annette Dobson; A/Professor Gita Mishra & Professor Christina Lee
Collaborative Investigators: Dr Deborah Lawlor (Epidemiology and Public Health Medicine, University of Bristol, UK) & Dr Leigh Tooth (School of Population Health, University of Queensland)
Funding Source: UK Department of Health Career Scientist Award

Background: A clear graded inverse association between socioeconomic position (SEP) and cardiovascular disease has been established in contemporary populations, for both women and men. Although this is not fully explained by socioeconomic differentials in established cardiovascular risk factors, most studies suggest that these risk factors explain at least some of the association between low SEP and increased cardiovascular disease risk. However, the associations between SEP and health behaviours and disease outcomes are dynamic and vary over time, across age groups and between countries. The three cohorts that form the Australian Longitudinal Study on Women's Health provide a unique opportunity to examine whether the magnitude of the associations between SEP and cardiovascular risk factors differ among women living in the same country but who are from different birth cohorts. A number of factors are likely to explain any differences observed, and differences in the magnitudes of the associations between SEP and cardiovascular disease risk factors across the three cohorts

may vary for different outcomes. The aim of the project is not to try to explain these differences, but to document them and to discuss the likely impact of any differences on future patterns of health inequalities in women.

Objectives:

- To compare the magnitude of associations between three measurements of SEP – education, occupation and ability to cope on available income – with cardiovascular disease risk factors (smoking, obesity, physical inactivity) within each of the three cohorts.
- To compare the magnitudes of these associations across the three cohorts.

Progress: As at April 13 2005, the analysis has been completed and a draft paper is in preparation. The following summarises the main results and conclusions, but it should be noted that the work is still in draft form and it is possible that details of the findings may be revised on the basis of subsequent statistical analysis, before a final report is complete.

In general, for all exposures and in all three cohorts, the odds of each adverse risk factor (smoking, obesity and physical activity) were lower in the most advantaged compared to the least advantaged. Within each of the three cohorts the effects of each measure of socioeconomic position on the outcomes were similar. There were, however, some notable between-cohort differences. The most marked differences were those with smoking. There was a trend across the three cohorts, such that among the Older women, those with the highest educational attainment were more likely to have ever smoked than those with the lowest level of education, while this association was reversed in the other two cohorts, with a strong association between low levels of education and smoking. Similarly, among the Older women, those in the most skilled occupational classes were most likely ever to have smoked, with opposite findings for Mid-age women. Educational attainment was not associated with current smoking among Older women, but in both of the other cohorts women with the lowest levels of education were the most likely to be smokers. It is concluded that these findings demonstrate differences in the effects of socioeconomic position, most notably in the area of smoking behaviour, between different birth cohorts of Australian women. This study does not appear to confirm previous suggestions that prestige-based measurements of socioeconomic position are more strongly associated with health related behaviours than are measurements that reflect material and psychosocial resources rather than prestige.

Project:	Comparisons of the associations between socioeconomic position and hysterectomy among older Australian and British Women.
ALSWH Investigators:	Professor Annette Dobson & Professor Christina Lee
Collaborative Investigators:	Dr Deborah Lawlor (Epidemiology and Public Health Medicine, University of Bristol, UK), Dr Leigh Tooth (University of Queensland)
Funding Source:	None

Background: Hysterectomy is one of the most commonly performed surgical procedures on women in most developed countries. For non-urgent procedures (the vast majority) the most common reason for a hysterectomy is dysfunctional uterine bleeding. However, dysfunctional uterine bleeding is not a specific diagnosis and a number of psychosocial and cultural factors will affect whether or not a woman with a given degree of symptoms seeks medical help. These factors, together with doctor-specific and health care factors, will then affect whether or not a woman with given symptoms goes on to have a hysterectomy. A number of studies,

conducted in a range of countries, have examined the relationship between socioeconomic position (SEP) and hysterectomy. Most, though not all, have found that adult SEP is inversely associated with hysterectomy in contemporary populations.

The aim of the current project is to further explore the relationship between non-biological factors (in particular SEP) and hysterectomy. This will be done firstly by comparing the prevalence of hysterectomy across three groups of older women (Australian-born Australian women; British-born Australian women and British-born British women). If biological factors are the main determinants of hysterectomy, then the prevalence should be similar in all three groups (since all three are largely “Caucasian” and thus have similar genetic risk profiles for fibroids, endometriosis and other distinct diagnoses that might lead to dysfunctional bleeding and/or hysterectomy). However, if contemporary non-biological factors are the main determinants, then one might expect British-born British women to differ from the other two groups, while if early life factors (such as early life SEP) are important, the prevalence could be different in all three groups; British women who moved to Australia in early life are likely to have had different early life experiences than either British women staying in Britain, or Australian women who were born here.

Secondly, we will compare the magnitude of the associations between SEP and hysterectomy between the three groups, using methods similar to those described above. This work builds on work already undertaken by the ALSWH team in which data from the Mid-age cohort and the British 1946 birth cohort were used to compare differences in three middle-aged groups, with respect to the menopausal transition. It also builds on work that DA Lawlor is currently involved in, which compares the association between SEP and hysterectomy and 3 British birth cohorts (born in the 1920s/30s, born in 1940s, born in 1950s). Interestingly, that work has shown that amongst the women in the 1920s/30’s cohort, those from the most deprived SEPs are least likely to have had a hysterectomy, whereas the converse is true in the 1950s cohort, with no consistent associations in the 1940s cohort (this work is currently on-going and so not yet submitted for publication). These findings demonstrate the dynamic nature of associations between SEP and hysterectomy over time in one country. It will be interesting to see if this also varies between countries.

Objectives:

- To compare the prevalence of hysterectomy across three groups of older women: British born British residents (British Women’s Heart and Health Study); British born Australian residents (Participants in ALSWH Older cohort who were born in Britain); Australian born Australian residents (Participants in ALSWH Older cohort born in Australia).
- To compare the magnitudes of the associations between socioeconomic position and hysterectomy across these three groups.

Progress: As of April 13 2005, a literature search had begun for this work; however, the work, the project is currently on hold while Dr Tooth is on maternity leave. We anticipate commencing the analysis in late 2005/early 2006, and hope to be in a position to submit for publication by April 2006.

Project:	Casual work and health outcomes in the Australian Longitudinal Study on Women's Health.
ALSWH Investigators:	Dr Penny Warner-Smith & Professor Christina Lee
Collaborative Investigators:	Dr Kristy Sanderson (Centre for Health Research, Queensland University of Technology)
Funding Source:	NHMRC Public Health Postdoctoral Fellowship

This project examined the association between employment type (casual versus permanent) and health in the young and middle-aged cohorts of the ALSWH, and the role of job precariousness in this association.

Employment has a positive effect on mental health in comparison to unemployment; however, this advantage is likely to be contingent on work meeting at least some minimal quality criteria. Understanding relationships between employment quality and health is increasingly important given two global trends: a rise in the proportion of workers in non-permanent or "atypical" jobs, and the concurrent degrading in quality of the traditional permanent job. A small literature suggests poorer mental health among atypical workers, yet none of these has sufficiently disentangled type of employment contract from measures of work quality. Data from Survey 2 of the Younger cohort was examined to investigate the association of depressive symptoms with type of employment contract (permanent only, casual only, and mixed – concurrent permanent and casual) and with four dimensions of work precariousness (involuntary job turnover, change in work function, distressing harassment, and underemployment).

Probability of reporting distressing harassment did not differ by contract type, but job turnover and underemployment were more likely among women with casual and mixed employment, and change in work function among those with mixed employment. Casual-only and mixed employment were associated with an increased probability of depression, as were all four dimensions of work precariousness. Employment contract was no longer predictive of depression after adjusting for work precariousness and a range of other work, sociodemographic and behavioural confounders. This suggests the association of employment contract type with depression is due both to the nature of casual work and to the characteristics of women who voluntarily or involuntarily select casual jobs. In contrast, all dimensions of precariousness remained significant, and the greater the number of dimensions experienced, the greater the probability of depression. A multidimensional approach to work quality identifies specific quality indicators as potential targets for reducing mental health risks from the work environment.

Project:	Transition to motherhood: Who becomes a mother? Who copes well with the transition?
ALSWH Investigators:	Professor Christina Lee & Ms Helen Gramotnev
Funding Source:	University of Queensland Start-up Grant

This set of analyses set out to explore predictors and outcomes of "early" motherhood among the Younger cohort.

Stage 1 involved a comparison of three groups of Younger women. Data from Survey 1 (1996, aged 18-23) and Survey 2 (2000, aged 22-27), were used to categorize women into:

- Childless. N=7788
- Existing Mothers (at the time of Survey 1). N=752; mean age at first birth = 19 years

- New Mothers (became mothers before Survey 2). N = 1064, mean age at first birth = 23 years

Multivariate logistic regressions provided comparisons on sociodemographics, gynaecological variables, psychological wellbeing and health behaviours. Survey 1 data showed that Existing Mothers experienced socioeconomic disadvantages and exhibited unhealthy lifestyles. However, women who were not yet mothers, but who would become mothers earlier than their peers, were already experiencing similar disadvantages. Further, the Survey 2 data showed that, when these pre-existing disadvantages were controlled for, the additional deficits experienced by early mothers were relatively minor. There were no differences in physical or emotional quality of life, while stress levels are lower among mothers than among the childless.

This analysis supports the view that social disadvantage predisposes women to become mothers early, as well as to adopt and maintain unhealthy behaviours. However, it appears that young Australian women cope well with the challenges of early motherhood. In the longer term, low levels of education and unhealthy lifestyles may lead to ill health and disadvantage, but early motherhood is not the initiator of this trajectory.

Stage 2 involved a further analysis of the New Mothers subgroup. These women were categorised on the basis of their Survey 2 Mental Health Index scores into three subgroups:

- High mental health ($MHI \geq 84$), N= 198
- Normal mental health ($84 > MHI \geq 53$), N= 675
- Low mental health ($MHI < 53$), N = 191

Survey 1 data were used to examine predictors, and Survey 2 data to examine correlates, of mental health. Women who would have High mental health as mothers were likely to be in paid work, had few symptoms, and had low levels of stress at Survey 1. They were least likely to have a history of miscarriage and most likely to use contraception. However, there were no significant effects for locality (urban or rural area of residence), age, marital status, educational qualifications, financial difficulties, country of birth, or health-related behaviours.

Surprisingly few sociodemographic or health-related variables predict level of coping with early motherhood. In the contemporary context, with ready access to family planning, early motherhood may increasingly be an active choice rather than an unwanted consequence of poor planning. However, in the longer term, young mothers may suffer an increasing level of disadvantage and concomitant distress relative to their peers.

Stage 1 and Stage 2 analyses have been completed, and two papers are currently under editorial review.

Project:	Resilience and coping: Predicting positive well-being following life transitions and major life events among young Australian women
ALSWH Investigators:	Professor Christina Lee, Dr Nancy Pachana & Ms Helen Gramotnev
Collaborative Investigators:	Ms Ingrid Rowlands (School of Psychology, University of Queensland)
Funding Source:	University of Queensland Start-up Grant

This project aims to identify characteristics of young Australian women which are associated with coping well despite major personal challenges. It focuses on positive well-being and

resilience, addresses the important but under-studied life stage of “emerging adulthood”, and focuses on women’s lives and on gender-specific challenges for women in emerging adulthood.

The psychological literature has traditionally focused on the negative outcomes of life transitions and major life events, demonstrating that major change – particularly that which is negative and unexpected – is associated with poor mental health, increased risk of illness, and increased use of health services. Increasingly, there are calls for the development of a “positive psychology,” but these have yet to be matched by a strong body of empirical work that identifies characteristics of positive emotional health.

Further, while there is a large body of literature that addresses the challenges of adolescence, it is only in recent years that developmental psychology has begun to address the changes of “emerging adulthood” – the stage of life during which people make the transition from adolescent to adult. This stage of life is characterized by high levels of life change and by many major life events, and by high levels of psychological distress. Decisions made during this stage, for example concerning education, employment, parenthood and relationships, have far-reaching effects on economic, social and emotional conditions throughout adult life. This is also a time at which risky behaviours (such as smoking and abuse of alcohol and illicit drugs) peak; it is established that many “experimenters” with risky behaviour do not persist with these, and that quitting is associated with the adoption of adult roles and responsibilities, but there is little research on the characteristics of those who pass safely through this experimental phase.

The aim of this project, therefore, is to apply a positive-psychology approach to understanding the transitions and challenges faced by women during emergent adulthood, in order to understand factors associated with successful transition and to inform the development of preventive and early-intervention programs designed to strengthen community capacity.

Stage 1 involves exploring characteristics of women who pass through specific transitions, using data from Younger Surveys 2 and 3. Building on Sandra Bell’s PhD work, Christina Lee and Helen Gramtonev have finished and submitted papers which describe demographic transitions between Younger Survey 2 and 3; describe the predictors and correlates of motherhood before Survey 1 or between Survey 2 and 3; and describe the characteristics of women who have coped well (as indicated by high MHI scores) with early motherhood.

Stage 2 involves similar analyses focusing on women who have had major non-normative life events. Ingrid Rowlands is beginning work on the predictors and correlates of the experience of miscarriage and will similarly examine predictors and outcomes of having miscarriages, and factors associated with coping well or badly with this event. Later stages will involve further analysis of transitions, and some comparisons between age groups on transitions such as relationship breakdown.

Project:	The impact of life events on health status, mood state, quality of life and health care utilization among older community dwelling women.
ALSWH Investigators:	Dr Nancy Pachana
Collaborative Investigators:	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. Recent evidence suggests that anxiety symptoms are common in later life, affecting approximately 10% of the population. Higher rates of anxiety are observed among people with co-morbid depression. For example, among older persons, about half of the clinically depressed suffer with co-morbid anxiety disorders and one-quarter of patients with anxiety suffer from major depression. It has been suggested that longstanding vulnerability factors, such as a family history of anxiety disorders, become less important among the elderly. Instead, other factors such as stressful life events, particularly those pertinent to older people such as moving house, health problems and bereavement, may be important risk factors for the development of anxiety. However, this has not previously been systematically assessed.

The adverse impact of stressful life events (eg widowhood) on mood, and on other aspects of functioning including cognition, quality of life and health care utilisation in later life, is well established, but it is unclear to what extent anxiety-provoking life events also impact negatively on the lives of older people.

This analysis will 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, using the Older cohort of ALSWH.

Aim 1: Data from the Survey 3 of the Older cohort will be analysed to identify women who report a significant number of recent life events and assess affective symptoms, using the Goldberg Anxiety and Depression Inventory. We will also explore patterns of life events endorsed across Survey 1, 2 and 3 (1996, 1999, 2002).

Aim 2: Data from Surveys 1, 2 and 3 of the Older cohort will be analysed to determine whether stressful life events are a risk factor for later development of anxiety. Life events and both anxiety and depression will also be examined to ascertain their impact on health status, quality of life and health service use among Older women, using regression modelling to control for the modifying effects of social support.

Depending on the outcomes of these analyses, funding will be sought for a substudy which will involve telephone interviews with Older women to explore the nature of anxiety-related events in their lives. This substudy will be dependent on approval from the Publications, Analyses and Substudies Committee and from the Human Research Ethics Committees of the University of Newcastle and University of Queensland.

Knowledge about the consequences of stressful life events has led to improved treatment options (i.e, improving the coping skills associated with the loss of a spouse) for older adults suffering from depression. However, many people with depression also suffer with anxiety, so delineating the relationship between stressful life events, symptoms of anxiety and diagnoses of disorders of anxiety and depression is important for improved public health initiatives as well as best practice guidelines. Identification of factors (eg stressful life events) that potentially lead to anxiety in the elderly may also represent an important public health issue, particularly in terms of reduced health service use and increased morbidity. Finally,

such data have implications for the development of management guidelines for cost-effective treatment of mood disorders in later life.

Project: Patterns of use and satisfaction with child care.
ALSWH Investigator: Dr Penny Warner-Smith & Professor Lois Bryson
Collaborative Investigators: Professor Peter Brown (Centre for Work, Leisure and Community Research, Griffith University)
Funding Source: ARC Discovery Project Grant

Childcare is an undeniably complex issue which is of current concern to policy makers. The fact that childcare allows women to pursue further education and paid work has important implications for their health and wellbeing, but it is clear that there are issues of access and affordability in the provision of child care services.

Data from the third survey of the Younger cohort are presently being analysed, firstly to provide a description of who is using childcare. We are examining the hours of usage of formal, informal and total childcare in relation to characteristics including area of residence, education, relationship status, number of children, occupation, employment, hours of work, and ability to manage on income. Secondly, the initial analysis will provide a basis for further work on the way childcare use affects Australian women. Other research has suggested that stress with childcare arrangements is associated with depression. We therefore intend to look at associations between satisfaction with child care arrangements and mental health, hypothesising that women who are satisfied will have better emotional health. Further questions concerning child care, including problems with access and cost, have also been drafted for inclusion in the fourth survey for the Younger cohort.

Project: Patterns of workforce participation among young women.
ALSWH Investigator: Dr Penny Warner-Smith & Professor Lois Bryson
Collaborative Investigators: Professor Peter Brown (Centre for Work, Leisure and Community Research, Griffith University) & A/Professor Duncan Ironmonger (Department of Economics, Melbourne University)
Funding Source: ARC Discovery Project Grant

It has been shown that younger women feel more pressured and stressed than women in the mid-age cohort, and it is possible that part of this pressure is attributable to fragmentation in their lives. In this investigation we are mapping the workforce participation of younger women, examining the extent to which their work activities are marked by involvement in more than one job, shift work, working from home, combining paid work and study, and paid work and voluntary activities, etc. An important focus is the work patterns of young women who have partners and children, given the current attention from both government and the wider community to work and family issues.

Analysis of data from the Survey 3 of the Younger cohort has begun and will form a descriptive paper that forms the basis for a series of investigations around young women's patterns of time use.

Project:	Relationship between work, welfare and women's health
ALSWH Investigators:	Professor Christina Lee
Collaborative Investigators:	Dr Margaret Kelaher (Key Centre for Women's Health in Society, University of Melbourne)
Funding Source:	NHMRC Career Development Award

There is clear evidence that employment is good for the physical and mental health of men, even allowing for the fact that men in ill health are likely to be excluded from the workforce. However, the positive effects for women are strongly mediated by socioeconomic status, partnership, and ages of children. Part of the difference may be that work and family commitment affect women's lives differently at different stages of the lifecourse. This issue has become particularly topical in debates about whether the welfare system can influence reproductive choice, and about the health implications of returning to paid work among mothers of young children. There has been very little research on the impact of unemployment and transitions in work status on reproduction and health. In this study a series of analyses was conducted, using Surveys 1 and 2 of the Younger cohort, to examine the effects of:

- Unemployment on reproductive choice
- Transitions in employment on health
- Returning to work, among women with children, on health

The analyses assessing unemployment and reproductive choice found no evidence that unemployed women were lower users of contraception. However, there was evidence that higher rates of pregnancy among unemployed women were associated with lower use of the contraceptive pill in this population. There was an interaction between rates of termination and unemployment and partnership status: overall, partnered and unpartnered women have similar rates of termination, but partnered women who were unemployed were more likely to have terminations than other women. The results suggest that the relationship between welfare and reproductive choice is complex.

The health of women who were unemployed at both surveys (n=211), became unemployed (n=487), became employed (n=417) and were working both times (N=8553) was compared. The effects of socioeconomic status and motherhood were also taken into account. Health was measured using the SF-36. Women working both times were in significantly better physical health than women in all other groups. Women with children had significantly worse physical health than other women. Change in employment interacted with health, such that any change in employment status was associated with decreased physical health. The health status of women who were employed both times or unemployed both times did not change over time, although the unemployed women were in substantially poorer health on both occasions. Women working both times were also in significantly better mental health than women in all other groups. There were no differences in mental health between women who had children and women who did not, and transitions in employment did not affect mental health.

Project:	The long-term effects of early motherhood versus miscarriage among young Australian women.
ALSWH Investigators:	Professor Christina Lee
Collaborative Investigators:	Dr Bruce Bradbury (Social Policy Research Centre, University of New South Wales)
Funding Source:	Commonwealth Department of Family and Community Services

There is extensive evidence that young mothers and their children tend to have poorer socio-economic outcomes than older mothers. However, much of this relationship could be due to women with poorer education and labour market prospects being more likely to choose to have children at a younger age, rather than a direct effect of young motherhood *per se*.

To estimate the direct impact of young motherhood, one approach is to identify a group of women who are similar to the young mothers in all relevant respects except for their motherhood status. Women who experience a miscarriage within the same age window (eg teenage years) are often used as a comparison group. Studies using this approach in the USA and the UK have come up with conflicting conclusions. Hotz et al, in the USA, found that that becoming a mother at a young age actually increased the later earnings of mothers – compared to what they would have been if their pregnancy had ended in miscarriage. A similar study by Ermisch and Pevalin in the UK, however, found that women who became young mothers fared worse in the ‘marriage market’ and were more likely to have unemployed or low-income husbands at age 30.

This study takes a similar approach using the data from the Younger cohort of the ALSWH. Survey 1 data include reported number of times that the respondent had been pregnant, had a miscarriage, had a termination, or given birth to a child. This will be used to predict a number of socio-economic outcomes collected at Survey 3. These include household composition, location (postcode grouping), education, occupation, individual and household income, and employment status. Currently we are working on defining the groups of women at Survey 1.

Project:	Declining fertility rates and the normalisation of technological control of reproduction among young Australian women.
ALSWH Investigators:	Dr Penny Warner-Smith & Ms Rosie Brotherston
Collaborative Investigators:	Dr Ann Taylor (School of Social Science, University of Newcastle)
Funding Source:	University of Newcastle Project Grant

This project aims to contribute to debates surrounding the falling Australian birth rate and the relationship between women and reproductive technology through an investigation of the varied perspectives held by young women regarding their fertility, their reproductive decision-making, and the part reproductive technology plays in their lives. The research involves analyses of two sources of qualitative data, firstly, qualitative data gathered from the Younger cohort of the ALSWH at Survey 1 (1996), Survey 2 (2000) and Survey 3 (2003), and secondly, data collected from a series of focus group discussions with young women around urban New South Wales. These data are currently being analysed using the qualitative software program N6.

Preliminary findings suggest that both ALSWH and focus group participants articulate a rather ambivalent relationship with reproductive technology. Most expressed a lack of trust

toward contraceptives, a desire never to need to experience abortion or fertility treatment, and general concern about the side effects, costs, and interference with their daily lives and bodies, that are involved in the different technologies. However, in Australian society, as with most developed countries, reproductive technologies have been normalised to such a degree that despite the negativity felt toward reproductive technology, the majority of these women are using reproductive technologies to assist them in demonstrating their reproductive choices. Reproductive technology is reported as being used both to delay and to accomplish the motherhood ideal, and to reconcile any unplanned reproductive experiences, in terms of both the timing of children, through the use of contraceptives and abortions, and becoming a mother in the face of fertility problems, using assisted reproductive technologies, such as in vitro fertilisation.

Project:	Work-life tensions: Time pressure, leisure and wellbeing among dual-earner parents in Australia.
ALSWH Investigators:	Dr Penny Warner-Smith & Professor Lois Bryson
Collaborative Investigators:	Professor Peter Brown & Ms Robyn Synnott (Centre for Work, Leisure and Community Research, Griffith University); A/Professor Duncan Ironmonger (Department of Economics, University of Melbourne) & Ms Leanne Fray (Research Centre for Gender and Health, University of Newcastle)
Funding Source:	ARC Discovery Project Grant

The effort required of families to balance their work and family commitments is receiving increasing attention. The aim of this project, which is funded by a three-year ARC Discovery Grant and involves investigators from the University of Newcastle, Griffith University, and the University of Melbourne, is to find out how dual-earner parents cope with their work and family responsibilities. While work-life tensions impact on individuals and families, stress-related complaints also have great potential costs for organisations, and implications for health service usage and the national budget. There is a body of literature on structural and institutional factors associated with work-life tensions, such as the implementation of family friendly workplaces, but less is known about the strategies which families employ to manage the competing demands on their time.

Information for this project was first collected in 2004 from nine focus groups with working parents in urban and rural locations in NSW and Queensland. A range of strategies used by parents in dual-earner couples to help manage work-life responsibilities was identified. These included:

- Engaging practical domestic help by outsourcing and investing in labour saving devices
- Relinquishing ‘control’: however, unpredictability appeared to be a significant source of tension, as was the self imposition of unrealistic expectations
- Adapting work patterns: this was a very popular strategy – although this is limited by workplace structures, many people made deliberate choices about hours, place and type of work
- Resisting ideological pressures: in relation to time pressure, this was linked to the way in which retailers use rituals and holidays such as Easter and Christmas to make consumers continually look to future time.
- Managing domestic organization: a wide range of strategies was mentioned to manage the nitty gritty of routine domestic tasks.

- Making lifestyle choices: this included major decisions such as restricting the number of children one had.
- Reducing individual stress: some respondents mentioned particular strategies to cope with their own stress.
- Engaging a ‘pit crew’: parents cannot manage without support from others, but they can enlist this in a more purposive and reciprocal way.

This information was then used to construct a survey to collect more detailed information about how people use their time. The survey data were collected electronically by means of hand-held computers, or “palm pilots”. A sample of 50 respondents in the Younger cohort, and their partners, was drawn for this phase of the project in 2004. Interviews were then conducted with the same couples to flesh out the information provided in the Experience Sampling Method phase. A further sample of 50 Mid-age respondents and their partners is being surveyed and interviewed in 2005. The information provided by the ALSWH participants will be situated in a statistical analysis of ALSWH main survey data, including patterns of paid and unpaid work, use of and satisfaction with childcare, feelings of time pressure, feelings of job security, and perceptions of being in control at home and at work.

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; Professor Julie Byles & Dr Anne Young
Collaborative Investigators:	Dr Christine Everingham; Dr Deborah Stevenson; Ms Penelope Robinson (School of Social Sciences, University of Newcastle) & Dr Lynne Parkinson (Centre for Research and Education in Ageing, University of Newcastle)
Funding Source:	ARC Discovery Project Grant

With the ageing of the Australian population, retirement and workforce issues are becoming increasingly important. Little is known about women’s attitudes towards retirement or the factors that shape them. This project aims to:

- Identify and critically analyse attitudes and expectations regarding ageing and retirement; of three generations of women in different socio-economic groupings and geographical locations
- Investigate associations between changes in employment status among women and a range of variables, including socio-economic, health and family relationships, in order to assess these variables as predictors of retirement intentions/attitudes;
- Analyse significant cultural texts that have influenced attitudes, values and expectations across the generations;
- Contribute to social policy deliberation on women, ageing and retirement.

The study differs from other studies on women and retirement by adopting a generational perspective, with the specific purpose of identifying cultural shifts and the socio-economic factors influencing these shifts. The project will analyse the influential cultural products of three different time frames, in order to identify dominant influences on each of the generations represented in the study.

Initial ALSWH data were drawn from the pilot survey for the Survey 4 the Mid-age cohort. These data indicated that retirement was a problematic concept for women, and that many did

not have clear ideas about when they intended to retire. Their motivations for retirement were primarily concerned with their own health and financial security, but they also reported that they would retire if they were needed to provide care for an ill or elderly relative. This information was used for several conference presentations and an academic journal article in 2004.

By the end of 2004, 25 in-depth interviews plus 3 focus groups had been conducted with older women; 18 interviews plus 1 focus group with middle-aged women and 22 interviews plus 3 focus groups with younger women – a total of 72 interviews in all. All of these interviews have been transcribed.

These interviews, plus quantitative ALSWH data, formed the basis for a paper accepted for delivery at the British Sociological Association Annual conference, in 2005. Further analyses of ALSWH quantitative data on mid-age women's paid and unpaid work experiences, and associations with their health and wellbeing in the context of their demographic and lifestyle characteristics, are being carried out with Survey 4 data from the Mid-age cohort.

Project:	Volunteering and older women.
ALSWH Investigators:	Professor Julie Byles
Collaborative Investigators:	Dr Lynne Parkinson (Centre for Research and Education in Ageing, University of Newcastle); Dr Jeni Warburton (School of Social Work & Applied Human Sciences) & Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)
Funding Source:	Centre for Research and Education in Ageing, The University of Newcastle

A review of the international literature proposes 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 physically. This may be particularly important for older women, who may benefit from the social aspects associated with volunteering, and who may have a long-term commitment as volunteers. However, some recent Australian evidence has suggested that volunteering might actually be bad for health because it can be a stressful, time-consuming activity. Therefore, the broad aim of the proposed research is to explore the relationship between health and volunteering among older women, from a secondary analysis of ALSWH data.

The analyses will include:

- A comparison of those who reported volunteered and those who did not, at Older Survey 3, on health status, quality of life and psychosocial health variables. This will allow us to explore the relationship between volunteering and health – and either support or challenge the Ziersch and Baum (2003) findings that volunteering is bad for health.
- The development of a model explaining potential predictors of volunteering, with a primary focus on the importance of health as a predictor. The model will include variables associated with volunteering such as income, education, marital status, as well as health, health status, quality of life and psychosocial health variables.
- A longitudinal analysis of how changes in health, psychosocial and demographic variables impact on women's volunteering between Survey 3 and Survey 4 of the Older

cohort. This will allow us to answer some key questions, such as: Do women drop out of volunteering when their health decline? Does declining health happen more often or more quickly among non-volunteers than volunteers? What other transitions impact on volunteering?

Project:	Relationship between change in social support and change in mental health status among the Older cohort.
ALSWH Investigators:	Dr Nancy Pachana & Professor Annette Dobson
Collaborative Investigators:	Ms Nadine Smith (School of Population Health, University of Queensland)
Funding Source:	None

Social support can be conceptualised in terms of the structure of the social network of the individual, as well as the perceived behavioural or emotional support derived from such networks. The Duke Social Support Index contains two subscales which reflect these different aspects of social support. In the Older cohort of ALSWH, changes in social network characteristics and satisfaction with social support were analysed.

The results show that the two subscales of the DSSI have related yet distinct associations with explanatory variables in this cohort. Social networks appear to increase for women likely to require assistance, including widows (especially those recently widowed) and those who experienced a decline in the health of someone close to them. These individuals, because of their circumstances and current needs, may attract increased attention from their existing social network. This is congruent with theoretical models of change in social support over time, suggesting that these women are benefiting from the responsiveness of the social networks they have already put in place.

Social networks appeared to decrease for women who were less able to access their network, either physically (e.g. those with limited mobility) or psychologically (e.g. those with lower mental health or optimism scores). These individuals may be unable to access their networks effectively, or may in fact be resistant to approaches from within their networks, particularly if the individual is withdrawing socially due to depression. Social networks also decreased for those women who reported low satisfaction with their current social network. This reduction in the social network may reflect adaptation to a perceived lack of social support, with the individual disengaging from those in their network whose support is not adequate for her needs, resulting in a smaller social network. This is congruent with both the social convoy and socioemotional models of change in social interaction in later life.

Satisfaction with social support was similar in women in married or de facto relationships and for recent widows; this may be a function of the increased amount of social interaction the recently widowed group attracts from their social networks. Satisfaction with social interaction among women with hearing impairments was low, possibly due to unwillingness to participate in such interactions, discomfort in not hearing others, or their decreased ability to derive pleasure from such interactions. Other studies of older women have also found lower rates of social participation associated with hearing loss.

Women from non-English speaking countries were less satisfied with their social networks, possibly reflecting a shrinking over time of a cohort of peers from their country of origin who share similar experiences. This may explain why women from English speaking countries other than Australia experience similar dissatisfaction; changes in community composition or acculturation may be at work in such cases. Social support and satisfaction with social

support in immigrant groups, particularly with respect to age effects, is an area which requires further study.

Project:	Relationship between Goldberg Depression and Anxiety Scale and health variables in the Older cohort.
ALSWH Investigators:	Dr Nancy Pachana & Professor Annette Dobson
Collaborative Investigators:	Ms Nadine Smith (School of Population Health, University of Queensland) & Dr Natasha Koloski (School of Psychology, University of Queensland)
Funding Source:	None

Measures attempting to assess anxiety and depression separately in older individuals often incur difficulties due to overlap of these constructs in later life. Using the Goldberg Anxiety and Depression Scale (GADS), we aimed to confirm its factor structure in a large cohort of older Australian women, to validate the instrument against self-report information, and to assess its ability to predict a variety of health-related outcomes.

The participants were 8646 Older women (aged 75-82 years at the time of Survey 3) enrolled in the Australian Longitudinal Women's Health Study. Measures of anxiety and depression included the GADS and the mental health component of the SF-36. Self reported information on mental health diagnosis, life events and selected health outcomes were included in cross-sectional and longitudinal analyses.

Latent trait analyses replicated prior studies which demonstrated high correlations between anxiety and depression as measured by the GADS. The existence of a mixed anxiety-depression subgroup was not in itself responsible for explaining the high correlation between the two dimensions. ROC analyses showed that the GADS performs adequately as a screening instrument, with reasonable agreement with other indicators of anxiety and depression. Comparison of the GADS with other mental health indicators in predicting health outcomes showed that summary scores, rather than using the depression and anxiety subscales separately, were of greatest utility in predicting outcomes.

We conclude that the GADS is a useful instrument to gauge anxiety and depression in older samples, contributing meaningful and significant amounts of variance to a range of health outcomes as measured in our large sample.

1.2.2. Completed postgraduate theses

Project:	Acumen, ambivalence and ambiguity: Stories of women with asthma.
PhD Candidate:	Gabrielle Rose (School of Population Health, University of Queensland)
Supervisors:	Professor Annette Dobson; Professor Jake Najman (Queensland Alcohol and Drug Research and Education Centre, University of Queensland) & Professor Lenore Manderson (Key Centre for Women's Health in Society, University of Melbourne)
Funding Source:	None
Date of Submission:	Expected to be 20 th May 2005

Aims, Methods and Outcomes: The aim of the study is to describe women's personal experiences of asthma, how they diagnose and manage their asthma, their treatment strategies, and the impact of asthma on the quality of their lives.

Study: Australia has one of the highest prevalence rates of asthma in the world and is consequently one of the leading countries in the public health approach to the problem. Yet biomedical and public health discourses provide various definitions of asthma and, at times, contradictory models of aetiology, treatment and prevention. These contrasting views are disseminated to the public by the media and in clinical encounters: they inform medical practice, pharmaceutical policy, and public perception and responses to the illness. This thesis explores convergences and discrepancies in representations of asthma and contrasts these with the lived experiences of women with asthma. The thesis draws on research undertaken in Queensland, Australia, with women with asthma and with their physicians and other people working in the field of asthma policy, practice and research.

The study involved a population of 239 women aged between 45 and 50 years from urban, rural and remote areas of Queensland. This sub-study was drawn from the Mid-age cohort of the Australian Longitudinal Study on Women's Health. The methods included a triangulation of qualitative, quantitative and observational techniques including questionnaires, in-depth interviews, focus group discussion, content analysis, natural grouping interviews, case studies, and participant observations.

The central argument of the thesis is that despite positive advances in the area of asthma research, policy and practice, the continuing reliance on medical and public health models for the creation of knowledge in the area of chronic illness fails to respond adequately to the needs of women with asthma. At present they are suffocating under a weight of institutional and personal expectation that ignores personal need. Instead of research practice that focuses on deficits in women's knowledge about asthma, an asset-based approach to the problem – one that focuses on and develops pre-existing knowledge, attitudes and practices – is necessary to manage asthma as a chronic illness.

Project:	Vision and hearing loss in older women: Health and psychosocial impacts.
Honours Candidate:	Wenggie Fong (Department of Speech Pathology and Audiology, Flinders University)
Supervisors:	Dr Kristin McLaughlin & A/Professor Linnett Sanchez (Department of Speech Pathology and Audiology)
ALSWH Advisor:	Professor Christina Lee
Funding Source:	None
Date of Submission:	26 th October 2004

Background: Age-related hearing, vision and dual sensory loss (hearing and vision loss in combination) are common in older age. The additive effects of dual sensory loss may be especially disabling for elderly persons. However, there is a lack of research on the prevalence and health and psychosocial impacts of dual sensory loss in older persons in Australia.

Aim: This study set out to examine the prevalence, health and psychosocial outcomes of hearing, vision and dual sensory loss in older women.

Methods: Hearing and vision data for over 11,000 elderly women from baseline surveys of the Australian Longitudinal Study of Ageing (ALSA) and Australian Longitudinal Study on Women's Health (ALSWH) studies, were examined. Based on self-reported sensory status, women were classified into four sensory categories: hearing loss only, vision loss only, dual loss, and no sensory loss. Comparisons of health and psychosocial wellbeing were made between these four groups of women. The agreement of self-reported and clinically measured sensory status of the ALSA women was also examined.

Results: Sensory loss (hearing, vision or dual loss) was reported by more than half of the women in both studies, 71.3% in ALSA and 54.9% in ALSWH. Specifically, 26.2% of the ALSA participants and 17.0% of the ALSWH participants self-reporting dual loss. In both studies, poorer health and psychosocial profiles were found for the self-reported vision loss and dual loss groups compared to the hearing loss and no sensory loss groups. The findings suggest that vision loss alone might be the contributing factor to poorer health and psychosocial outcomes, and when combined with hearing loss, women with dual loss are at increased risk of suffering from poorer health and psychosocial outcomes. Additionally, a positive relationship between ALSA women's self-reported sensory status and their clinically measured sensory abilities was found. However, the strength of the positive relationship for visual and dual sensory loss was weak, compared to that of hearing loss and no sensory loss.

Conclusions: Future research should examine the causes of the poorer health and psychosocial profiles of elderly individuals with sensory loss as well as the potential for restoration or maintenance of the maximum degree of functional independence for elderly individuals affected by sensory loss. This is an especially pressing issue as the burden from sensory loss is expected to increase due to the rapidly ageing population of developed countries, such as Australia.

1.2.3. Student projects in progress

Project:	Epidemiology of osteoporosis in Australian women.
Masters of Public Health Candidate:	Karen Furlong (School of Population Health, University of Queensland)
Supervisors:	Professor Annette Dobson
Funding Source:	None
Expected Completion:	November 2005

Osteoporosis is characterized by increased bone fragility and susceptibility to fracture, with the most common sites being hip, spine, wrist, forearm, and humerus. It is an escalating problem worldwide with the increase in life expectancy and ageing of the population. It involves a huge burden in terms of morbidity, mortality, and costs. An understanding of the epidemiology of osteoporosis, especially in Australian women, will help our understanding of the disease and risk factors and may contribute to better targeting of those women at risk.

The first stage will be to conduct an exploratory analysis on the older cohort, comparing those women who reported doctor-diagnosed osteoporosis at Survey 1 with those who did not. The second stage will be to look separately at Survey 2 and then Survey 3, examining new, incident cases who report a doctor-diagnosis of osteoporosis, looking for associations between the presence of osteoporosis and a range of demographic, health behaviour, and reproductive factors. Exercise, BMI, smoking, alcohol, falls, fractures, age, and HRT use will be assessed to determine the relative importance of these risk factors for the prevalent and incident cases.

Characterisation of women who report a diagnosis of osteoporosis from a large cohort of Australian women will give insight into the differences or similarities between these women in relation to potential risk factors. This knowledge may lead to greater understanding of the condition and contribute to the knowledge about women who are at risk for osteoporosis.

Project:	Carer status and psychosocial correlates across time: A longitudinal analysis.
Professional Doctorate Candidate:	Sally Duncan (School of Psychology, University of Queensland)
Supervisors:	Professor Nancy Pachana
Funding Source:	None
Expected Completion:	December 2005

The proposed program of research consists of two studies that draw exclusively on the data from the Older cohort across three time periods (1996, 1999, 2002).

Study 1 is a cross-sectional analysis of Survey 3 data from the Older cohort. We will be comparing all persons self-identifying as caregivers at Survey 3 to non-caregivers at Survey 3. As a first step, we will be comparing caregivers to non-caregivers on measures of optimism, hardiness, social support, ability to manage on income, exercise, time use, and satisfaction with neighbourhood; outcome measures include depression and anxiety and physical and mental health summary scores. In line with previous research on caregiver adjustment, it is expected that perceived quality of social support, optimism and hardiness, availability of resources (such as being able to manage on one's income), and engagement in active coping strategies (such as exercising) will be related to better self-reported physical health and psychological well-being. Similarly, reporting a number of adverse life events is expected to be associated with poorer coping among caregivers.

Study 2 compares long-term versus never- caregivers. We will define long-term caregivers (LTCG) as those who have been caregivers continuously across the three time periods. Non-caregivers (STCG) are defined as those who have never identified themselves as carers. We will compare these two groups on similar measures and outcome variables to Study 1. We wish to ascertain whether the same resources are important for helping long-term versus short-term caregivers. Stepwise regression procedures will be used as a first step in order to ascertain whether the same variables are significant for both groups. Regression modelling also will be undertaken, to determine whether the slopes are significantly different between these two groups. Finally, if results are promising, we will compare, via SEM, whether the model derived is the same for the two groups.

Project:	Battling the Black Dog: an exploration of the strategies used by young Australian women coping with depression.
PhD Candidate:	Catherine France (Research Centre for Gender and Health, University of Newcastle)
Supervisors:	Professor Christina Lee & Dr Sue Outram (School of Medical Practice and Population Health, University of Newcastle)
Funding Source:	Australian Postgraduate Award
Expected Completion:	February 2006

The overall aim of the project is to identify strategies that women use to pass successfully through periods of depressed mood, in order to make recommendations for treatment.

The project plans:

- to explore correlates and predictors of depressed mood among the Younger cohort, addressed through analyses of Survey 2 and Survey 3 data.
- to identify those coping styles and strategies associated with successfully passing through periods of depressed mood, addressed through a substudy (Coping Survey).

The first part of the project has been addressed through analyses of the main survey data collected in 2000 and 2003. Regression analyses have been used to examine correlates and predictors of “depression”, defined in this instance as a score of 10 or greater on the 10-item CES-D.

Cross-sectional analyses of variables suggest that compared with women who were “not depressed”, women who were “depressed” were more likely to report lower levels of social support, higher numbers of life events and physical symptoms, and more visits to the GP. Longitudinally across Surveys 2 and 3, four groups (“never depressed”; “no longer depressed”; “became depressed”; “remained depressed”) were identified. The longitudinal analyses, which used “never depressed” as the reference group, indicate that, before adjustment, all three groups have significant differences on the majority of variables compared with the reference group. The multivariate analysis which adjusted for all variables in the model at S2 and S3, implies far fewer differences between the reference group and those women who were “no longer depressed”. Those who “became depressed” and “remained depressed” continued to report significantly lower levels of social support, and higher numbers of life events and physical symptoms. Physical activity was associated with reduced likelihood of reporting depressed symptoms for these two groups compared with those who were “never depressed”.

The development of the substudy included input from a focus group involving five younger Australian women from remote, rural and urban areas; and advice from medical practitioners

and specialists in women's health, including researchers at ALSWH. The revised survey was piloted with 27 members of the Younger Pilot cohort, all of whom had scored ≥ 10 on CES-D 10 for Pilot Survey 2 in 1999: 13 of whom were "no longer depressed" and 14 of whom "remained depressed", according to their scores on Pilot Survey 3 in 2002.

On the basis of responses to the pilot study, the substudy was further revised and re-submitted to the University of Newcastle Human Research Ethics Committee. Another variation was submitted to request permission to send the survey to four groups from the Younger cohort: women who had never been depressed, women who were no longer depressed, women who became depressed, and women who remained depressed. Approval was granted to send the substudy (Coping Survey) to 300 women from each group.

The Coping Survey was posted in August 2004. One postal reminder was sent three weeks after the survey was sent; there were no telephone reminders. A total of 910 completed surveys was received (response rate= 76%). Numbers of responders were approximately equal across the four groups. Data from the Coping Survey have been logged and entered, including responses to the open-ended questions. Analyses of the Coping Survey data continue and it is anticipated that the most successful strategies for overcoming depressed mood will be identified within the next few months.

Project:	Reducing cigarette smoking among young women
PhD Candidate:	Ms Liane McDermott (School of Population Health, University of Queensland)
Supervisors:	Professor Neville Owen (Cancer Prevention Research Centre, University of Queensland) and Professor Annette Dobson
Funding Source:	NHMRC Public Health Postgraduate Research Scholarship
Expected Completion:	March 2006

Aims, Methods and Outcomes: The research aims to identify the determinants of cigarette smoking among young women and to explore potential intervention strategies to reduce cigarette smoking among this target group. There are currently three stages to this project.

Stage 1: This study aimed to examine how life transitions such as leaving home, gaining employment or attending college/university, marriage, and parenthood influence smoking behaviour among young women. Eighty-one young women, aged between 24 and 29 years in 2002, were recruited as part of a sub-study from ALSWH's cohort of young women. Based on data from Survey 1 (1996) and Survey 2 (2000), the women were identified by four smoking behaviour categories: 1) Never smoked; 2) New adopter; 3) Continuing smoker; and 4) Quitter. Standardised, open-ended telephone interviews were used to explore factors and contexts associated with life transitions and their influence on smoking adoption, maintenance of smoking and smoking cessation. The results identified the social context of smoking (socialising with other smokers, drinking alcohol and going to pubs and clubs) as the 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 identified as an important factor as young women experienced lifestyle changes. An increased sensitivity to the negative aspects of smoking after turning 21 was reported, and around the mid 20's many women became concerned about the addictive nature of cigarettes; these concerns were particularly expressed in conjunction with future plans to have children. Motherhood was seen to carry increased responsibilities to ensure that children were not exposed to passive

smoking and there was a perceived importance of positive role modelling to protect children from becoming smokers themselves.

Stage 2: This quantitative research (which is currently being undertaken) will examine, longitudinally, factors associated with smoking adoption, maintenance of smoking and smoking cessation as women experience the four major life transition events (leaving home; employment, college/university; relationships/marriage; and parenthood). These findings will be considered in the context of the previous qualitative study and literature review. The ALSWH data sets from the 1996, 2000 and 2003 surveys of the Younger cohort will enable analysis of life-stage transition variables and smoking behaviour and, at greater depth, it will enable an analysis of factors associated with smoking behaviour as women experience each of the four life transition events. These factors include: demographic, psychological, social and lifestyle factors as well as nicotine addiction. Multivariate analyses such as multiple and logistic regression will be used to analyse predictors of smoking behaviour.

Stage 3: This qualitative study proposes to explore potential strategies for reducing cigarette smoking among young women. Based on the findings of the previous studies, further qualitative research is proposed to identify intervention strategies which have the greatest potential for reducing cigarette smoking among young women. The qualitative research will be undertaken by conducting focus group interviews of 8-10 young women.

Project:	Are cardiac conditions managed appropriately in older women?
PhD Candidate:	Ms Lindy Humphreyes-Reid (School of Population Health, University of Queensland)
Supervisors:	Professor Annette Dobson & Professor Andrew Wilson (School of Population Health, University of Queensland)
Funding Source:	NHMRC Project Grant
Expected Completion:	December 2006

Purpose of the study: The purpose of this substudy is to investigate the appropriateness of treatment of older women with Acute Coronary Syndrome (ACS) and chronic heart failure (CHF). The project is based primarily on data collected from the Older cohort (i.e. women aged 76-81). Using a self-report instrument, this study aims to determine the extent to which management of women with cardiac conditions departs from the best practice guidelines as set out by Heart Foundation Australia and the NHMRC. Hence the project will identify opportunities for improvement of health services in terms of responsiveness and appropriateness of treatment.

Background and significance of the study: Review of the relevant research indicates that there is a significant disparity between males and females with cardiovascular disease in diagnosis, management and clinical outcomes. While this discrepancy is due, in part, to the way in which women perceive and present with cardiac anomalies, there is also evidence that women are not consistently managed according to best practice guidelines.

2003 – Developing and refining the survey

- A self-report questionnaire was sent to approximately 60 women who have been inpatients at The Prince Charles Hospital (PCH) with a clinically established diagnosis of either ACS or CHF. Participants were asked to comment on the survey and prompts were provided. Each participant was also given the option of being involved in a focus group or phone interview.
- A series of focus groups was conducted for the purposes of refining the questionnaire

2004 – Data collection and analysis

- the survey was finalised and mailed to 1200 women in July 2004
- 1165 surveys were completed and returned
- data entry and cleaning commenced

2005 – Data analysis and Validation Study

- data entry and cleaning completed
- preliminary data analysis commenced
- a ‘validation’ study to verify the self-reported diagnoses is in progress at The Prince Charles Hospital

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 & Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)
Funding Source:	None
Expected Completion:	December 2008 (currently part-time)

Aims of the research:

- To investigate the statistical methods used to account for death in longitudinal studies;
- To apply the current statistical methods to ALSWH data for the older cohort and evaluate the advantages and disadvantages of the methods;
- To determine whether there is a need to improve current statistical methods and apply and assess new strategies if applicable.

Progress: Following a literature review to examine the methods that are currently in use to account for dropout due to death, a method proposed by Diehr et al (2003) has been applied to ALSWH data. The method transforms the physical component score (PCS) of the SF-36 with new score being the probability of being healthy at the next time point. A value of zero is then assigned to participants who have died. The method has been applied to the three phases of survey data for the ALSWH older cohort. In a second stage of the method, missing values not resulting from death are imputed, so that the deaths are not overly influential.

To determine whether the composition of the cohort and the length of time between surveys affects the transformation of the SF-36 scores, we compared the scores that resulted using Diehr’s equation with those derived from ALSWH data. The transformed scores at the extremes of the distribution were very similar but there were larger discrepancies in the mid range of SF-36 scores. The method is also being applied to SF-36 data from the Sleep substudy which was conducted during 2000, one year after Survey 2 of the Older cohort. The original coefficients published by Diehr were from a study which also had a one-year follow-up interval.

A presentation titled “Transforming the SF-36 to account for death in longitudinal studies: does length of time between surveys and cohort composition matter?” was given at the University of Newcastle on 22nd March 2005 and an abstract is being prepared for The World Congress of Epidemiology to be held in Bangkok, August 21-25, 2005.

2. CONDUCT OF SURVEYS

2.1. MID-AGE SURVEY 4 – FINAL STAGES

Survey 4 of the Mid-age cohort was carried out in 2004, when the women were aged between 53 and 58. The development, piloting and progress were described in Reports 22 and 23. During the reporting period, data have been scanned by NCS Pearson and the process of checking and cleaning is under way. Table 2.1 outlines the final response rates to Survey 4 of the Mid-age cohort.

Table 2.1. Response Rates for Mid-age Survey 4 (at 2 May 2005).

	N	%
Completed Surveys	10 903	85.8
Deceased	50	0.4
Withdrawn	148	1.2
Will not do survey this time	236	1.9
No contact to date	1,373	10.8
<i>TOTAL</i>	<i>12 710</i>	<i>100</i>

2.2. OLDER SURVEY 4 – IN PROGRESS

Following the process of development and piloting described in Report 23, and some additional preparatory work to reduce some perceived ambiguities in some items, Survey 4 of the Older cohort was finalized in December 2004. The letter to participants, survey and reminder card are included in Appendix 1. These were approved by the Human Research Ethics Committees of the University of Newcastle and the University of Queensland, and NCS was selected following the tender process to print, pack, mail and scan the materials.

Table 2.2 outlines the changes made between the pilot and the final version of Survey 4 for the older cohort, Table 2.3 summarizes the timetable for Survey 4 of the Older Cohort, and Table 2.4 the response rates at 2 May 2005.

Table 2.2. Fourth Survey for Older Women - Items and Changes from Pilot to Main Survey

Item No.	Descriptor of question	Nature of Change	Reason for Change
1	Conditions		
2	Operations		
3	Dr Visits		
4	Other HCP visits		
5 & 6	Access to specialists	Question wording and responses changed.	Question misunderstood in Pilot. Small phone pilot conducted later to simplify question.
7	Hospital admissions		
8	Vaccinations		
9 & 10	Dentists	Question wording and responses changed.	Question misunderstood in Pilot. Small phone pilot conducted later to simplify question.
11	Insurance coverage	Dep't Vet Affairs Orange Card removed.	Zero responses in pilot.
12-22	SF-36		
23	Height	Not included in pilot	
24	Weight	Not included in pilot	
25	Symptoms		
26	Sleep		
27	Memory		
28	Eyesight		
29	Oral Health	Question in pilot separated teeth, dentures and gums. Main asks in one item only.	Returned to original format of source.
30	Hearing Aids		
31	Hearing		
32	Life events		
33	DOB		
34	Anxiety & Depression		
35	Falls and injury		
36, 37a, 37b	Arthritis/ stiffness/ pain		
38 & 39	Physical activity	Examples removed from 'vigorous leisure activity'.	Examples weren't realistic for the age group.
40-42	Veges/fruit/fluids		
43	Service use	Examples removed from 'Nursing or community health services' item.	Reverted to Old 2 wording.

Item No.	Descriptor of question	Nature of Change	Reason for Change
44	Main means of transport		
45	Availability of public transport		
46	Problem with transport		
47	Travelling to places		
48	Need for care		
49	Difficulty with daily tasks (ADL/IADL)		
50	Help with daily tasks (ADL/IADL)		
51	PCODE		
52	Housing		
53	Who lives with you		
54	Volunteer		
55	Sources of income		
56	Manage on income		
57	Marital Status		
58	Bereavement date		
59	Husband's gold card	'Not Applicable' option added.	Arose from Pilot.
60-63	Social Support Network subscale		
64	Expressive and instrumental support		
65	Providing Care		
66	Care for children		
67-68	Leisure		
69	Medications		

Table 2.3. Timetable for Older Survey 4 (at 2 May 2005).

Date	Mailout	Items	Number
15 March 2005	Mailout 1	Package mailed including survey, reply-paid envelope, letter of invitation and change of details card	8614
12 April 2005	Mailout 2	Thank you/reminder leaflet mailed to all in Mailout 1, except recent withdrawals and newly identified deceased	8375
4 May 2005	Mailout 3	Reminder leaflet to all non-responders	2179
June and July 2005	Extra mailouts	Packages will be mailed (as Mailout 1) to: <ul style="list-style-type: none"> • those previously not sent surveys because of no current contact details, who have since given new contact details; • those who elected to have telephone interviews; • those who rang to say they received a reminder but did not receive the first survey; • those who have been tracked following return-to-sender 	As required
June – August 2005	Phone reminder	Reminder phone calls to all non-respondents will be carried out	Approx 1 500

Table 2.4. Interim Response Rates for Older Survey 4 (at 2 May 2005).

	N	%
Completed Surveys	6 134	71.2
Deceased	36	0.4
Withdrawn	171	2.0
Not this time	52	0.6
No response	2 221	25.8
<i>TOTAL</i>	<i>8 614</i>	<i>100</i>

Survey 4 of the Older Cohort is progressing smoothly. The participant list was again checked against the National Death Index immediately prior to the mailout, and 156 previously unrecorded deaths were identified.

For the first time participants have been asked to list the names of all their medications prescribed by a doctor. These are being entered into a separate database and we expect to enter data from approximately 6500 surveys. As at 2nd May 2005, medications for 1039 surveys have been entered. Initial results from Survey 4 of the Older Cohort indicate that the participants take an average of four or five different medications, while 9.5% of these women do not report taking any medications.

2.3. YOUNGER SURVEY 4 - PILOT

Preparation for the fourth survey of the Younger cohort, which is scheduled to take place from March 2006, began in April 2005. The Younger women will be aged between 28 and 33. A meeting of the research team was held on 14th April 2005 to make decisions about possible changes for Survey 4 of the Younger cohort. Restrictions on modification include the necessity of maintaining consistency for longitudinal analysis; a perception that a longer survey might be unacceptable to many respondents; additional costs for printing and postage of a longer survey; and the need to pay copyright holders for some materials. At the same time, it appeared clear that there was a need to make some modifications to acknowledge the changing personal circumstances of women in the cohort.

The survey will, as usual, be submitted to Human Research Ethics Committees for approval and then piloted with the Younger Pilot cohort in the second half of the year.

Drafting and final decision-making on content for the pilot Survey 4 of the Younger cohort is currently in progress, and the process will be described in detail in the December 2005 Technical Report.

3. MAJOR REPORTS

3.1. AUSTRALIAN WOMEN AND ALCOHOL CONSUMPTION 1996 - 2003

This report was requested by staff of the Department of Health and Ageing. The work was conducted during 2004, and the Report was formally launched on 15th March 2005. The work was conducted by Anne Young and Jennifer Powers, with assistance from Rosemary Brotherston and Virginia Wheway, and the authors also acknowledge the assistance of Professor Julie Byles and Dr Hiroyuki Furuya in the development of the longitudinal analyses used in the report. The description below is taken from the Executive Summary of the report, which is available in its complete form from the research team or at http://www.health.gov.au/internet/wcms/publishing.nsf/Content/phd-pub-alcohol-women_report-cnt.htm

Executive Summary

The Australian Longitudinal Study on Women's Health (ALSWH) provides a unique opportunity to monitor changes over time in the health and well-being of a large nationally representative sample of Australian women, their social circumstances, and their health behaviours, including alcohol consumption. This report presents results for women in three age cohorts (Younger, Mid-age and Older) from 1996 to 2003 and provides important data on alcohol consumption among Australian women.

A clear majority of respondents to the surveys are non-drinkers or drink at low levels of long-term risk, although some of these women reported short-term risk drinking (having five or more drinks on one occasion).

Findings related to long-term risk drinking

Among Younger women aged 18-23 years (n=14247):

- 5% were risky or high risk drinkers
- 52% were low risk drinkers
- 34% rarely drank
- 9% were non-drinkers.

Among Mid-age women aged 45-50 years (n=13716):

- 5% were risky or high risk drinkers
- 50% were low risk drinkers
- 31% rarely drank
- 15% were non-drinkers.

Among Older women aged 70-75 years (n=12432):

- 3% were risky or high risk drinkers
- 34% were low risk drinkers
- 29% rarely drank
- 34% were non-drinkers.

Findings related to short-term risk drinking (having five or more drinks on one occasion)

Younger women:

- 18% did this often (once a week or more)
- 21% did this sometimes (about once a month)
- 32% did this rarely (less than monthly)
- 29% never had five or more drinks on one occasion.

Mid-age women:

- 6% did this often (once a week or more)
- 8% did this sometimes (about once a month)
- 19% did this rarely (less than monthly)
- 67% never had five or more drinks on one occasion.

Older women:

- 2% did this often (once a week or more)
- 2% did this sometimes (about once a month)
- 5% did this rarely (less than monthly)
- 91% never had five or more drinks on one occasion.

Other findings include:

- Although Older women are more likely to be non-drinkers than Younger or Mid-age women, more than 10% of the Older women report drinking alcohol every day
- The majority of Mid-age and Older women consumed 1 or 2 drinks on a day when they drink
- Younger and Mid-age women report similar levels of long-term risk drinking
- Mid-age women tend to drink alcohol on more days of the week than Younger women but have fewer drinks
- Younger women were more likely to consume three or more drinks in one day than Mid-age or Older women
- At Survey 1, 7% of the Younger women usually consumed 9 or more drinks on a day when they were drinking

Findings on the longitudinal changes in alcohol consumption between Surveys

- The majority of women did not change their level of alcohol consumption over 5-7 years between surveys
- Most women who reported consuming alcohol at all surveys were doing so at low levels of long-term risk
- More than a quarter of the Older women remained non-drinkers over the six-year period from 1996 to 2002
- Younger women were more likely than Mid-age or Older women to decrease their alcohol consumption from levels that were risky to their health.

The associations between alcohol consumption at levels of long-term risk and socio-demographic characteristics, health status and health service use of women of different ages

Women who consume alcohol at levels that are not harmful to their health (low risk) are more likely than other women to:

- live in urban areas
- have higher education
- manage on their income without difficulty
- be in the healthy weight range
- have moderate or high levels of physical activity
- have been born in Australia or another English-speaking country
- have better self-rated physical health

Non-drinkers and women who rarely drink are more likely than other women to:

- have a non-English speaking background
- be non-smokers
- have more consultations with general practitioners
- take a greater number of prescription medications (Mid-age and Older women)
- be currently pregnant or ever pregnant (Younger women)

Women who consume alcohol at levels that are risky or high risk are more likely than other women their age to:

- have poorer mental health
- be current smokers

and among Younger women to:

- be current users of multiple illicit drugs
- have deliberately harmed themselves
- have had more male sexual partners

The associations between alcohol consumption at levels of short-term risk and health and socio-demographic characteristics among Younger women

The findings for frequency of short-term risk drinking, by long-term risk drinking, are:

- 93% of risky drinkers participated in short-term risk drinking at least weekly.
- One third of low risk drinkers participated in short-term risk drinking about once a month and 24% did so at least weekly.

Factors associated with short-term risk drinking among Younger women were explored. In summary short-term risk drinking occurred more often among:

- Australian-born women and those of English-speaking background.
- Separated, divorced and widowed young women.
- Women who had difficulty managing on available income.
- Current smokers.
- Women who were not or have never been pregnant.
- Women who reported deliberately harming themselves.
- Current users of illicit drugs.
- Women who had had more male sexual partners.

Factors associated with change in alcohol consumption over time

- For women in all three age groups, the most consistent and largest associations over time were between smoking and drinking habits. Women who smoked had consistently higher odds of remaining risky drinkers or changing from low risk to risky drinking.

Changes in marital status were associated with changes in alcohol consumption:

- Younger women who became married or formed de facto relationships between Survey 1 and Survey 2 had decreased odds of continuing to drink at risky levels or of becoming risky drinkers.
- Older women who were widowed by Survey 2 had decreased odds of remaining risky drinkers.
- Although Mid-age women without partners had decreased odds of remaining risky drinkers, those in de facto relationships had increased odds of remaining risky drinkers or changing their drinking habits.

Changes in health were also associated with changes in alcohol consumption in Mid-age women:

- Mid-age women whose mental health had deteriorated by Survey 2 had higher odds of beginning to drink at levels of risk, whereas those whose mental health had improved had higher odds of changing from risky to low risk drinkers, or of remaining risky drinkers.

Other findings for Younger women were:

- Those who were mothers at both Survey 1 and Survey 2 had lower odds of remaining risky drinkers.
- Those who had become new mothers by Survey 2 had lower odds of becoming risky drinkers or remaining risky drinkers.

The long-term effects of alcohol consumption on women's health

The association between alcohol consumption and withdrawing from the study or dying was investigated in each age group with adjustment for area of residence, education, smoking and comorbidity. The main results were:

- Younger women who were non-drinkers were more likely to withdraw from the study than low risk drinkers.
- Mid-age women who were non-drinkers or rarely drank had a significantly higher risk of withdrawing from the study during the survey period than low risk drinkers.
- Older women who were non-drinkers had a significantly higher risk of withdrawing from the study during the survey period than low risk drinkers.
- Older women who were non-drinkers or rarely drank had a significantly higher risk of dying during the survey period than low risk drinkers.

The association between alcohol consumption and health related quality of life was investigated in each age group with adjustment for area of residence, education, smoking, BMI and comorbidity. The main results were:

Alcohol consumption among the Younger women over the seven-year period was significantly associated with three health outcomes:

- Compared with low risk drinkers, non-drinkers had poorer physical functioning and lower physical health summary scores.
- Compared with low risk drinkers, women who remained risky drinkers had poorer mental health.

Alcohol consumption was associated with many aspects of health for the Mid-age women over the five-year period:

- Being a non-drinker or rarely drinking was associated with a reduction in all dimensions of physical health.
- Being a risky drinker, compared with a low risk drinker, was associated with poorer mental health and general health.

A strong relationship was found between alcohol consumption and health-related quality of life among the Older women:

- Compared with being a low risk drinker, Older women who were non-drinkers also had significantly poorer health on the physical health summary measure and the eight dimensions of physical and mental health.
- The findings for Older women who rarely drink were similar but not as strong with lower scores on the physical health summary measure and five of the eight dimensions.

Further information on alcohol consumption and women's health will be available as more data are collected in the longitudinal study. Survey 4 of the Mid-age group was conducted in 2004, Survey 4 of the Older women will begin in March 2005 and Survey 4 of the Younger cohort will take place in 2006.

3.2. ACHIEVEMENTS REPORTS

A decision was made that the contractual Achievements Report would not be a technical document which repeated information contained in these Technical Reports, but would instead be presented as a number of attractive and accessible brochures, each addressing one major and policy-relevant aspect of the findings to date, which would be distributed widely throughout the Department of Health and Ageing and beyond.

General issues of audience, aim, layout, and overall look were determined at a meeting of the Project Advisory Committee held in November 2004. At that meeting it was decided to prepare ten reports, with the following topics:

- Study Overview
- Alcohol and Health across the Lifespan
- Alcohol, Tobacco and Other Drugs among Younger Women
- Generational Issues
- Healthy Ageing
- Mental Health
- Paid Work and Health
- Rural and Remote Women's Health
- Violence and Health

- Weight and Physical Activity

The Achievements Reports were prepared by the research team, and drafts were revised following extensive commentary from individuals representing a large number of Divisions and Sections within the Department of Health and Ageing. Final versions were delivered to the Department at the end of April 2005. They will also be made available on the Study website once any formal Department launch has been completed. Copies of the ten Achievements Reports are included in Appendix 2.

4. METHODOLOGICAL ISSUES: SOURCES AND DEVELOPMENT OF INSTRUMENTS, RELIABILITY AND VALIDITY OF MEASURES

4.1. ITEMS AND DERIVATIONS IN ALL MAIN SURVEYS

During the reporting period, Catherine Chojenta has prepared a “data map” outlining the items used at each survey to date, their derivation, and whether they have been modified in any way for any of the cohorts. This has become necessary because the complexity of the ALSWH means that the surveys contain items from many different sources. Further, survey content has been modified over time and varies between age groups. Modifications and variations reflect a number of concerns:

- Different concerns at different life stages (eg contraception)
- Changing priorities for research and for health policy (eg increasing interest in urinary continence)
- Changing health, family and social concerns for the women as they pass through life milestones (eg Younger women are increasingly concerned with childcare; Mid-age women are considering issues of retirement; Older women find transport and activities of daily living becoming relevant)
- Changes in best practice in the measurement of some variables (eg changes in methods of assessing physical activity)
- Identification of practical problems with a specific item (eg the CESD had unacceptably high levels of missing data from the Older cohort, and has been replaced with the GADS)

The data map will continue to grow as further surveys are developed, and is available on the study website. Table 4.1 shows the preset data map, showing all surveys up to and including Survey 4 of the Older cohort, which is in the field at the time of this report.

4.2. VALIDATION OF SELF-REPORTS OF GP VISITS AND COMPARISONS WITH HIC DATA, YOUNGER SURVEYS 2 AND 3

4.2.1. Background

Frequency of consultation with General Practitioners during the 12 months prior to the survey has been assessed with a single item in all ALSWH surveys other than Surveys 2 and 3 of the Younger cohort. The aim of this report is to use Health Insurance Commission (HIC) records of actual visits to derive a single self-report measure of GP use which is comparable with other surveys.

4.2.2. Part A: Younger Survey 2

Source Items – Survey 2 Question 1

How many times have you consulted a family doctor or another general practitioner (GP) for YOUR OWN HEALTH in the LAST 12 MONTHS for:

- a) Pap tests, contraception, routine pregnancy checks
- b) All other reasons

Survey 2	
Code	Response
1	None
2	Once
3	Twice
4	3 times
5	4 times
6	5-6 times
7	7-9 times
8	10-12 times
9	More than 12 times

Derived Variable

Table 4.1 shows the availability of survey and HIC data for 9689 Younger women completing Survey 2.

Table 4.1 Availability of HIC and survey data – Younger Survey 2.

	Number
Did not give HIC consent	4 444
Gave HIC consent	5 245
- Answered both parts a and b	4 881
- Answered part a only	230
- Answered part b only	122
- Answered neither part a or part b	12

Survey 2 was completed in 2000, and the previous 12 month period prior will also encompass part of 1999. For this study, GP visits recorded in the HIC dataset as occurring between 1 May 1999 and 30 April 2000 were considered to be GP services for the “last 12 months”. These 12 months align well with the time of year that Survey 2 was distributed to and returned by the Younger women. The distribution of responses to survey items and the counts from HIC aggregated on the same categories for frequency are shown in Table 4.2.

Table 4.2. Distribution of GP service use according to Survey 2 and HIC data: Younger women.

	None	Once	Twice	3 times	4 times	5-6 times	7-9 times	10-12 times	More than 12 times
HIC	7.3	11.7	13.6	13.2	11.6	16.4	13.8	6.3	6.1
Survey Item Part a	22.5	31.2	20.2	11.2	6.0	3.9	1.4	1.1	2.5
Survey Item Part b	10.5	16.0	18.9	16.2	12.3	14.1	5.1	3.0	4.0
Sum of Parts a and b	3.6	7.7	11.8	14.1	13.9	18.0	17.2	8.3	5.6

Three options for creating a comparable measure from the survey data, that could be used by all participants, were considered. Option 1, using only one or other of the survey items, would excessively underestimate GP service use to an unacceptable level (see Table 4.2). Option 2, summing Parts A and B of the question, tends to overestimate use of GP services (see Table 4.2), contrary to previous findings that self-report tends to underestimate use of services (Young et al 2001). Women tended to underestimate GP use slightly in Survey 1, by comparison to the HIC data. Hence, any new measure for Survey 2 should ideally also tend to underestimate, not overestimate, GP use.

Option 3 was to use statistical methods to combine weighted responses to Parts A and B in order to estimate the actual the number of visits for various subgroups of women. However,

regression analyses suggested that regression may offer little improvement over simply summing the responses (see Table 4.3). Further, the very high coefficients of 0.94 and 0.86 respectively, for the regressions using Part A or Part B only, suggest the observed number of visits equals the reported number of visits and that the true value for the part of the question which is missing is 0. Thus, missing responses may need to be treated as a separate case.

Table 4.3. Accuracy of prediction of GP service use for each modelling scenario: Younger Survey 2.

	Number	Exact Agreement (%)	Agreement plus/minus 1 category (%)	Differ by more than 1 category	
				Over-estimated (%)	Under-estimated (%)
Summed responses	4 881	31	64	24	12
Regression if Parts A and B are answered ¹	4 881	25	62	13	25
Regression if Part A or B s answered ²	5 233	23	61	13	26
Regression if Parts A and B answered ¹ and self report if only Part A or Part B is answered	5 233	25	61	13	26

¹ Estimates use formula: GP Use = 0.52*part a + 0.86* part b

² Estimates use formula: GP Use = 0.52*part a + 0.86* part b; GP Use = 0.87*part a; GP Use = 0.94* part b

On the basis of these and other exploratory analyses, the following recommendations were made for women with various categories of valid and missing data.

1. Women did not answer either part of the question (Younger Survey 2, n=12).

Recommendation: set this variable to missing

2. Women who answered one part of the question and left the other part missing (Younger Survey 2: Answered Part A and missed Part B: n=230. Answered Part B and missed Part A: n=122)

Recommendation: set this variable to the non-missing value

It should be noted that using this recommendation with Survey 2 data to predict GP use results in under-estimation by comparison with HIC data. For those with Part B missing, the HIC value is underestimated by more than one response category in 36% of cases. For those with Part A missing, the rate of underestimation is 25%. Regression analyses were conducted in an effort to improve the accuracy of these estimates but did not decrease the rate of underestimation. While recognising that this is less than ideal, it is noted that these cases only represent a small proportion of the women who responded to Survey 2, and retaining the prediction rule is more accurate than any alternative.

3. Women who answered zero to both parts of the question (Younger Survey 2, n=174).

Recommendation: set this variable to 0.

Of the 174 women who answered both Parts A and B as zero, and had HIC data available, 85% also had GP visits recorded as 0 or 1 in the HIC data. Of the remaining 26 women, 10 had 2 visits.

4. Women who answered zero to one part of the question and a non-zero response to the other part (Younger Survey 2, n=930).

Recommendation: set this variable to the value of the non-zero response

5. Women who answered non-zero to both Part A and Part B (Younger Survey 2, n=3372).

Recommendation: Use the regression model Estimated Category of GP use = $1.85 + 0.24*y2q1a + 0.569*y2q1b$

While the exploratory regressions had not been significantly better at predicting the HIC value than had simply summing Part A and Part B, more predictive power was found to result when the model was fitted with an intercept term.

Prediction accuracy for this model is 60%, with 20% of cases underestimating GP use by more than 1 category and 20% over estimating GP use. There is no evidence that the under or over estimation of GP use is related to education or area of residence, and thus no benefit in adding these terms to the regression model.

Transformations of Part A and Part B variables were also used in regression analyses. Those tested include log, power and step functions. In all cases, the model robustness and predictive power was not improved from the linear regression above.

Conclusion

The five categories of women listed above should be treated differently in assigning a value for GP service use at Younger Survey 2. Table 4.4 summarises the number of women in each category and the accuracy of the assignment method, by comparison with HIC data.

After using the recommended prediction rules, the following distribution of estimated GP visits arises. Table 4.5 shows both un-weighted distributions, and weighted distributions (by area of residence).

From Table 4.5, we see very little difference in the distribution of predicted total GP use for women who have HIC data and for all women responding to Younger Survey 2. In both cases, more than 60% of women have their total number of GP visits in 12 months estimated to be between 3 and 6.

Table 4.4: Breakdown of responses to Younger Survey 2 Q1 Parts A and B, and the accuracy of prediction rules assigned to each case.

Case	Part A, Part B STATUS	Number of women	Estimated GP use within +/- 1 class of actual	Estimated GP use an under estimate	Estimated GP use an over estimate
1	Neither Part A nor Part B answered	12	N/A	N/A	N/A
2	Part A ONLY answered	230	110 (48%)	83 (36%)	37 (16%)
	Part B ONLY answered	122	72 (59%)	31 (25%)	19 (16%)
3	Part A and Part B both zero	174	148 (85%)	26 (15%)	N/A
4	Part A = 0 and Part B non zero	930	615 (66%)	158 (17%)	157 (17%)
	Part B = 0 and Part A non-zero	405	278 (69%)	62 (15%)	65 (16%)
5	Part A and Part B both non-zero	3 372	2 041 (60%)	665 (20%)	666 (20%)
	TOTAL	5 245	3 264 (62%)	1 025 (20)	944 (18)

(data based on 5245 women for whom HIC data were available)

Table 4.5. Distribution of Estimated GP visits, Younger Survey 2.

Estimated Number of GP Visits	Women with HIC data (n = 5245)		Respondents to Survey 2 (n = 9 688)	
	Percent	Weighted* Percent	Percent	Weighted* Percent
Missing	0.2	0.2	0.2	0.2
None	3.6	3.4	3.6	3.5
1	8.7	8.4	8.7	8.4
2	7.2	7.1	7.2	7.0
3	24.9	24.9	24.9	24.6
4	21.1	21.1	21.1	21.2
5-6	20.8	21.5	20.8	21.1
7-9	6.9	6.9	6.9	7.2
10-12	4.4	4.4	4.4	4.6
More than 12	2.3	2.2	2.3	2.3

* weighted by area of residence

4.2.3. Part B: Younger Survey 3

Source Items - Survey 3 Question 1

How many times have you consulted a family doctor or another general practitioner (GP) for YOUR OWN HEALTH in the LAST 12 MONTHS for:

- Pap tests, contraception, routine pregnancy checks
- All other reasons

Code	Response
0	None
1	Once – Twice
2	3-4 times
3	5-6 times
4	7-9 times
5	10-12 times
6	More than 12 times

Derived Variable

Less than half of the women (40.9%) from the Younger cohort consented to give access to their HIC data for the calendar years 2002-2003. However, the majority of these 3714 women (95%) answered both survey items concerning GP visits (see Table 4.6).

Table 4.6. Availability of HIC and survey data among 9 081 women from the Younger cohort completing Survey 3.

	Number	Percent of Total	Percent of Consenters
Did not give consent to use HIC data	5 367	59.1	
Gave consent to use HIC data	3 714	40.9	100.0
<i>Answered Items A and B</i>	3 542	39.0	95.4
<i>Answered Item A only</i>	118	1.3	3.2
<i>Answered Item B only</i>	47	0.5	1.3
<i>Answered neither Item A or Item B</i>	7	0.1	0.2

Survey 3 was completed in 2003, and the period from 1 May 2002 to 30 April 2003 was considered to align best with the 12 month period prior to distribution and return of the surveys. Counts of GP visits from the HIC data were aggregated into the same categories as survey responses.

It was decided to apply the same methods applied in Survey 2 to Survey 3 data, i.e.:

- Where both Part A and Part B are answered and are non-zero, a regression model will be fitted to the actual number of GP visits from HIC data.
- Where either Part A or Part B is answered as zero, the estimate for the total number of GP visits will be equal to the non-zero part of the question.
- Where both Part A and Part B are answered as zero, the estimate for total GP visits will be zero.
- Where either Part A or Part B is missing, the estimate for the total number of GP visits will be equal to the non-missing part of the question.
- Where Part A and Part B are missing, the total number of GP visits will also be set to missing

Number of responses falling into each category

Table 4.7. Availability of HIC and survey data – Younger Survey 3.

Response Option	Number
Items A & B are both non-zero	2 366
Items A & B are both zero	90
Item A zero and Item B non-zero	439
Item A non-zero and Item B zero	647
Self-report for Item A - <i>Item A ONLY answered</i>	118
Self-report for Item B - <i>Item B ONLY answered</i>	47
Assigned to missing - <i>Neither Item A or B answered</i>	7

The regression model is now estimated for cases in which Items A and B are answered as non-zero. All other response combinations are estimated using the non-missing or non-zero part of the question, as for Survey 2. Using 2366 responses, the resulting regression model is:

$$\text{GP use} = 1.19 + 0.23 * \text{Item A} + 0.58 * \text{Item B}$$

(note: this is very similar to the regression equation obtained for Survey 2).

The predictive accuracy of this model is 79.84%, with under-estimation in 10.57% of cases and over-estimating in a further 9.59%. There is no relationship between over or underestimating actual GP visits and the response to either Part A or Part B. The model gives lower prediction error than the regression model fitted for Survey 2 applied to Survey 3 data. As for Survey 2, there is no evidence that the under- or overestimation is related to education or area of residence and so these factors were not included in the prediction model. Again, transformations of Items A and B (including log, power and step functions) did not improve robustness and predictive power.

Distribution of estimated total GP visits for the Younger cohort at Survey 3

There is very little difference in the distribution of estimated total number of GP visits for women who have HIC data and for all women responding to Survey 3 (see Table 4.8).

Table 4.8. Distribution of Estimated GP visits, Younger Survey 3.

Estimated number of GP visits	Women with HIC data (n = 3714)			Respondents to Survey 3 (n = 9 081)		
	Number	Percent	Weighted* Percent	Number	Percent	Weighted* Percent
None	111	2.99	3.18	446	4.93	4.81
1-2	659	17.78	17.74	1 772	19.58	19.28
3-4	1 358	36.63	36.66	3 144	34.73	34.83
5-6	1 115	30.08	29.89	2 597	28.69	29.27
7-9	250	6.74	6.81	576	6.36	6.31
10-12	150	4.05	4.19	337	3.72	3.77
More than 12	64	1.73	1.53	180	1.99	1.73
<i>TOTAL</i>		<i>100.0</i>	<i>100.1</i>	<i>9 052</i>	<i>100.1</i>	<i>100.0</i>
<i>Missing</i>	7			29		

* weighted by area of residence

This report was prepared by Anne Young and Virginia Wheway

References

Young AF, Dobson AJ & Byles JE. Health services research using linked records: who consents and what is the gain? *Australian and New Zealand Journal of Public Health*, 2001; 25(5):417-420

4.3. TRANSITIONS IN LABOUR FORCE VARIABLES, MID-AGE COHORT, SURVEYS 1, 2 AND 3

4.3.1. Transitions in Labour Force Participation

For women from the Mid-age cohort, transition in labour force participation across Surveys 1, 2 and 3 could be determined for women who completed Survey 1, either the full or short version of Survey 2, and the full version of Survey 3 (n=10,780); non-missing values for labour force participation were required at all three surveys. There were similar levels of labour force participation at each survey (see Table 4.9).

The number of unemployed women is low at all three surveys, and so for some analyses it may be preferable to combine them with women who were not in the labour force as 'Not working'. However, cross-sectional analysis has shown that although unemployed women and those not in the labour force have similar patterns of health service use, unemployed women report better physical health but poorer mental health. Accordingly, two approaches to describing transitions have been developed and data users are encouraged to consider the options before commencing any analysis.

Table 4.9. Labour force participation at Surveys 1, 2 & 3 for 10,780 Mid-age women^a.

Labour force participation	Survey 1		Survey 2		Survey 3	
	Number	Percent	Number	Percent	Number	Percent
Employed	8 060	75.6	8 409	79.3	8 310	77.6
Unemployed	165	1.6	145	1.4	141	1.3
Not in the labour force	2 443	22.9	2 056	19.4	2 259	21.1
<i>TOTAL</i>	<i>10 668</i>	<i>100.1</i>	<i>10 610</i>	<i>100.1</i>	<i>10 710</i>	<i>100.0</i>
<i>Missing</i>	<i>112</i>		<i>170</i>		<i>70</i>	

^a n=10 780 women completing Survey 1, full or short version of Survey 2 and full version of Survey 3

Transitions in labour force participation have been defined in two ways. Firstly, using the 2 categories 'Employed' and 'Not working' at each survey and secondly, using the 3 categories 'Employed', 'Unemployed' and 'Not in the labour force' at each survey. Table 4.10 summarises frequencies for the transition variables. All possible patterns for transitions (8 based on 2 categories and 27 based on 3 categories) occurred in the data and are shown in Table 4.11, aggregated by transition category.

Table 4.10. Summary of transitions in labour force participation across Surveys 1, 2 and 3.

Code	Transition in Labour Force Participation	Number	Percent
<i>Based on 3 categories for labour force participation</i>			
1	Employed-no change	6 760	64.7
2	Unemployed-no change	11	0.1
3	Not in the labour force-no change	1 067	10.2
4	Employed to Not working	795	7.6
5	Employed to Unemployed	70	0.7
6	Not in the labour force to Employed	985	9.4
7	Unemployed to Employed	91	0.9
8	Not working to Unemployed	22	0.2
9	Unemployed to Not in Labour Force	30	0.3
10	All other transitions	612	5.9
<i>Based on 2 categories for labour force participation</i>			
1	Employed-no change	6 760	64.7
2	Not working-no change	1 147	11.0
3	Employed to Not working	896	8.6
4	Not working to Employed	1 119	10.7
5	All other transitions	521	5.0
<i>TOTAL CLASSIFIED</i>		<i>10 443</i>	<i>100.0</i>
<i>Missing</i>		<i>337</i>	

Table 4.11. Full distribution of categories of transition in labour force participation across Surveys 1, 2 & 3.

Survey 1	Survey 2	Survey 3	Number
Transitions based on 3 categories for labour force participation			
Employed-no change			
Employed	Employed	Employed	6 760
Unemployed-no change			
Unemployed	Unemployed	Unemployed	11
Not in the labour force-no change			
Not in labour force	Not in labour force	Not in labour force	1 067
Employed to Not in Labour Force			
Employed	Employed	Not in labour force	587
Employed	Not in labour force	Not in labour force	208
Employed to Unemployed			
Employed	Employed	Unemployed	65
Employed	Unemployed	Unemployed	5
Not in labour force to Employed			
Not in labour force	Not in labour force	Employed	390
Not in labour force	Employed	Employed	595
Unemployed to Employed			
Unemployed	Unemployed	Employed	7
Unemployed	Employed	Employed	84
Not in labour force to Unemployed			
Not in labour force	Not in labour force	Unemployed	17
Not in labour force	Unemployed	Unemployed	5
Unemployed to Not in Labour Force			
Unemployed	Unemployed	Not in labour force	7
Unemployed	Not in labour force	Not in labour force	23
All other transitions			
Employed	Unemployed	Employed	43
Employed	Unemployed	Not in labour force	18
Employed	Not in labour force	Employed	246
Employed	Not in labour force	Unemployed	13
Unemployed	Employed	Not in labour force	9
Unemployed	Employed	Unemployed	3
Unemployed	Not in labour force	Employed	11
Unemployed	Not in labour force	Unemployed	4
Not in labour force	Employed	Unemployed	12
Not in labour force	Employed	Not in labour force	206
Not in labour force	Unemployed	Employed	32
Not in labour force	Unemployed	Not in labour force	13

Survey 1	Survey 2	Survey 3	Number
Transitions based on 2 categories for labour force participation			
Employed-no change			
Employed	Employed	Employed	6 760
Not working-no change			
Not working	Not working	Not working	1 147
Employed to Not working			
Employed	Employed	Not working	652
Employed	Not working	Not working	244
Not working to Employed			
Not working	Not working	Employed	440
Not working	Employed	Employed	679
All other transitions			
Employed	Not working	Employed	289
Not working	Employed	Not working	232

4.3.2. Transitions in Weekly Hours of Paid Work

The focus of an ALSWH report to the Department of Health and Ageing in 2004 was the increasing hours of paid work among middle aged women, especially over full-time (41 or more hours per week). The variable used in that report was based on data from Surveys 1 and 3 (ignoring the number of hours worked at Survey 2). For women from the Mid-age cohort, this transition variable could be determined if women completed both Survey 1 and the full version of Survey 3 (n=11 194) and had values for “hours of work” at both of these surveys (n=10 974). The percentage of women in full-time work remained relatively stable and there was a small increase in part-time work. The largest differences between 1996 and 2001 were 7% more women working over full-time and 10% fewer women not working (Table 4.12).

Table 4.12. Hours of Paid Work per week at Surveys 1, 2 & 3 for 10 974 mid-age women^a.

Hours worked	Survey 1		Survey 2		Survey 3	
	Number	Percent	Number	Percent	Number	Percent
Full-time (35-40 hours)	2 220	20.1	2 090	21.8	2 192	19.7
Part-time (1-34 hours)	3 601	32.6	2 537	36.9	3 972	35.7
Over full-time 41+ hours	1 591	14.4	1 761	18.4	2 416	21.7
Not in the labour force or unemployed	3 630	32.9	2 201	23.0	2 542	22.9
TOTAL	11 042	100.0	9 589	100.1	11 122	100.0
<i>Missing</i>	<i>152</i>		<i>1 605</i>		<i>72</i>	

¹ n=10 974 women completing Survey 1 and full version of Survey 3

Women were assigned to one of sixteen categories for transition in hours worked, with one category for each possible combination of hours worked at Surveys 1 and 3 (see Table 4.13). Table 4.14 provides further disaggregation by stratifying each transition category by hours worked at Survey 2.

Table 4.13. Transitions in Paid Work between Surveys 1 and 3.

Code	Transition in Paid Work	Number	Percent
1	Full-time (no change)	956	8.7
2	Part-time (no change)	2 009	18.3
3	Over full-time (no change)	866	7.9
4	Not working ^a (no change)	1 614	14.7
5	Full-time to Part-time	386	3.5
6	Full-time to Over full-time	643	5.9
7	Full-time to Not working	222	2.0
8	Part-time to Full-time	622	5.7
9	Part-time to Over full-time	454	4.1
10	Part-time to Not working	499	4.6
11	Over full-time to Full-time	337	3.1
12	Over to Part-time	249	2.3
13	Over full-time to Not working	135	1.2
14	Not working to Part-time	1 292	11.8
15	Not working to Full-time	262	2.4
16	Not working to Over full-time	428	3.9
	<i>TOTAL CLASSIFIED</i>	<i>10 368</i>	<i>100.0</i>
99	<i>Missing</i>	<i>220</i>	

^a Not working = Not in the labour force or unemployed

Table 4.14. Transitions in paid work between Surveys 1, 2 and 3.

Survey 1	Survey 2	Survey 3	Number
Full-time (no change)			956
Full-time	Full-time	Full-time	684
	Part-time		71
	Over full-time		125
	Not working		10
	<i>Missing</i>		66
Part-time (no change)			
Part-time	Part-time	Part-time	1 594
	Full-time		116
	Over full-time		32
	Not working		94
	<i>Missing</i>		173
Over full-time (no change)			
Over full-time	Over full-time	Over full-time	647
	Part-time		29
	Full-time		109
	Not working		11
	<i>Missing</i>		70
Not working (no change)			
Not working	Not working	Not working	1 172
	Part-time		111
	Full-time		19
	Over full-time		29
	<i>Missing</i>		283
Full-time to Part-time			
Full-time	Full-time	Part-time	151
	Part-time		130
	Over full-time		48
	Not working		23
	<i>Missing</i>		34
Full-time to Over full-time			
Full-time	Full-time	Over full-time	344
	Part-time		52
	Over full-time		184
	Not working		5
	<i>Missing</i>		58

Survey 1	Survey 2	Survey 3	Number
Full-time to Not working			
Full-time	Full-time	Not working	89
	Part-time		36
	Over full-time		24
	Not working		48
	<i>Missing</i>		25
Part-time to Full-time			
Part-time	Part-time	Full-time	342
	Full-time		164
	Over full-time		40
	Not working		18
	<i>Missing</i>		58
Part-time to Over full-time			
Part-time	Part-time	Over full-time	245
	Full-time		89
	Over full-time		51
	Not working		22
	<i>Missing</i>		47
Part-time to Not working			
Part-time	Part-time	Not working	256
	Full-time		29
	Over full-time		7
	Not working		139
	<i>Missing</i>		68
Over full-time to Full-time			
Over full-time	Over full-time	Full-time	190
	Part-time		22
	Full-time		92
	Not working		8
	<i>Missing</i>		25
Over full-time to Part-time			
Over full-time	Over full-time	Part-time	114
	Part-time		48
	Full-time		37
	Not working		20
	<i>Missing</i>		30

Survey 1	Survey 2	Survey 3	Number
Over full-time to Not working			
Over full-time	Over full-time	Not working	57
	Part-time		13
	Full-time		21
	Not working		30
	<i>Missing</i>		14
Not working to Full-time			
Not working	Not working	Full-time	44
	Part-time		76
	Full-time		45
	Over full-time		26
	<i>Missing</i>		71
Not working to Part-time			
Not working	Not working	Part-time	413
	Part-time		393
	Full-time		46
	Over full-time		39
	<i>Missing</i>		401
Not working to Over full-time			
Not working	Not working	Over full-time	60
	Part-time		78
	Full-time		34
	Over full-time		125
	<i>Missing</i>		131

5. MAINTENANCE OF COHORTS, RESPONSE RATES, REPRESENTATIVENESS

5.1. 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 or Survey 3. 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.

5.2. NATIONAL DEATH INDEX 2005

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. The entire participant database was compared with the National Death Index in February 2005, and 344 matches were identified by NDI. Of these, 33 were removed because the match was not close enough to be sure it was actually one of the participants. There were 148 new notifications (those the team was not already aware of) and 148 that we had already recorded (usually informed via a phone call from a family member). Another 15 were participants who had withdrawn from the project and had since died. Of these 15, 13 had given their reason for withdrawal as “too ill”. Of those who were too ill, 8 were found to have died within two months of withdrawing - they were reclassified as “deceased” rather than “withdrawn,” making a total of 156 new notifications.

5.3. PARTICIPATION AND ATTRITION BETWEEN SURVEYS 1, 2 AND 3 OF THE MAIN COHORTS

Report 23 included a detailed report on participation and attrition between Surveys 1, 2 and 3 of the Mid-age and Older women, which also described the relationships between participation status and some key sociodemographic and health-related variables. Table 5.1 provides a more recent summary of rates of participation, and main reasons for attrition, in all three cohorts across Surveys 1, 2 and 3.

Table 5.1. Retention and attrition of women in the three age cohorts at Surveys 1, 2 and 3.

Respondents at Survey 1	Younger (born 1973-1978)		Mid-age (born 1946-1951)		Older (born 1921-1926)	
	n=14,247		n=13716		n=12432	
	Survey 2	Survey 3	Survey 2	Survey 3	Survey 2	Survey 3
<i>Respondents</i>						
Completed survey	9 690	9 074	12 338	11 228	10 433	8 647
<i>Non-respondents</i>						
Deceased between surveys	22	10	49	65	505	568
Unable to complete further surveys (e.g. stroke, dementia, trauma, travelling)	26	75	25	43	194	378
Withdrawn (cumulative total by age)	211	433	193	381	493	969
Contacted but did not return survey	1 312	653	253	1 000	482	863
Unable to contact participant	2 986	3 954	858	924	325	308
TOTAL ELIGIBLE^a	14 199	14 114	13 642	13 534	11 733	10 787
Retention as % eligible	68.2%	64.3%	90.4%	83.0%	88.9%	80.2%

^a Number eligible at previous survey minus those who died since last survey or are unable to complete further surveys.

6. DATA LINKAGE

6.1. UPDATE ON DATA LINKAGE

This year has seen continuing discussion with staff at the Department of Health and Ageing and the Health Insurance Commission (HIC) over ethically appropriate strategies for linking all survey participants' data with Medicare unit records prospectively from 2005. Privacy laws and ethical constraints mean that this process has been extremely complex. Under the proposed scheme, data for all women in the study would be provided to the research team without the need for individual written consent. Participants were informed of the proposed new arrangements in the 2004 newsletter and given the opportunity to obtain more information and/or to opt out of this process.

The application for approval for the new protocol was submitted to the relevant committees and the progress to date is shown below:

- Department of Health and Ageing Ethics Committee (DEC) – application approved 26 November 2004.
- Department of Veterans' Affairs – application approved 5 November 2004.
- University of Newcastle Human Research Ethics Committee – approval was given to inform women of the proposed new protocol in the newsletter sent out in November 2004. Final approval for the new protocol will be considered when DoHA, DVA and HIC approvals are received. Approval from the University of Queensland Ethics Committee will be sought after the other approvals have been obtained.
- Health Insurance Commission – Mike McGrath in the Health Privacy Section of DoHA has been liaising with Gabrielle Davidson from the Privacy Branch at HIC. An email in December 2004 suggested that when we request data for 2005 onwards, the “usual process” will then commence in HIC ie. a delegate of the Minister for Health and Ageing and of the Managing Director of HIC will decide whether we have the authority to receive the information (this is a delegated release, done through the Information Release Section of the Privacy Branch of HIC). Hence, although the application was considered, we do not yet have permission to receive the data for 2005 onwards. From our perspective this is very difficult as we cannot plan the work program for this important part of the study, or finalise approval from the universities.

There were 446 phone calls made in total to the ALSWH Freecall number in response to the November 2004 newsletter that was mailed in November 2004. The majority of calls were from participants who wanted to let us know their new address (n=256) or who had questions relating to completing their survey (n=130). None of these women raised any concerns whatsoever related to the changed process for data provision. Only one call related to the proposed new record linkage protocol. This mid-age participant wanted to check whether the study had access to doctors' medical notes. We explained that we did not, and the participant had no further concerns.

In February 2005 we requested assistance from DoHA to finalise “approval in principle” from the HIC to provide data for all women in the study (except those who explicitly withdraw from the study or withhold consent to linkage to HIC data) without individual written consent. This approval is necessary in order to plan the work program for the study but has yet to be obtained.

6.2. DATA QUALITY CHECKS AND PROPOSALS FOR EDITING HIC DATA PROVIDED FOR RESEARCH

6.2.1. Background

Since 1996 the HIC have extracted details of all services provided to women in the ALSWH who consented for their information to be released to the research team (“consenters”). The file contained the following information, for each claim for each consenter:

- ALSWH study number of the consenter (to enable linkage to the ALSWH database);
- postcode of residence;
- the date of the service;
- whether the service was provided in hospital;
- the broad type of service category;
- the specific item number;
- the amount charged by the provider;
- the Medicare benefit for the service (the “rebate”);
- the method of payment;
- a unique number for the provider of the service;
- the age group, sex and state of residence of the provider;
- major specialty of the provider;
- a unique number for the provider who referred the patient (if applicable);
- date of referral (if applicable);
- whether Medicare or the DVA paid for the service.

The Medicare/DVA data received to date have been summarised, linked to survey data and the results reported in several publications.¹⁻⁵ These cover issues of access and equity in health service use, continuity of care, and care for women with chronic conditions such as diabetes. The number of claims for services that have been received and analysed 1995-2003 are shown in Table 6.1.

The material in this report arose when forming a summary data files for the HIC data. When calculating out-of-pocket costs (defined as charge - Medicare benefit), a number of very high out-of-pocket costs were observed. Some high out-of-pocket costs may be the result of a provider charging substantially more than the scheduled Medicare benefit, however, many appear to result from errors in the HIC data.

Table 6.1. Number of services provided to the women who gave consent for their Medicare/DVA data to be released, by age group and year (services out of hospital only).

Data extraction 1 1995, 1996	Age group	Number of women	Number of claims 1995	Number of claims 1996	
	Younger	5,260	48,790	53,217	
	Mid-age	7,898	85,955	87,733	
	Older	6,542	115,272	118,314	
	<i>TOTAL</i>	<i>19,700</i>	<i>250,017</i>	<i>259,264</i>	
Data extraction 2 1997, 1998, 1999		Number of women	Number of claims 1997	Number of claims 1998	Number of claims 1999
	Younger	6,219	62,554	63,375	64,989
	Mid-Age	8,883	100,963	103,924	107,687
	Older	7,531	147,765	156,396	161,948
	<i>TOTAL</i>	<i>22,633</i>	<i>311,282</i>	<i>323,695</i>	<i>334,624</i>
Data extraction 3 2000, 2001		Number of women	Number of claims 2000	Number of claims 2001	
	Younger	6,203	64,706	65,628	
	Mid-Age	8,825	110,963	117,994	
	Older	7,395	171,689	177,270	
	<i>TOTAL</i>	<i>22,423</i>	<i>347,358</i>	<i>360,892</i>	
Data extraction 4 2002, 2003		Number of women	Number of claims 2002	Number of claims 2003	
	Young	4,356	49,480	49,957	
	Mid-Age	7,276	99,430	102,356	
	Older	5,594	150,853	156,553	
	<i>TOTAL</i>	<i>17,226</i>	<i>299,763</i>	<i>308,866</i>	

6.2.2. Method to identify potential errors

For each calendar year 1997-2003, the raw HIC data were read into a SAS dataset. Claims for services provided in hospital were removed from this analysis. Claims for 1995 and 1996 were not analysed for this report as item numbers were not included on all records.

All bulk-billed claims (payment type=6) were assigned an out-of-pocket cost of 0. For all other non-hospital claims, the out-of-pocket cost for each service was calculated as:

$$\text{cost} = (\text{provider's charge} - \text{Medicare benefit})$$

Two issues that arise when calculating out-of-pocket costs are those of apparently negative costs, and apparently very high costs. The issues are discussed separately below.

Negative costs

Very few cases resulted in an apparent negative out-of-pocket cost. In all cases but those for 2002, negative costs arise from rounding errors and amount to 5-10 cents. In 2002, however, there were two records with “obvious” errors in the charges that required adjusting. Such cases had the decimal point in the wrong place, additional digits added to charges, or trivial

differences between charges and benefits. All “negative costs” were easily fixed and no longer pose a problem in the HIC data.

An example of such a claim with a negative cost is a charge of 63.05 and a benefit of 63.10, resulting a “negative” cost to the patient of -5cents.

High costs

Several instances of very high out-of-pocket costs were observed in the data. In some cases the high costs were a result of a provider who consistently charged well above the scheduled Medicare benefit. However, in many cases, the apparently high charge was a result of a data error in the raw Medicare data.

In order to examine possible data errors systematically, the *cost ratio* variable was defined as:

$$\text{Cost ratio} = \text{charge} / \text{benefit}$$

Cost ratio measures the ratio between the amount charged by a provider and the associated scheduled Medicare benefit. This measure is used because it dimensionless and rescales for the very costly benefit items. A bulk billed claim, or any other claim where there was no out-of-pocket cost, will have a cost ratio of 1, whereas a claim with any out-of-pocket costs will have a cost ratio greater than 1. As the value of cost ratio increases, so does the relative out-of-pocket cost. Some high cost ratios may be attributable to a provider with consistently high charges, and others are the result of a data entry error.

The question may be asked; “What is a reasonable threshold for cost ratio?” This threshold may be used to filter out records considered to contain data errors. Table 6.2 shows the number of records with cost ratios greater than 2, 3, 5 and 10 (indicating that the provider charged respectively 2, 3, 5 and 10 times the scheduled Medicare benefit). For this study, the condition of $\text{cost ratio} > 3$ is used to extract records for further examination as potential data errors.

Even though these errors represent less than 1% of the data, they are influential and may bias the results and lead to incorrect conclusions. In particular, we see later in this report that many of the errors detected here are the result of an additional zero on a charge, or a repetition of a digit, or a decimal point in the incorrect place. Such errors are simple to fix and provide much benefit for the robustness of any analysis made using these data.

From Table 6.2 we can see that the percentage of claims with a cost ratio between 2 and 3 (i.e. the charge is between 2 and 3 times the Medicare benefit) is increasing over time.

This is consistent with findings that bulk billing is decreasing and out-of-pocket costs are increasing over time. Whilst some of these claims may be errors, it is more likely that they result from providers charging more than the scheduled fee.

It is more likely that the data errors are occurring in records where the cost ratio is greater than 3. The number of records with $\text{cost ratio} > 2$ is far more than the number with $\text{cost ratio} > 3$. Potential errors are not as obvious when there is a smaller gap between charge and benefit.

Table 6.2. Number of records in each year with cost ratios greater than 2, 3, 5 and 10.

Year	Total number of records (non-hospital claims)	Number of records with cost ratio >2 (% of total)	Number of records with cost ratio >3 (% of total)	Number of records with cost ratio >5 (% of total)	Number of records with cost ratio >10 (% of total)
1997	311282	1757 (0.6%)	157 (0.05%)	49 (0.02%)	12 (<0.01%)
1998	323695	2271 (0.7%)	170 (0.05%)	47 (0.01%)	19 (<0.01%)
1999	334621	2813 (0.8%)	217 (0.06%)	45 (0.01%)	12 (<0.01%)
2000	346644	3180 (0.9%)	243 (0.07%)	42 (0.01%)	16 (<0.01%)
2001	360154	4009 (1.1%)	335 (0.09%)	56 (0.02%)	22 (0.01%)
2002	299763	4778 (1.6%)	344 (0.11%)	73 (0.02%)	15 (0.01%)
2003	308796	7066 (2.3%)	507 (0.16%)	92 (0.03%)	20 (0.01%)

Note: records with cost ratio>10 are also included in column where cost ratio>5, and so on.

6.2.3. Suggestions for Data Cleaning

The larger the cost ratio value, the more likely it is that the observation contains a data error. In many cases the error is obvious such as:

- A digit being duplicated e.g. 25 appears as 255, 56 appears as 556
- A decimal point being in the incorrect place, e.g. 17.50 appears as 1.75
- The order of digits being switched e.g. 82 appears as 28
- Digits that may appear similar in handwriting are interchanged e.g. 8.3 appears as 3.3, 4.5 appears as 7.5
- Digits that are next to each other on the keyboard are interchanged e.g. 150 appears as 250

The above are but a few examples of ‘obvious’ errors that can be detected when observations with a high cost ratio are extracted and checked by hand.

In all HIC datasets from 1998 – 2003, the following steps were followed to attempt to correct data errors for observations with cost ratio>3:

- 1) If a provider has bulk billed all claims and a single high cost ratio appears, then set charge = benefit for this observation and assume this observation was also bulk billed.
- 2) Check the scheduled benefit value of the item in all other claims for the item in question. Replace with the most common benefit for this item when the benefit value is very different to the remainder of the benefits for the item of interest (in most cases, these seem to be typing errors)
- 3) Manually check benefit and charge for remaining cases for digits being duplicated, decimal points in the wrong position, digits being switched etc.

- 4) Examine records with very high cost ratios where the charge is a multiple of \$50. This seems too systematic to be random error
- 5) Examine cases which appear to have an incorrect item number and hence an incorrect benefit. In some cases it may be possible to crosscheck item number against the type of provider to ensure consistency.

The example below shows the results of applying the above rules to 2003 HIC data for cost ratios greater than 3 (507 records). It should also be noted that the Provider Number is a scrambled version of the true Medicare provider number, with a unique number for every provider. Item numbers are actual Medicare Item numbers according to the MBS.

Step 1) above resulted in changes being made to 16 observations. Examples of such changes are:

Item	Provider Number	Benefit	Charge	Cost ratio	Corrected Charge
69369	552050	23.65	200.00	8.47	23.65
54	60254	32.30	220.00	6.81	32.30
322174	73915	8.10	34.50	4.26	8.10

Step 2) above resulted in changes being made to 7 observations. Examples of such changes are:

Item	Provider Number	Benefit	Charge	Cost ratio	Corrected Benefit
66506	203217	1.70	11.35	6.68	11.35
66518	776612	0.55	16.85	30.64	16.85
72816	280825	0.05	71.85	1437.00	71.85

Step 3) above resulted in the most changes being made to the original data. This rule resulted in 42 observations being changed. When a decimal point is in the wrong place, the cost ratio is greater than 10 and this situation is therefore easily detected when cost ratio is greater than 10. Examples of such changes are:

Item	Provider Number	Benefit	Charge	Cost ratio	Corrected Charge
55032	72900	84.95	1444.95	17.01	144.95
11700	942073	21.55	215.50	10.00	21.55
3	635767	11.45	96.00	8.38	56.00*
57703	164355	39.05	243.30	6.23	43.30

* Based on manual check of other charges for that provider for that item

Step 4) above did not result in any changes as potential errors are not ‘obvious’. This rule simply flags claims with a cost ratio greater than 3 and a charge which is a multiple of \$50. This phenomenon, of multiples of \$50, was occurring more often than it should be if the high charges were random. Examples of such claims in the dataset are:

Item	Provider Number	Benefit	Charge	Cost ratio
53	521574	17.85	250.00	14.01
55703	751948	29.75	200.00	6.72
53	837240	17.85	100.00	5.60

Step 5) was not used to adjust any records, but rather to suggest that a flag be set up at the point of data entry which confirms the exact benefit for each item, and the possible items that each provider can charge. For example, a dental surgeon cannot charge for specialist heart surgery.

Table 6.3 shows the number of observations falling into each cost ratio band once the ‘obvious errors’ have been fixed for each year using the procedures outlined above. We see a dramatic improvement for cost ratios >5, as “obvious” errors in these observations are easier to detect and rectify. Errors present when cost ratio <5 are more difficult to correct. However, the procedure did correct some records where the cost ratio was <5. When records with high cost ratios were corrected, they sometimes still had cost ratio >2.

Table 6.3. Number of records in each year, with cost ratios greater than 2, 3, 5 and 10 before and after data have been ‘corrected’.

Year	Total number of records	Data ‘correction’	Number of records with cost ratio >2 (% of total)	Number of records with cost ratio >3 (% of total)	Number of records with cost ratio >5 (% of total)	Number of records with cost ratio >10 (% of total)
1997	311282	Before	1757 (0.6%)	157 (0.05%)	49 (0.02%)	12 (<0.01%)
		After	1691 (0.5%)	86 (0.03%)	11 (<0.01%)	0 (0%)
1998	323695	Before	2271 (0.7%)	170 (0.05%)	47 (0.01%)	19 (<0.01%)
		After	2222 (0.7%)	120 (0.04%)	10 (<0.01%)	1 (<0.001%)
1999	334621	Before	2813 (0.8%)	217 (0.06%)	45 (0.01%)	12 (<0.01%)
		After	2767 (0.8%)	169 (0.05%)	12 (<0.01%)	1 (<0.001%)
2000	346644	Before	3180 (0.9%)	243 (0.07%)	42 (0.01%)	16 (<0.01%)
		After	3140 (0.9%)	197 (0.06%)	7 (<0.01%)	0 (0%)
2001	360154	Before	4009 (1.1%)	335 (0.09%)	56 (0.02%)	22 (0.01%)
		After	3985 (1.1%)	302 (0.08%)	27 (0.01%)	2 (<0.001%)
2002	299763	Before	4778 (1.6%)	344 (0.11%)	73 (0.02%)	15 (0.01%)
		After	4709 (1.6%)	273 (0.09%)	22 (0.01%)	0 (0%)
2003	308796	Before	7066 (2.3%)	507 (0.16%)	92 (0.03%)	20 (0.01%)
		After	7011 (2.3%)	446 (0.14%)	43 (0.01%)	1 (<0.001%)

Note: some records with high cost ratios may still have cost ratio >2 after being ‘corrected’

6.2.4. Other data issues

There are 125 records in the claims data for 2002 for individuals where fields such as the item, date etc. are entered and non-zero but all charges, benefits and costs are zero. Qian Ying Fu (Senior Information Officer, Health Information Section) has explained that the costs associated with these item numbers have been included with other item numbers on the same day. These records are kept in the HIC data as they are an indicator of a service having been performed, but the costs have been included in another item for that person. The zero costs will have no effect on overall cost when we sum each woman's records. These item numbers all began with the number 5, covering X rays, ultrasounds and related services.

These types of records also appeared in the data for 2003, with 70 records having zero charge, benefit, and safety net value.

6.2.5. Recommendations

- 1) HIC data custodians and users need to agree on a protocol for correcting obvious errors in the data. These corrections could be made either before or after the data are supplied by HIC. Sources of error other than those covered in this report need to be examined, and potential mechanisms for correcting errors, preferably at the data entry stage rather than at the data analysis stage, need to be developed.
- 2) A formal mechanism for communication between users of HIC data should be established to develop data dictionaries and consistent definitions of derived variables. This could be via an electronic mailing list, where ideas can be shared, questions raised and decisions made. The list would need a moderator who would be responsible for monitoring online emails sent to the list. This idea needs further discussion and development.

This report was prepared by Anne Young and Virginia Whewey (April 2005).

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7. DISSEMINATION OF STUDY FINDINGS

7.1. WEB SITE

The Study web site, maintained at the University of Newcastle, was substantially revised and updated during 2004, and can be viewed at <http://www.newcastle.edu.au/centre/wha> or at <http://www.sph.uq.edu.au/alswh>.

A password-protected section has been installed. This includes work in progress, internal reports, minutes, agendas, and other internal information.

7.2. PUBLICATIONS

7.2.1. Papers Published

Smith N, Young A & Lee C. Optimism, health-related hardiness and well-being among older Australian women. *Journal of Health Psychology*, 2004; 9: 741-752.

This article examines whether optimism and health-related hardiness contribute to health and well-being among older women. Positive psychological characteristics, including optimism and health-related hardiness, are correlated with good self-rated health, but these variables are all affected by socioeconomic status, social support, physical illness and access to services. Using data from 9501 Australian women aged 73 to 78, we show that optimism and health-related hardiness explain a significant proportion of variance in all subscales of the SF-36, and in stress, even after these confounders are taken into account. The data, although cross-sectional, suggest that positive personal characteristics may contribute to well-being.

France K, Lee C & Powers J. Correlates of depressive symptoms in a representative sample of young Australian women. *Australian Psychologist*, 2004; 39: 228-237.

This paper presents a descriptive analysis of the prevalence of depressive symptoms among a national cohort of young Australian women, and the characteristics of those who experience them. It explores the associations between demographic and health-related variables and depressive symptoms in a representative sample of 9333 Australian women aged 22-27 years, from the Australian Longitudinal Study on Women's Health. Approximately 30% of these young women indicated that they were experiencing depressive symptoms, as indicated by the CES-D 10. After adjusting for age and rurality of residence, depressive symptoms were related to the following demographic variables: low income, low educational qualifications, a history of unemployment, not being in a relationship, and living arrangements other than living with a partner. Those health-related variables which were significantly associated with depressive symptoms included frequent visits to doctors and medical specialists, and a higher number of physical symptoms experienced and diagnoses made. More illicit drug use, higher use of cigarettes and alcohol, and lower exercise status were also significantly associated with depressive symptoms. This analysis supports the view that depression is one aspect of a multifactorial cluster of negative conditions across several domains of functioning, including physical ill-health, risky behaviours, and marginal social status. The complex interactions between these conditions, of which depression is only one, underscore the difficulties which arise in the treatment of depression and support the value of preventive interventions as an important public health strategy.

Mishra G & Dobson A. Multiple imputation for body mass index: lessons from the Australian Longitudinal Study on Women's Health. *Statistics in Medicine*, 2004; 23: 3077-3087.

In large epidemiological studies missing data can be a problem, especially if information is sought on a sensitive topic or when a composite measure is calculated from several variables each affected by missing values. Multiple imputation is the method of choice for 'filling in' missing data based on associations

among variables. Using an example about body mass index from the Australian Longitudinal Study on Women's Health, we identify a subset of variables that are particularly useful for imputing values for the target variables. Then we illustrate two uses of multiple imputation. The first is to examine and correct for bias when data are not missing completely at random. The second is to impute missing values for an important covariate; in this case omission from the imputation process of variables to be used in the analysis may introduce bias. We conclude with several recommendations for handling issues of missing data.

Outram S, Schofield M, Mishra G. Sociodemographic and health related factors related to poor mental health in midlife Australian women. *Women & Health*, 2004; 39: 97-115.

Objective: To examine associations between poor mental health and sociodemographic, psychosocial and health related variables in midlife Australian women.

Method: The random population-based sample comprised 13,961 Australian women aged 45-50 years who participated in the baseline postal survey for the Australian Longitudinal Study on Women's Health, conducted in 1996. The outcome measure, poor mental health status, was measured by the Mental Health Index (MH) of the SF-36.

Results: Sociodemographic factors associated with poor mental health were low educational levels, being unemployed or engaged solely in home duties, and non-English speaking background (European). Health related factors independently associated with poor mental health were having five or more visits to the doctor in the past year, menopausal status (surgical and peri-menopausal), less exercise, and smoking 20 or more cigarettes per day. Among psychosocial variables, low satisfaction with partner or close relationships, low perceived social support outside family, and more life-events over the past 12 months were independently associated.

Conclusion: The findings suggest a number of areas in which preventive interventions could be strengthened to improve quality of life among mid-aged women. These include policy changes to promote and support more education and employment opportunities for women before they reach midlife, increase understanding of the link between health risk behaviours and psychological well-being, and provide counselling services to improve women's relational and psychosocial circumstances.

Mishra G, Ball K, Patterson A, Brown W, Hodge A & Dobson A. Socio-demographic inequalities in the diets of mid-aged Australian women. *European Journal of Clinical Nutrition*, 2005; 59(2): 185-195.

Objective: To examine associations between poor mental health and sociodemographic, psychosocial and health related variables in midlife Australian women.

Method: The random population-based sample comprised 13,961 Australian women aged 45-50 years who participated in the baseline postal survey for the Australian Longitudinal Study

on Women's Health, conducted in 1996. The outcome measure, poor mental health status, was measured by the Mental Health Index (MH) of the SF-36.

Results: Sociodemographic factors associated with poor mental health were low educational levels, being unemployed or engaged solely in home duties, and non-English speaking background (European). Health related factors independently associated with poor mental health were having five or more visits to the doctor in the past year, menopausal status (surgical and peri-menopausal), less exercise, and smoking 20 or more cigarettes per day. Among psychosocial variables, low satisfaction with partner or close relationships, low perceived social support outside family, and more life-events over the past 12 months were independently associated.

Conclusion: The findings suggest a number of areas in which preventive interventions could be strengthened to improve quality of life among mid-aged women. These include policy changes to promote and support more education and employment opportunities for women before they reach midlife, increase understanding of the link between health risk behaviours and psychological well-being, and provide counselling services to improve women's relational and psychosocial circumstances.

Loxton D. What future? The long term implications of sole motherhood for economic well-being. *Just Policy Special Issue 1 Australian Women Facing the Future: Is the Intergenerational Report Gender Neutral?*, 2005; 35: 39-44.

The Intergenerational Report offers a projection of Australia's population and associated economic implications over a forty-year period from 2002 to 2042. Of concern is the potential for the costs of an ageing population to place a financial burden on the next generation of tax payers. The IR states that the increasing costs of the aged pension will be offset by the increasing number of Australians who will be fully or partially self-funded during retirement. However, some sections of the community may be unable to prepare for retirement in this way. I argue that sole mothers form a group who are at risk of facing retirement with inadequate financial resources.

Lee C, Johnson C, Chiarelli, P. Women's Waterworks: Evaluating an early intervention for incontinence among adult women. *Australian and New Zealand Continence Journal*, 2005; 11(1): 11-16.

Seventy-six Australian women aged 27 to 72, with minimal to mild symptoms of incontinence as assessed by the Incontinence Severity Index (ISI), were recruited through general medical practices and randomly assigned on a 2:1 basis to intervention or waitlist control. The intervention, conducted by nurse continence advisors, included physical assessment, pelvic floor muscle training, and bladder training offered on three individual visits at weeks 1, 9 and 16. The main outcome measures were pelvic floor muscle strength, endurance and contractility, self-reported incontinence severity, self-recorded bladder function, and participant evaluation of the programme. There were statistically significant improvements in all measures, and the women's evaluations of the programme were overwhelmingly positive.

From these results it is concluded that an early intervention programme for urinary incontinence is effective among women who choose to attend. However, it appears that there are barriers to women seeking help and it was shown that public health interventions are needed to destigmatise and prevent the condition.

7.2.2. Papers Accepted

Miller-Lewis, L, Wade T, Lee C. Psychosocial risk factors for pregnancy risk-taking in young women in emerging adulthood: Preliminary evidence from the Australian Longitudinal Study on Women's Health. *Australian Journal of Psychology*, in press.

This study longitudinally investigated psychosocial predictors of pregnancy risk-taking in young women from the Australian Longitudinal Study on Women's Health. Two mail-out surveys assessing socio-demographic, education/competence, psychosocial well-being, and aspiration/identity factors, were completed at ages 18 and 22 by 1647 young women in emerging adulthood, and a third survey assessing pregnancy risk-taking behaviour was completed by a sub-sample of 90 young women at age 24. Using principal components analysis to reduce the number of variables, it was found that higher psychosocial distress at age 22 was a risk factor for pregnancy risk-taking at age 24. Post-hoc analyses suggested that the strongest component of psychosocial distress when predicting pregnancy risk-taking was higher depressive symptoms. Demographic, education, unemployment, and future aspirations factors at age 18 and 22 were unrelated to pregnancy risk-taking at age 24.

Bell S & Lee C. Transitions in emerging adulthood and stress among young Australian women. *International Journal of Behavioral Medicine*, in press.

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

Loxton D, Schofield M, Hussain R & Mishra G. History of domestic violence and physical health in mid-life. *Violence Against Women*, in press.

The association between domestic violence and physical health in mid-aged Australian women is investigated via a cross-sectional survey of 14,100 women, aged 45-50 years, who responded to health and lifestyle surveys as part of the first survey of the Australian Longitudinal Study on Women's Health.

In univariate analyses, physical symptoms and illnesses, health behaviours and demographic factors were associated with domestic violence. After adjustment for demographic, health behaviour characteristics and menopause status in multivariate analyses, a number of physical health conditions (allergies/breathing problems, pain/fatigue, bowel problems, vaginal discharge, eyesight and hearing problems, low iron, asthma, bronchitis/emphysema, cervical cancer) were associated with a history of domestic violence. The results highlight the link between physical health and domestic violence in middle-aged women; and underscore the need for health professionals to take a full social history from women presenting with physical symptoms.

McNair R, Kavanagh A, Agius P & Tong B. The mental health status of young adult and mid-life non-heterosexual Australian women. *Australian New Zealand Journal of Public Health*, in press.

Objectives: To compare the mental health status of early adult and mid-life Australian women according to sexual orientation.

Methods and sample: Cross-sectional analyses of the Australian Longitudinal Study on Women's Health (ALSWH) surveys for the younger (22-27 years) and mid-age (50-55 years) cohorts. Women were classified into one of four groups: exclusively heterosexual, mainly heterosexual, bisexual and lesbian. Mental health outcomes included binary variables: self-reported depression, anxiety, use of prescription medication for depression, self-harm and suicidal ideation. Continuous outcomes included the SF36 mental health scale and the Centre for Epidemiologic Studies Depression Scale (CES-D). Regression analyses were used to examine the effects of sexual orientation on mental health after adjusting for age, region of residence and education and to assess the potential mediating roles of stress, abuse and social support.

Results: Younger mainly heterosexual, bisexual and lesbian women had poorer mental health outcomes than exclusively heterosexual women on all outcome measures except anxiety in lesbian women, even after adjustment for age, region and education. Mid-age mainly heterosexual women had poorer mental health on all outcomes except for medically diagnosed anxiety and bisexual women had significantly higher odds of self-harm than exclusively heterosexual women. All non-heterosexual women in both cohorts reported higher levels of stress and lifetime abuse. Controlling for stress, abuse and social support attenuated the mental health findings.

Conclusions: The poorer mental health in young non-heterosexual women and mid-life mainly heterosexual women highlights the need for health care providers to be particularly sensitive to mental health issues in these women. Stress, social support and lifetime abuse may play a role in explaining the poorer mental health and discrimination may also be important.

Implications: Longitudinal studies are needed to ascertain whether the differences seen in the two age cohorts are a cohort effect or result from changes with age. Improved sexuality measures are needed to understand whether women select 'mainly heterosexual' on the basis

of their identity or sexual behaviour, to start to understand how membership of this category influences mental health.

Young AF, Lowe JM, Byles JE, Patterson AJ. Trends in health service use for women in Australia with diabetes. *Australian and New Zealand Journal of Public Health*, in press.

Pachana NA, Ford JH, Andrew B, Dobson AJ. Relationships between companion animals and self-reported health in older women: cause, effect or artifact? *International Journal of Behavioral Medicine*, 2005.

A large longitudinal data set on women's health in Australia provided the basis of analysis of potential positive health effects of living with a companion animal. Age, living arrangements and housing all strongly related to both living with companion animals and health. Methodological problems in using data from observational studies to disentangle a potential association in the presence of substantial effects of demographic characteristics are highlighted. Our findings may help to explain some inconsistencies and contradictions in the literature about the health benefits of companion animals, as well as offer suggestions for ways to move forward in future investigations of human-pet relationships.

Lee C, Johnson C, Chiarelli, P. Women's Waterworks: Evaluating an early intervention for incontinence among adult women. *Australian and New Zealand Continence Journal*, in press.

Seventy-six Australian women aged 27 to 72, with minimal to mild symptoms of incontinence as assessed by the Incontinence Severity Index, were recruited through general medical practices and randomly assigned on a 2:1 basis to intervention or waitlist control. The intervention, conducted by nurse continence advisors, included: physical assessment, pelvic floor muscle training, and bladder training offered on three individual visits at weeks 1, 9 and 16. The main outcome measures were pelvic floor muscle strength, endurance and contractility, self-reported incontinence severity, self-recorded bladder function, and participant evaluation of the programme. There were statistically significant improvements in all measures, and the women's evaluations of the programme were overwhelmingly positive. From these results it is concluded that an early intervention programme for urinary incontinence is effective among women who choose to attend. However, it appears that there are barriers to women seeking help and it was shown that public health interventions are needed to destigmatise and prevent the condition.

Miller-Lewis L, Wade T & Lee C. Risk factors for pregnancy and childbearing in single young women: Evidence from the Australian Longitudinal Study on Women's Health. *International Journal of Behavioural Development*, in press.

This study investigated psychosocial predictors of early pregnancy and childbearing in single young women, consistent with the Eriksonian developmental perspective. Two-mail out surveys assessing reproductive behaviour and socio-demographic, education/competence, psychosocial well-being, and aspiration factors, were completed four years apart by 2635 young women, aged 18 to 20 when first surveyed. Young women in the 'emerging adulthood' developmental period were selected from the Australian Longitudinal Study of Women's Health. Longitudinally, lower investment in education over low-status paid work, experiencing unemployment, greater psychosocial distress, stress and alcohol use, and high

family aspirations combined with low vocational aspirations were risk factors for early single pregnancy and childbearing. Several mediational relationships also existed between these predictor variables. It was concluded that psychosocial factors play an important role in understanding early pregnancy and childbearing in single young Australian women, and that the findings provide some support for investigating early pregnancy and childbearing from an Eriksonian developmental perspective.

Lloyd B, Quine S, & Lee C. The ‘right’ balance: Young Australian women juggle work and family. *Just Policy Special Issue 2 Women, Work and Money in the Modern Australian Context*, in press.

Work/family balance is strongly represented in political and media debate, but it is of most significance to women, particularly those with young families. Mothers gain personal, financial and social benefits from their participation in paid employment, but these gains must be balanced against exhaustion, time pressure, and ambivalence about not meeting the obligations of ‘good’ motherhood. Focusing on young women aged 25 to 29 years, this qualitative study explores strategies which women use to balance paid work and motherhood. It explores the factors that contribute to work/family balance, and considers the impact of balance or its absence on psychological well-being.

McKay H & Fisher J. Childless women at midlife – a report on a sub-study from the Women’s Health Australia mid-age cohort. *Just Policy Special Issue 2 Women, Work and Money in the Modern Australian Context*, in press.

Childless rates amongst Australian women are rising. Such demographic change has the potential to affect government revenue, via altered paid employment patterns, and demands on government resources, through changes in childless women’s needs. To understand these issues better this paper compares demographic characteristics and measurements of well-being between mid aged childless women and their peers who are mothers using data from the Australian Longitudinal Study on Women’s Health.

Warner-Smith P, Everingham C & Ford J. “Transforming every station they have passed through and showing no signs of stopping’: Mid-age women’s experiences of work and expectations of retirement. *Just Policy Special Issue 2 Women, Work and Money in the Modern Australian Context*, in press.

The broad aim of this paper is to investigate what work and retirement mean for middle-aged women and to consider the implications of their experiences for government policy, especially given current concerns about workforce maintenance in the face of population ageing.

The data used in the paper are drawn from the Australian Longitudinal Study on Women’s Health (ALSWH – also known as Women’s Health Australia). This large longitudinal study includes three age cohorts of women, and it is information from four surveys of the mid-age cohort who were aged 45-50 when they were first surveyed in 1996 which is discussed here.

We find that many women in their fifties are maintaining, if not increasing, their hours of paid work, and that employment is generally associated with better health for this age group, particularly when they are working the hours they prefer. Retirement appears to be a problematic concept for these women, even as they head towards their sixties, and many do

not have a clear picture of when they might want to retire. However, it seems that health, both their own and that of family members, is likely to be a major influence in their decision to retire, and may be even stronger than financial factors.

Byles J & Feldman S. The lives of older widowed women. *Just Policy Special Issue 2 Women, Work and Money in the Modern Australian Context*, in press.

Increasing numbers of women in Australia are widowed and independent-living. The Australian Longitudinal Study on Women's Health provides an important opportunity to explore and understand the changing needs of these women as they age, and following widowhood. Analysis of data from the 12,624 women aged 70-75 years who participated in Survey 1 of the study revealed specific needs for the 4,106 women who had been widowed. Further longitudinal qualitative and quantitative data provided by the women in subsequent surveys and sub-studies provides insight into the health and social changes made by widowed women as they re-establish themselves following the death of their husbands.

Lee C, Dobson AJ, Brown WJ, Bryson L, Byles J, Warner-Smith P & Young AF. Cohort profile: The Australian Longitudinal Study on Women's Health. *International Journal of Epidemiology*, in press.

No abstract available.

Lee C & Gramotnev H. Motherhood plans among young Australian women: Who wants children these days? *Journal of Health Psychology*, in press.

Fertility rates in the developed world have been below replacement level for 25 years, prompting policy concerns relating to demographic changes. Commentary is driven by an assumption that low fertility results from deliberate, unconstrained choice by young women. This paper uses data from the Australian Longitudinal Study on Women's Health to examine this assertion. Data from 7,448 childless women aged 22 to 27 indicate that 9% of young women aspire to childlessness, with 72% wanting one or two children and 19% more. Those who aspire to childlessness appear uninterested in relationships with men, of low socioeconomic status, and with lifestyles and aspirations focused around education leading to full-time work. Indicators of poor psychological functioning disappeared after adjustment for other variables. Women wanting one or two children expected to be in full- or part-time paid work in addition to motherhood. Women wanting many children generally had "traditional" lifestyles and aspirations. Most young women envisage a future in which they will need to negotiate both motherhood and paid work. If increasing fertility rates is seen as a valuable social goal, policy-makers need to consider strategies that support this.

Byles J, Feldman S & Dobson A. The art of ageing as widowed older women in Australia. In Carmel S, Torres-Gil F & Morse C (Eds), *The Art of Ageing in a Global Context: From Theory and Research to Policy and Practice*. New York: Baywood Publishers, in press.

No abstract available.

7.3. CONFERENCE SYMPOSIA, KEYNOTES AND SPECIAL EVENTS

7.3.1. Keynote Address

Lee C. Caregiving and women's health: The big picture. *Carers NSW Inaugural Professional Conference - Shifting paradigms in health care: Leading practice in carer support*, Sydney, New South Wales, Australia, 24-25 February 2005.

Family caregiving, the home-based care of the chronically ill, frail or disabled by family members, is an increasingly important component of health care in Australia. While acknowledging that men do provide family care, I use data from the Australian Longitudinal Study on Women's Health (ALSWH) to provide an overview of the health and well-being of Australian women who are caregivers, as well as the correlates of transitions into and out of caring roles.

The presentation uses data from Australian women in two age groups, to examine transitions into and out of caregiving, and to explore their associations with health and demographic changes. These analyses are based on survey data from 12,754 Mid-age women who responded to Survey 2 of ALSWH in 1998 when aged 47-52, and to Survey 3 in 2001 when aged 50-55; and from 8,032 Older women who responded to Survey 1 in 1996 when aged 70-75, and to Survey 2 in 1999 when aged 73-78.

Overall, 9.2% of Mid-age women were caregivers at both surveys, while 9.5% moved into caregiving roles and 10.7% moved out of them. For the Older women, 10.2% remained caregivers, 13.9% moved into caregiving roles and 10.6% moved out of them. The paper explores the health and well-being of women in each of these categories and suggests that caregiving affects women differently at different life stages, and that carer support services need to be flexible enough to support a range of needs for the range of people who provide family-based care. Health professionals need to pay attention to the impact of caring on carers' health and ensure that they are referred appropriately, while policy-makers need to ensure that appropriate support services are available.

7.3.2. Symposia

National Rural Health Association Conference

Women's Health. Symposium presented at the 8th National Rural Health Association Conference, Alice Springs, Northern Territory, Australia, 10-13 March 2005.

Young A, Warner-Smith P * Byles J*. *Nine years down the track: has access to health services changed for women in rural Australia. Women's Health, at the 8th National Rural Health Association Conference, Alice Springs, Northern Territory, Australia, 10-13 March 2005.*

It is well known that many people living in rural and remote areas of Australia have limited access to medical services. However, it is often difficult to quantify whether the situation is improving. The Australian Longitudinal Study on Women's Health provides an opportunity to examine self-reported access to health services and changes over time, according to place of residence. Survey data covering a range of health, social and demographic factors have been collected since 1996 from a random sample of more than 40 000 women in three age groups, of whom more than half live in rural areas. Medicare data have also been linked to the survey data. The empirical data are supplemented by qualitative data from the women.

The focus of this presentation is the younger women in the study, who were aged 22-27 years at Survey 2 in 2000 and 25-30 years by Survey 3 in 2003. Medicare data showed that bulk billing rates for general practice services were lower, and out-of-pocket costs higher, for women living in rural areas. Self-reported access to bulk billing confirmed these results. Younger women who stayed in rural areas (n=2662) were most likely to have poor ratings of their access to a GP who bulk bills, and the percentage who were dissatisfied increased from 41% in 2000 to 56% 2003 (compared with 19% and 47% for younger women in urban areas). The percentage of younger rural women giving poor ratings of their access to a female GP had not changed significantly, with 36% being dissatisfied in 2000 and 39% in 2003 (compared with 20% and 24% for young women in urban areas). The policy implications of these findings and comments made by the women themselves will be discussed.

The longitudinal study is well placed to monitor the effectiveness any new programs aimed at improving the access to health care services of women living in rural and remote areas of Australia.

Warner-Smith P. Gender, generation and geography: findings from the Australian Longitudinal Study on Women's Health on the health and wellbeing of women at different lifestages. *Women's Health, at the 8th National Rural Health Association Conference, Alice Springs, Northern Territory, Australia, 10-13 March 2005.*

The Australian Longitudinal Study on Women's Health (ALSWH) – widely known as Women's Health Australia - is a longitudinal population-based survey, which examines the health of over 40,000 Australian women. Women in three age groups (aged 18-23 years, 45-50 years and 70-75 years in 1996) were randomly selected from the Medicare database with deliberate oversampling of women in rural and remote areas to ensure adequate representation. The study goes beyond a narrow perspective that equates women's health with reproductive and sexual health, and takes a comprehensive view of all aspects of health throughout women's life span.

This paper begins with a brief description of ALSWH. It then sketches 'the big picture', drawing on a range of indicators and data on health, health behaviours, health service use and generational lifestyle issues among women in different geographical locations. This analysis has confirmed that there are indeed important spatial differences in women's opportunities for health and well-being. Although there are few differences in physical health among women living in different parts of Australia, we found that the life-course pattern of women in remote and rural areas is closer to traditional patterns for women, even though most are, or will be, in employment. But their situations involve access to opportunities and services inferior to those of their urban counterparts. Important health policy implications are associated with this socio-cultural context and they are particularly relevant because women are greater users of the health care system, both as patients and carers, than are men.

These patterns of spatial inequality in Australia cannot be adequately understood unless account is taken of the gender factor. This is likely to become increasingly salient if women's earnings continue to contribute an ever larger share to family income. This would be likely to exacerbate the differences between women but also disrupts the more traditional relationships between women and men as well. While there have been some important and successful health policy initiatives in recent times, such as mammography screening, there is an urgent need to integrate a thoroughly gendered approach, not only

into all analyses of spatial inequality, but also in the analysis of the distribution of and access to services.

Loxton D. From the smallness of the community comes the strength of the community: Sole mothering in rural and remote Australia. *Women's Health, at the 8th National Rural Health Association Conference, Alice Springs, Northern Territory, Australia, 10-13 March 2005.*

A recent study of the wellbeing of sole mothers, using data from the Australian Longitudinal Study on Women's Health (Womens' Health Australia – WHA) revealed that they were more likely to experience economic stress and poor psychological health than other women.

To further investigate the health and economic wellbeing of sole mothers a series of focus groups were held in metropolitan and regional NSW. Although WHA analyses revealed few differences between urban and non-urban sole mothers on measures of health and economic wellbeing, the qualitative study indicated that the factors that underlie economic and psychological wellbeing did tend to differ by area of residence. Sole mothers from inner metropolitan areas experienced higher housing costs than sole mothers from rural and remote areas. However, urban sole mothers also experienced benefits, such as access to public transport, bulk billing general practitioners and some ancillary health services, while sole mothers who lived outside of metropolitan areas tended to face difficulties accessing transport and health services. In comparison to women from urban areas, women from rural and remote areas experienced personal benefits of small town living, including a strong sense of community and good social support, which helped to reduce stress, but personal costs of small town living were also apparent. For example, a lack of privacy led to increased stress for some women. Sole mothers from the remote area experienced additional problems, such as difficulty in accessing higher education, the need to travel long distances in order to access health care, a lack of consistency in psychological health services and difficulty in obtaining legal representation.

Recommendations include a review of the costs incurred by non-urban sole mothers in obtaining health care for themselves and their children, and investigation into the level of staff turnover among mental health professionals in remote areas.

Byles J. Landscapes of healthy ageing: older women across urban, rural and remote Australia. *Women's Health, at the 8th National Rural Health Association Conference, Alice Springs, Northern Territory, Australia, 10-13 March 2005.*

The main aim of this paper is to explore changes in health for older Australian women by comparing the prevalence of key health and health care indicators at three time points. Since women in rural and remote parts of Australia may be expected to have different health outcomes and different service use, the prevalence of these variables at each time point is compared for women living in urban, rural and remote parts of Australia.

Women in the older cohort of the Australian Longitudinal Study on Women's Health (ALSWH) – widely known as Women's Health Australia – were aged 70-75 at the time of the first survey in 1996. They have since been invited to complete two follow up surveys and a third is intended for 2005. In each survey, women were asked to complete a large number of closed questions about their health and lifestyle. For this analysis, the factors compared were sociodemographic characteristics (marital status, housing, transport, income); health status (health-related quality of life, symptoms, vision, hearing, help with

daily tasks, falls); health behaviours (smoking, physical activity); health and other service use.

Overall, there were few differences in health between women living in urban, large rural, small rural, or other rural and remote areas at each survey. While the change in the health status of the women was relatively small, it accelerated in the second period of observation. Although the increase in formal health care was not great, the need for care increased considerably over the six year period of observation. Similarly there was an increase in the need for community services. The main difference between women in different areas was that urban women had generally higher levels of service use. ALSWH data also showed that women who moved to more urbanised areas had more symptoms, poorer mental health and less social support than women who remained in their own homes. These data suggest that women who move from rural to more urbanised areas are a vulnerable and potentially disadvantaged group of older women, who require particular consideration in policy and planning, and in the analysis of issues associated with spatial distribution of inequality.

Australian Women's Health Network Conference

Violence Against Women and Mental Health. Symposium presented at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.

Taft A. Health and experiences of violence among young Australian women: Socio-economic factors, aspirations and other associations. *Violence Against Women and Mental Health, at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.*

Young women, and women of reproductive age, are most at risk of violence. The burden of reproductive and mental health damage is significant, even at this early age. If we are to develop effective strategies to prevent or intervene early in such violence, we need qualitative and quantitative data about what mediates and what is associated with a change in a woman's exposure to violence.

The Australian Longitudinal Study on Women's Health offers a unique opportunity to study the changes in women's lives over time. This paper presents analyses from the 1996 and 2000 surveys of the Younger cohort of this national sample of Australian women, and their voices from qualitative data.

In 1996, the 14,779 women were aged 18 to 23 and already the mental, reproductive and other health damage associated with violence was apparent. We describe the socio economic factors characterising these women and distinguish those who escape from violence, those whose violence status remains the same, and those who become victims of violence. We describe what characteristics, mediating factors and women's aspirations can teach us about where prevention and early intervention strategies and policies should focus.

Loxton D, Schofield M & Hussain R. Factors that mediate the relationship between intimate partner violence and mental health among mid-aged Australian women. *Violence Against Women and Mental Health, at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.*

Intimate partner violence (IPV) has been consistently associated with poorer mental health among women. The current study investigated the status of demographic and psychosocial variables as mediators in the relationship between IPV and poorer health among 14,100 mid-aged Australian women participating in the first survey of the Australian Longitudinal

Study on Women's Health (ALSWH). Increased stress, a higher number of life events, and lower social support were found to mediate the relationship between lifetime experiences of IPV and poorer mental health. Qualitative interviews conducted with a subset of ALSWH participants showed the complex ways in which these indirect pathways to poorer health have occurred for women who have lived with IPV. Quantitative results implied that interventions designed to mitigate the impact of stress and stressful life events, and to increase social support might assist with improving mental health outcomes among women who have experienced IPV. However, qualitative results indicated that such interventions may need to take into account the factors that underlie the occurrence of psychosocial mediators in order to be maximally effective.

Parker, G. Investigating the relationships among abuse experience, emotional health, and personal empowerment for Australian mid-aged women. *Violence Against Women and Mental Health, at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.*

This paper draws on quantitative and qualitative data to examine the relationships among abuse experience, emotional health, and personal empowerment in order to better understand how women cope with abuse. Using data from two surveys that targeted abused mid-aged women from the Australian Longitudinal Study of Women's Health, analyses indicate that problem-focused coping strategies at the time of the abuse are not related to current emotional health, while emotion-focused coping is related to poor emotional health, and a high sense of inner coherence is related to better emotional health. However, the effect of emotion-focused coping on emotional health is indirect, through an inverse relationship with victims' sense of inner coherence. Qualitative analysis of women's own descriptions of useful ways of coping generally identified self-empowerment, distancing and distraction tactics, and open disclosure of the abuse. It appears that coping may be more usefully viewed as a personal resource than as a strategy, and its efficacy in situations of abuse will be largely determined by each woman's perception of the situation, by the degree of challenge towards understanding, managing, and drawing meaning from their experiences, and by the extent of individual resolve for change.

Taft A, Lumley J & Watson L. Socio-economic factors associated with abortion in Australia: implications for sexual and reproductive health policy for young Australian women. *Reproductive and Sexual Health Rights, at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.*

Australian politicians and media regularly focus on the crisis in fertility, the 'epidemic' of abortion in Australia and rates of teenage abortion. To date, because of the uncertain legal nature of abortion in Australia, there have been no reliable national data on characteristics of Australian women having abortions on which to reform policy.

This paper will present newly analysed data from the 1996 (n= 14,799) and 2000 younger cohort surveys (n=9683) from the Australian Longitudinal Women's Health Study. For the first time, we will compare the socio-economic characteristics (including b/w urban, rural and remote women and Australian states), contraceptive use, GP, family planning and sexual health services use, of a national random sample of Australian women reporting abortions with those who have never had abortions.

We will describe differences between teenage (17 to 19) and older women (20 to 24) in the 1996 survey. We will present changes in the socio-economic status, health service use and reproductive outcomes among women who answered the second survey. We will discuss implications that woman with lower socio-economic status are undergoing abortion more

frequently in Australia than others. We will draw implications for sexual and reproductive health policy in Australia.

Lessons for Gendered Policy: Findings from the Australian Longitudinal Study on Women's Health. Symposium presented at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.

Lloyd B. The 'right' balance: Young women juggle work and motherhood. *Lessons for Gendered Policy: Findings from the Australian Longitudinal Study on Women's Health, at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.*

No abstract available.

Loxton D. Mid-age women consider retirement. *Lessons for Gendered Policy: Findings from the Australian Longitudinal Study on Women's Health, at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.*

In this presentation, we investigate associations between paid work and wellbeing for middle-aged women, and examine their attitudes towards retirement. We consider the implications of their experiences for government policy, especially given current concerns about workforce maintenance in the face of population ageing.

The data used in the paper are drawn from the Australian Longitudinal Study on Women's Health (ALSWH – also known as Women's Health Australia). This large longitudinal study includes three age cohorts of women, and it is information from four surveys of the mid-age cohort, who were aged 45-50 when they were first surveyed in 1996, which is discussed here.

We find that many women in their fifties are maintaining, if not increasing, their hours of paid work, and that employment is generally associated with better health for this age group, particularly when they are working the hours they prefer. Retirement appears to be a problematic concept for these women, even as they head towards their sixties, and many do not have a clear picture of when they might want to retire. However, it seems that health, both their own and that of family members, is likely to be a major influence in their decision to retire, and may be even stronger than financial factors.

Byles J & Feldman S. Older widow's lives. *Lessons for Gendered Policy: Findings from the Australian Longitudinal Study on Women's Health, at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.*

The Australian Longitudinal Study on Women's Health provides an important opportunity to explore and understand the changing needs of community-dwelling widowed women in Australia. Over one-third of the 12624 women aged 70-75 who participated in Survey 1 were widowed at that time, and more women have become widowed during the course of the study. Qualitative and quantitative data provided by the women since the start of the study have provided powerful insights into the health and social changes made by widowed women as they re-establish themselves following the death of their husband. The data reveal that health, financial and social dimensions of life are all experienced differently by older widowed women when compared with married women of the same age, and particularly by women widowed for less than 12 months. The data also highlight the importance of health care providers and other community services in assisting women

through this major life transition, as well as the need to maintain social contact and community participation.

Gender Equity in Health Policy. Symposium presented at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.

Bryson L. Gender, health and evidence-based policy. *Gender equity in health policy at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.*

In Australia in the 1970s and 1980s the issue of gendered health policy gained some purchase, at both State and Commonwealth government levels.

An active women's movement lobbied fairly successfully for attention to the issue of women's health. Women's Health Policies were established across the country and women's health centres established, but much of this has slipped away. Drawing on the history of the Australian Longitudinal Study on Women's Health (ALSWH), which has its roots in this earlier phase of the women's movement, the slippage of a focus from the gendered power aspects of women health is considered.

This is linked with a new enthusiasm for evidence based policy and practice.

7.3.3. Plenary

Bryson L. Participant. *Politics of Women's Health, at the 5th Australian Women's Health Conference, Melbourne, Victoria, Australia, 20-22 April 2005.*

No abstract available.

7.4. CONFERENCE PRESENTATIONS

Dobson AJ & Ford J. Risk factors for 'early' death among elderly women: Results from the Australian Longitudinal Study on Women's Health. *2nd International Conference on Health Ageing and Longevity, Brisbane, Queensland, Australia, 18-20 March 2005.*

Introduction: The Australian Longitudinal Study on Women's Health is a large, national, prospective study of factors affecting the health and well-being of three age-based cohorts of women. When the study started in 1996 women in the oldest cohort were aged 70-75 years. According to the Australian life tables for 1995-7 they could be expected to live, on average, about another 14 years. The purpose of this paper is to examine the characteristics of women who died within the first 9 years - that is "early" deaths.

Methodology: Women were selected randomly from the national Medicare database. There were n=12432 participants aged 70-75 at the baseline survey. They are matched annually to the National Death Index. The endpoint for this study is death (from any cause) between 1996 and the 31st December 2003. Survival analyses were conducted using Kaplan-Meier curves and Cox proportional hazards models.

Results: Factors associated with "early" death were: poor self-rated health, Hazard Ratio (HR) = 4.04 (95% confidence interval 2.75, 5.92); having at least 3 chronic conditions HR = 2.29, (1.86, 2.83); cigarette smoking, HR = 2.17 (1.80, 2.83); being sedentary, HR = 2.17 (1.80, 2.61); and being underweight, HR = 1.65 (1.36, 2.00)

Conclusions: While the data suggest that some of the “early” deaths occurred among women were already in poor health at baseline, they also demonstrate the relevance of general lifestyle factors are as relevant for good health among older women as for the rest of the population.

Matthews S, Clemens S & Donath S. Changes in short term risky drinking and factors that influence change among 2 cohorts of Australian women. *International Conference on the Reduction of Drug Related Harm, Belfast, Northern Ireland, 20-24 March 2005.*

Background: Short term risky drinking “bingeing” is a public health concern. It is generally assumed ‘bingeing’ peaks in early adulthood & decreases thereafter. This paper examines change in ‘short term risky drinking’ & correlates in 2 cohorts of Australian women. Risky drinking in the short term places individuals at high risk of acute harms with 34% of fall injuries/drownings, 47% of assaults & 37% of road injuries in males & 18% in females attributable to alcohol consumption. Alcohol also leads to risky sexual behaviour & high blood alcohol levels are associated with increased risk of death from a heroin overdose.

Methods: Secondary data analysis of the Australian Longitudinal Study on Women’s Health is conducted. This is a nationally representative sample. 2 cohorts of women aged 18-23 (N=9,446) and 45-50 (N=11,232) years at survey 1 and 22-27 and 47-52 years at survey 2 are compared to determine change in risky drinking. Kappa is used to determine concordance in behaviour between the 2 surveys. Those that move into and out of risky drinking are identified. Multivariate statistics appropriate for longitudinal analysis will be used to determine what factors impact on these drinking behaviours & are associated with increased/decreased short-term risky drinking behaviours.

Results: Preliminary analysis indicate 43% of the young cohort did not change their short term risky drinking behaviour compared to 70% of the mid cohort. 26% decreased their risk while 22% increased their risk of short term harm. Comparable figures for the mid cohort were 12% decrease, & 13% increase. There was more divergence among the young cohort than the mid cohort as illustrated by a lower kappa value (0.27 $p < .0001$ young cohort, 0.53 $p < .0001$ mid cohort). A small proportion became abstainers or moved from abstinence to low short term risky drinking. Results from the multivariate analysis will be presented.

Conclusion: Identifying patterns of short term risky drinking behaviour and factors that contribute to those changes, provides valuable information that can contribute to strategies to reduce the harms associated with risky alcohol consumption. Alcohol misuse is responsible for 22% of the \$34.4 trillion of social costs due to substance abuse in Australia. The high social and economic costs of risky short term alcohol consumption merit increased attention to this issue. The increases in alcohol consumption among women and their increased risk of experiencing injury relative to men & engaging in risky sexual behaviour make this especially important in this population.

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. *British Sociological Association Annual Conference, University of York, York, UK, 21-23 March 2005.*

It is becoming common in the social policy literature to argue that since women are becoming better educated and out of the workforce for much less time over their lifecourse, their situation will come to duplicate that of men. This paper calls into question this ‘progress

narrative' which assumes that a gender analysis will no longer be relevant to women belonging to generation X (born in the 1970s). Using material drawn from in-depth interviews with three generations of Australian women (26-32; 53-58; 65-70) as well as data from the Australian Longitudinal Study on Women's Health, the paper argues that the progress narrative belongs to the generation of Baby Boomer women. It emerged in a specific socio-cultural context under specific economic conditions. This was prior the women's movement; prior the new economy. At that time, the identity of women was very much merged with that of motherhood and the normative constraints on mothers which were strengthened by a clear, structural division between the public and private spheres of life. These conditions generated a gender identity politics which translated women's 'difference' into so many obstacles that had to be overcome – largely through social policy initiatives. But times have changed and the progress narrative which is closely associated with the identity politics of the women's movement and the effacing of 'difference' is now in danger of contributing to the hegemony of neo-liberalism. Rather than negating the need for a gender analysis however, there is a need to re-think the concept of identity from a generational perspective.

Mishra G & Dobson A. Multiple imputation for body mass index: Lessons from the Australian Longitudinal Study on Women's Health. *MRC Biostatistics Unit Multiple Imputation Workshop, Cambridge, UK, 12-13 April 2005.*

In large epidemiological studies missing data can be a problem, especially if information is sought on a sensitive topic or when a composite measure is calculated from several variables each affected by missing values. Multiple imputation is the method of choice for 'filling in' missing data based on associations among variables. Using an example about body mass index from the Australian Longitudinal Study on Women's Health, we identify a subset of variables that are particularly useful for imputing values for the target variables. Then we illustrate two uses of multiple imputation. The first is to examine and correct for bias when data are not missing completely at random. The second is to impute missing values for an important covariate; in this case omission from the imputation process of variables to be used in the analysis may introduce bias. We conclude with several recommendations for handling issues of missing data.

Furuya H, Byles J & Young A. Does moderate alcohol consumption lead to excessive disability or poorer health in elders? *Future Direction of Alcohol Research In Japan, at the Workshop of Japanese Society for Biomedical Research on Alcohol, Tokyo, Japan, 3 - 4 March 2005.*

No abstract available.

7.5. OTHER PRESENTATIONS

Research Centre for Gender and Health / Women's Health Australia 2005 Seminar Series, University of Newcastle, Newcastle, New South Wales, Australia.

8 February 2004. Dr Penny Warner-Smith, Dr Deb Loxton & Dr Anne Young. *Good news and bad news: Urban/rural differences in health and health services for women.*

8 March 2004. Dr Jon Adams. *Women's use of Complementary and Alternative Medicine (CAM) practitioners.*

12 April 2004. Ms Julie Hodges. *An ancient tradition in a modern life: Why are women practising lyengar yoga?*

10 May 2004. Dr Lynnette Mackenzie & Ms Afsoon Hassani Mehraban. Falls in the home environment.

Australian Longitudinal Study on Womens' Health 2005 Research Meeting Series, The University of Queensland, Brisbane, Queensland, Australia.

24th February 2005. Annette Dobson & Jess Ford. *Weighting risk factors for 'early' death among elderly women.*

7.6. MEDIA

7.6.1 Television and Radio

Date	Media	Title	WHA Collaborator
7-Mar-05	ABC Rockhampton, QLD	<i>Dying before your time- why some women do.</i>	Professor Annette Dobson
7-Mar-05	ABC Sunshine Coast, QLD	<i>Dying before your time- why some women do.</i>	Professor Annette Dobson
7-Mar-05	4RO	<i>Dying before your time- why some women do.</i>	Professor Annette Dobson
7-Mar-05	4KQ	<i>Dying before your time- why some women do.</i>	Professor Annette Dobson
7-Mar-05	2LF	<i>Dying before your time- why some women do.</i>	Professor Annette Dobson
7-Mar-05	ABC Sunshine Coast, QLD	<i>Longevity Conference</i>	Professor Annette Dobson
15-Mar-05	ABC 2NC Newcastle, NSW	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	K Rock FM Geelong, VIC	<i>Alcohol Report News and interview</i>	Dr Anne Young
15-Mar-05	2UE Sydney, NSW. Syndicated 17 stations	<i>Alcohol Report Talkback/interview</i>	Dr Anne Young
15-Mar-05	5AA Adelaide, SA	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	River FM Brisbane, QLD	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	5AA Port Lincoln, SA Syndicated 2 stations	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	SA FM Adelaide, SA	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	ABC Sydney, NSW 702 AM	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	6PR Perth, WA Syndicated 11	<i>Alcohol Report News Grab</i>	Dr Anne Young

Date	Media	Title	WHA Collaborator
	stations		
15-Mar-05	WAVE FM Wollongong, NSW	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	MIX FM Sydney, NSW	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	NXFM Newcastle, NSW	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	ABC Statewide NSW	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	2CCC Canberra, ACT	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	WS FM Campbelltown, NSW	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	Triple M Sydney, NSW	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	Curtin FM Perth, WA	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	K Rock FM Geelong, VIC	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	2GB Sydney, NSW Syndicated 1	<i>Alcohol Report News Grab</i>	Dr Anne Young
15-Mar-05	2NUR Newcastle, NSW	<i>Alcohol Report News /interview</i>	Dr Anne Young
21-Mar-05	Channel 10 Rural health programme	<i>Alcohol Report Interview</i>	Dr Anne Young

7.6.2. Magazine and Newspaper articles

Date	Media	Title	WHA Collaborator
19-1-05	Hobart Mercury, Tasmania	<i>Home and Aware Teenage Pregnancy</i>	General statistics
21-1-05	Queensland Times, Ipswich, QLD	<i>Obesity concerns spark action</i>	Professor Annette Dobson
27-1-05	Canberra Times, ACT	<i>How soapies can be a real education for our teenagers</i>	General statistics
16-Mar-05	Ballarat Courier, VIC	<i>Study finds a few drinks are good for women</i>	Dr Anne Young
16-Mar-05	Herald Sun, VIC	<i>Binge and the single women</i>	Dr Anne Young
16-Mar-05	North West Star, QLD	<i>Women in better health if they drink</i>	Dr Anne Young
16-Mar-05	AAP Newswire, National	<i>Aussie women in poorer health if they don't drink: study</i>	Dr Anne Young
16-Mar-05	Queensland Times, Ipswich, QLD	<i>A little drink helps</i>	Dr Anne Young
16-Mar-05	Lycos News, World Wide Web	<i>Tippling Australian women healthier than teetotallers:</i>	Dr Anne Young
16-Mar-05	Cairns Post, QLD	<i>Drinkers fare healthier than</i>	Dr Anne Young

Date	Media	Title	WHA Collaborator
16-Mar-05	Warrnambol Standard, VIC	<i>teetotallers in survey Female drinkers' health better</i>	Dr Anne Young
16-Mar-05	Border Mail, VIC	<i>2 drinks a day healthy</i>	Dr Anne Young
16-Mar-05	AAP Newswire, National	<i>Aussie women in poorer health if they don't drink</i>	Dr Anne Young
16-Mar-05	Townsville Bulletin, QLD	<i>Teetotallers 'unhealthier'</i>	Dr Anne Young
16-Mar-05	Daily Telegraph, Sydney, NSW	<i>Benefits of alcohol</i>	Dr Anne Young
16-Mar-05	Gympie Times, QLD	<i>Women in poorer health if they don't drink</i>	Dr Anne Young
16-Mar-05	West Australian, WA	<i>Women benefit when they stop at two drinks</i>	Dr Anne Young
16-Mar-05	Fraser Coast Chronicle, QLD	<i>Women who drink couple a day healthier:study</i>	Dr Anne Young
16-Mar-05	The Age, VIC	<i>Two drinks better than none:Study</i>	Dr Anne Young
16-Mar-05	Hobart Mercury, Tasmania	<i>Have a couple of drinks, girls</i>	Dr Anne Young
16-Mar-05	Herald Sun, VIC	<i>Binge and the single woman</i>	Dr Anne Young
16-Mar-05	Herald Sun, VIC	<i>Partners can stop binges</i>	Dr Anne Young
16-Mar-05	Barrier Daily Truth Broken Hill, NSW	<i>Drink Up girls</i>	Dr Anne Young
13-Mar-05	Sunday Times, WA	<i>Women's walk of life</i>	Professor Annette Dobson
10-Mar-05	Sunday Times, WA	<i>Dying before their time</i>	Professor Annette Dobson
10-Mar-05	Home Hill Observer, QLD	<i>Dying before their time</i>	Professor Annette Dobson
24-Mar-05	Sydney Morning Herald, NSW	<i>Study Sends Clear Message</i>	Professor Annette Dobson
30-Mar-05	Camden Advertiser, NSW	<i>Secrets of longer lives for women</i>	Professor Annette Dobson
15-Apr-05	Australian Senior, National	<i>Families need support. and want to stay in own homes</i>	Professor Christina Lee

8. ARCHIVING

The project team has a policy of archiving with the Social Sciences Data Archive at the Australian National University on an annual basis. Each year we archive the most recently completed data set, and may re-archive earlier data sets if there have been changes. Before archiving is carried out, data are cleaned, extensive checks are made on data quality, and some test analyses are conducted. To date, data have been archived for Surveys 1 and 2, and for Survey 3 of the Mid-age and Older age groups. The data set for Younger Survey 3 has been completed, but as usual the project team will work with these data sets for some time, in order to identify any additional errors, before archiving later in 2005.

9. PROJECT STAFF JANUARY – JUNE 2005

9.1. PROJECT STAFF: RESEARCH CENTRE FOR GENDER AND HEALTH, UNIVERSITY OF NEWCASTLE

RCGH Director: Professor Lois Bryson
 Project Manager/ RCGH Deputy Director: Dr Penny Warner-Smith

Project Statistician: Dr Anne Young
 Statistician: Ms Jenny Powers
 Assistant Statisticians: Dr Virginia Wheway
 Mr Andrew Hampson
 Ms Angela Wood
 Data Manager: Mrs Jean Ball
 Assistant Data Manager: Mrs Anna Graves
 Data Assistant: Mrs Penny Knight

Senior Research Officer: Dr Deborah Loxton
 Research Assistants: Ms Rosie Brotherston
 Mrs Catherine Chojenta
 Ms Jenny Helman
 Ms Jodie Gaven
 Ms Julie Brookes

Publicity Officer/Executive Assistant: Mrs Lyn Adamson
 Administrative Assistants: Ms Melanie Moonen

Designer: Mr Timothy Neve
 Part-time Project Assistants: Mr Sam Adamson
 Ms Liz Knock
 Ms Ingrid O'Neill
 Ms Amy Sales
 Ms Jackie Sales
 Ms Monica O'Neill
 Ms Jodie Bradbury
 Ms Gail Dine
 Ms Gaye Sheather

9.1. PROJECT STAFF: UNIVERSITY OF QUEENSLAND

Project Director: Professor Annette Dobson
 Project Coordinator: Professor Christina Lee
 Senior Project Officer: Ms Anne Russell
 Research Officers: Ms Alicia Svensson
 Mr Richard Hockey
 Research Assistants: Ms Jess Ford
 Ms Eliza Fraser
 Ms Helen Gramotnev

10. APPENDICES

Appendix 1: Older Survey 4 Materials
(can be found at www.newcastle.edu.au/centre/wha/surveys.html)

Appendix 2: Achievements Reports
(pending release)