

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



**The Australian Longitudinal Study on Women's  
Health**

**Report 17**



**10 December 2001**

**REPORT 17**  
**TABLE OF CONTENTS**

<b>LIST OF TABLES .....</b>	<b>4</b>
<b>LIST OF FIGURES .....</b>	<b>5</b>
<b>EXECUTIVE SUMMARY.....</b>	<b>6</b>
<b>1 COLLABORATIVE RESEARCH ACTIVITIES.....</b>	<b>8</b>
<b>1.1 Meetings between and within the Universities of Newcastle and Queensland.....</b>	<b>8</b>
<b>1.2 Summary of collaborative research activities between and within the Universities of Newcastle and Queensland, and with other collaborating institutions.....</b>	<b>8</b>
1.2.1 Projects completed and in progress by WHA investigators and collaborators .....	8
1.2.2 Completed postgraduate theses (since June 2001) .....	22
1.2.3 Student projects in progress.....	23
<b>2 CONDUCT OF SURVEYS.....</b>	<b>29</b>
<b>2.1 Main cohorts .....</b>	<b>30</b>
2.1.1 Mid Survey 3 (in progress).....	30
2.1.2 Older Survey 3 (pilot phase).....	31
<b>2.2 Substudies.....</b>	<b>36</b>
<b>3 METHODOLOGICAL ISSUES: SOURCES AND DEVELOPMENT OF INSTRUMENTS, RELIABILITY AND VALIDITY .....</b>	<b>39</b>
<b>3.1 Duke Social Support Index (DSSI) .....</b>	<b>39</b>
3.1.1 Background.....	39
3.1.2 Methods .....	39
3.1.3 Results .....	41
3.1.4 Discussion.....	44
3.1.5 References .....	44
<b>3.2 Psychological predictors of well-being in the older cohort: Optimism and health-related hardiness .....</b>	<b>45</b>
3.2.1 Measures .....	46
3.2.2 Psychometric evaluation.....	47
3.2.3 Optimism .....	48
3.2.4 Health-related Hardiness Scale (HRHS) .....	48
3.2.5 Summary of new variables .....	48
3.2.6 References .....	49
<b>3.3 WHA perceived stress measure: Analyses from Young Surveys 1 and 2 .....</b>	<b>49</b>
3.3.1 Young Survey 1 .....	49
3.3.2 Young Survey 2.....	50
3.3.3 Longitudinal analysis of Perceived Stress among younger cohort.....	53
3.3.4 Change from Young Survey 1 to Survey 2.....	53
<b>3.4 Diabetes .....</b>	<b>54</b>

	3.4.1	Development of the substudy survey.....	54
	3.4.2	References .....	55
<b>4</b>		<b>MAINTENANCE OF COHORTS.....</b>	<b>55</b>
	4.1	References .....	57
<b>5</b>		<b>DATA LINKAGE.....</b>	<b>61</b>
	5.1	Consents to access Medicare and DVA data.....	61
<b>6</b>		<b>DATA ANALYSIS.....</b>	<b>63</b>
	6.1	Procedures for data checking and related quality assurance activities.....	63
	6.1.1	Missing data for surgical operations.....	63
	6.2	Data collection and entry, data books, data dictionaries.....	67
	6.3	Use of data by other researchers.....	67
	6.4	Ad hoc data analysis for the Department of Health and Aged Care.....	69
	6.4.1	Smoking patterns in young women .....	69
<b>8</b>		<b>DISSEMINATION OF STUDY FINDINGS.....</b>	<b>70</b>
	8.1	Communication with study participants.....	70
	8.2	Web site .....	70
	8.3	Publications .....	70
	8.3.1	Papers published.....	70
	8.3.2	Papers accepted.....	74
	8.4	Conference organization .....	78
	8.4.1	Public Health Association Annual Conference, Sydney, 23-26 September 2001. ....	78
	8.4.2	The Australian Sociological Association Annual Conference, Sydney, New South Wales. 13-15 December 2001.....	79
	8.5	Conference presentations.....	79
	8.5.1	Other presentations .....	90
	8.6	Book sales .....	90
	8.7	Dissemination of methodological expertise .....	91
	8.7.1	Department of Family and Community Services .....	91
	8.7.2	Australian Medical Workforce Advisory Council (AMWAC).....	91
	8.7.3	International Diabetes Institute, Melbourne .....	91
	8.8	Media .....	91
<b>9</b>		<b>ARCHIVING .....</b>	<b>92</b>
<b>10</b>		<b>FINANCIAL STATEMENT .....</b>	<b>92</b>
<b>11</b>		<b>PROJECT STAFF JULY-DECEMBER 2001.....</b>	<b>95</b>
	11.1	Full-time staff located at Research Centre for Gender and Health at the University of Newcastle .....	95
	11.2	Staff at the University of Queensland.....	95
	11.3	Investigators .....	95
	11.4	Associate investigators currently working with the main cohorts.....	95
	11.5	Students .....	96
	11.6	Part-time and casual staff at Research Centre for Gender and Health.....	96

## **APPENDICES**

### **Appendix 1 Collaborative Research Activities**

Appendix 1.1 Minutes of formal teleconferences held among main study Investigators

### **Appendix 2 Conduct of Surveys**

Appendix 2.1 Materials for the renewal of ethics approval for main study

Appendix 2.2 Pilot materials for Older Survey 3

### **Appendix 5 Consent to Access Medicare and DVA**

Appendix 5.1 Materials used for Medicare/DVA Access

### **Appendix 6 Data Analysis**

Appendix 6.1 Privacy protocol

### **Appendix 8 Dissemination of Study Findings**

Appendix 8.1 Fact sheet for sub-study by Barbara Reen

## LIST OF TABLES

Table 1	Response rates for Mid Survey 3 (as at 8 November 2001).....	30
Table 2	Piloting Older Survey 3: Response rates at each contact stage.....	32
Table 3	Piloting Older Survey 3: Summary of response rates .....	32
Table 4	Differences between the pilot (2001) and the main (2002) survey for Older Survey 3.....	33
Table 5	Outcome of provision of pencils/markers to older pilot participants (as at 6 November 2001).....	34
Table 6	List of substudies and other participant contact activities conducted during the reporting period. ....	37
Table 7	Timetable of mailouts and associated activities during the current reporting period.....	38
Table 8	Factor loadings, cumulative percentage of variation explained, internal reliability estimated from responses of 12,939 women aged 70-75 (items contributing the most to each factor are shown in bold and factor scores are given in brackets for these items only).....	40
Table 9	Construct validity: correlations for social support and variables hypothesised to be associated with social support for 12,939 women aged 70-75 years.....	42
Table 10	Characteristics significantly associated with Duke Social Support Index (DSSI 10 items); mean and 95% confidence interval. ....	42
Table 11	Factor loadings for rotated exploratory factor analysis of optimism/pessimism items (Older Survey 2) .....	46
Table 12	Factor loadings for rotated exploratory factor analysis of health-related hardiness items .....	47
Table 13	Mean scores for new variables obtained from multi-item scales .....	49
Table 14	Descriptive statistics for items in the Young Survey 2 Perceived Stress Measure .....	50
Table 15	Item - total correlations: Young Survey 2 Perceived Stress Measure.....	51
Table 16	Young Survey 2 Perceived Stress Measure: Item loadings and eigen value.....	51
Table 17	Rotated factor loadings and eigen values .....	52
Table 18	Mean Perceived Stress scores and change: Young Surveys 1 and 2.....	53
Table 19	Descriptive statistics for change in Perceived Stress items between Young Surveys 1 and 2 .....	53
Table 20	Response rates and tracking outcomes for Survey 2 of the Young Cohort, 2000.....	58
Table 21	Response rates and tracking outcomes for Survey 2 of the Mid-Age Cohort, 1998. ....	59
Table 22	Response rates and tracking outcomes for Survey 2 of the Older Cohort, 1999. ....	60
Table 23	Health Insurance Commission consents: Response rates at each contact stage (current at 8 November) .....	61
Table 24	Consent rates in 2001 to access to HIC data (at 8 November 2001).....	62
Table 25	Consent rates in 2001 for those who had, and had not, previously consented to access to HIC data .....	62
Table 26	Surgical procedures item in Old Survey 2.....	63
Table 27	External Collaborators currently working with the research team.....	68
Table 28	Costs and returns (as of 25 October 2001) for Women's Health Australia: What do we know? What do we need to know? .....	91
Table 29	Financial statement.....	94

## LIST OF FIGURES

Figure 1	Comorbidity and risk factors at Survey 1 (1996) Mid age women .....	10
Figure 2	Comorbidity and risk factors at Survey 1 (1996) Older women .....	11
Figure 3	Percentage of mid age and older women taking 4 or more prescribed medications.....	11
Figure 4	Total Medicare/DVA rebate (\$) per woman for services outside hospital.....	12
Figure 5	Percentage of women with diabetes having at least one HbA1c test per year .....	12
Figure 6	Physical and mental component scales of the SF-36 for young women with varying numbers of social roles (student, worker, mother, partner, caregiver). .....	14
Figure 7	Physical and mental component scales of the SF-36 for mid-age women with varying numbers of social roles (student, worker, mother, partner, caregiver). .....	15
Figure 8	Physical and mental component scales of the SF-36 for older women with varying numbers of social roles (partner, caregiver).....	15
Figure 9	Weekly and cumulative response rates for Mid Survey 3.....	31
Figure 10	Item distributions for Young Survey 2 Perceived Stress Measure.....	50
Figure 11	Distribution of change scores for Perceived Stress items between Young Survey 1 and 2.....	54

## EXECUTIVE SUMMARY

1. Main surveys continue as planned. The third survey of the mid-age cohort (now aged 50 to 55) has been completed and data are currently being scanned and checked. The overall response rate for this survey is 84.7% of those who completed Survey 1 and had not died, withdrawn, or otherwise become ineligible before March 2001. These figures compare favourably with retention rates in similar surveys conducted elsewhere.
2. Survey 3 of the older cohort is planned for 2002. A pilot survey was completed by 83% of the older pilot cohort, and changes have been made on the basis of responses and of respondent feedback. The use of “special” pencils to improve the quality of response marks was trialed, but pencils had a high rate of breakage in the mail and a high proportion of participants preferred not to use them. The additional expense for pencils, packing and mailing was felt to be unjustified.
3. A major activity in 2001 has been seeking consent from all participants to access Medicare/DVA and PBS/RPBS data held by the Health Insurance Commission. Consent forms for the 53% who had previously given consent expire in 2001, and thus it was necessary to seek consent from all participants. An information sheet and consent form were mailed out with the 2001 newsletter, and followed up with a reminder. To date, 47% of the women have consented to access to information held by the Health Insurance Commission. These include 66% of women who had previously consented, and 22% of women who had not previously consented.
4. This has been a busy period for participant contact, with four substudies in progress as well as the requests for linkage with HIC data. Substudies include a survey of all mid-age and older women with diabetes; a follow-up of mid-age women with menstrual problems to assess their use of a range of treatments; a series of telephone interviews with women who have left violent or abusive relationships; and a survey of the aspirations of young women for work and motherhood. We have also conducted a pilot of Survey 3 for the older cohort, and completed a small survey of leisure and time use among younger and mid-age women and their partners. Each of these surveys involves a lengthy process of preparation and piloting, followed by a series of mailouts, reminders, and telephone contacts. Each also generates a quantity of “tracking” of participants who do not respond, if letters are returned to sender, or telephones disconnected. These substudies are not covered by the main grant and additional funds have been obtained for each.
5. Analysis of existing data has also continued during this six-month period. Again these analyses involve a lengthy process, from formulation of a research question through data preparation, analysis, and the preparation of a manuscript. Two substantial projects that were already underway and have continued during the reporting period includes a series of interlocking substudies and analyses on sleep, sleep difficulties and medication use among the older women; and the analysis of linked WHA and HIC data relevant to the diabetes substudy. Smaller projects, involving individual analyses and each with a single paper as its expected outcome, have focused on multiple social roles and their relationships with health in all three age groups; longitudinal analysis of physical activity and emotional well-being among the older women; issues surrounding weight change and maintenance among younger women; and work on harmful use of alcohol among younger women. Analyses of data related to sexual orientation, to use of illicit drugs among the younger women, and to vegetarian-style diets, are planned.
6. A major additional activity in this six-month period has been the preparation of a report for the National Tobacco Strategy. This has involved a detailed analysis of changes in smoking status among the younger cohort, with particular emphasis on the relationships between social roles

and contexts and smoking transitions. The report has identified key transitions such as marriage and pregnancy as important opportunities for smoking prevention or cessation, and has also identified characteristics of young women who smoke that will inform the National Tobacco Strategy.

7. The project continues to support a number of postgraduate students. Despite the fact that the core grant does not fund postgraduate scholarships, students supported from other funding sources have been able to use the infrastructure, the data and the expertise of the group to conduct their research projects. The current funding period has seen the completion of one Masters and one doctoral project, while a further fourteen postgraduate students are at various stages from preliminary work through to final drafting of their theses.
8. Methodological work continues. This period has seen more work conducted on the psychometric properties of a range of scales, as well as continuing work on the logical imputation of missing values and the development of standardised methods for computing variables. This work, and its documentation, is essential for the production of consistent and high-quality output and continues to be a high priority.
9. Dissemination of study findings continues to be a strong component of the research team's work. This reporting period has seen the publication of nine papers in peer-reviewed journals and the acceptance for publication of another ten. Conference organization activities have included the presentation of a workshop at this year's Public Health Association meeting, and two workshops at The Australian Sociological Association's annual meeting. Presentations have also been made to a research group at Flinders University and to numerous state, national and international conferences.

## 1 COLLABORATIVE RESEARCH ACTIVITIES

### 1.1 MEETINGS BETWEEN AND WITHIN THE UNIVERSITIES OF NEWCASTLE AND QUEENSLAND

The ten Investigators on the main survey are now located at the University of Newcastle, the University of Queensland, the University of New England, RMIT University, and the Medical Research Council Human Nutrition Research Unit, Cambridge, UK. Teleconferences were held on 18 June, 17 July, 13 August, 17 September, 8 October, and 5 November, and a strategic planning meeting was held in Newcastle on 13 November. Minutes of the teleconferences appear in Appendix 1.1.

### 1.2 SUMMARY OF COLLABORATIVE RESEARCH ACTIVITIES BETWEEN AND WITHIN THE UNIVERSITIES OF NEWCASTLE AND QUEENSLAND, AND WITH OTHER COLLABORATING INSTITUTIONS

#### 1.2.1 Projects completed and in progress by WHA investigators and collaborators

<b>Project:</b>	Sleep disturbance and sleeping medication use among older Australian women.
<b>WHA Investigators:</b>	Associate Professor Julie Byles & Dr Gita Mishra
<b>Collaborators:</b>	Dr Margaret Harris & Professor Kichu Nair
<b>Funding:</b>	Quality Use of Medicines Evaluation Program, Department of Health and Aged Care

Sleeping difficulty and subsequent sleeping medication use represent significant burden of illness for Australians, especially older women, and there is a large and growing need for research into sleep and sleeping medication for these women. This study was designed to provide a clear picture of the prevalence of sleeping medication use, and to identify factors related to sleeping medication use through the exploration of attitudes towards sleeping difficulty, reasons for medication use, and health outcomes. The study was undertaken in close consultation with older women experiencing sleeping difficulties, and it is envisaged that effective health promotion strategies to minimise sleeping disturbance and its consequences will ultimately be developed from the findings.

Both qualitative and quantitative research methods were used to explore the impact of sleeping difficulty with participants in the oldest cohort and to identify ways of coping with the problem. The project had three phases.

**The first phase** explored attitudes to sleeping difficulties and sleeping medication use through eleven individual interviews. Respondents said that sleep was very important and poor sleep impacted on their day-to-day functioning. Strategies to assist with sleep included sleeping medications for some women, who expressed fear of dependency. The women, overall, tended not to support the use of any medication. Despite the deleterious effects of poor sleep for these women, who described themselves as active and busy, the side effects of sleeping medications were seen as worse.

**The second phase** was an analysis designed to identify the persistence of sleeping difficulty and medication use in the cohort of 10,430 older women at Survey 1 (when the women were aged 70–75 years) and Survey 2 in 1999 and to explore the relationship between these factors and health-related quality of life scores, falls and other health care use. A majority of women (63%) endorsed one or more items related to sleeping difficulty at Survey 2: 33% reported one item only, 16%

reported 2 or 3 items, and 14% reported more than 3 items; 4,196 (42.4%) reporting “waking in the early hours”, 2592 (26.0%) “taking a long time to get to sleep”, 2078 (21.0%) “sleeping badly at night”, 1072 (10.84) “lying awake most of the night” and 1087 (11.0%) “worry keeping you awake”. There was a strong statistical association between reporting sleeping difficulty at Survey 1 and at Survey 2. A total of 1532 (15%) women reported use of sleeping medication at Survey 2 and women were 6.5 times more likely to report use if they also reported any item of sleep difficulty. On multivariate analysis, sleeping difficulty at Survey 1 was negatively associated with general health perceptions, emotional role limitations and general mental health sub-scales of the SF-36 at Survey 2. Use of sleep medication at Survey 1 was negatively associated with physical functioning, bodily pain, vitality, social functioning and general mental health SF-36 sub-scale scores. The use of sleep medication was also significantly associated with falls, accidents, and health care utilisation.

**The third phase** involved a sub-study of 1300 women selected according to their reported sleeping difficulty and sleeping medication use at Survey 2.

The survey was based on the interviews with ALSWH women reporting sleeping difficulty with or without medication use, and also incorporated standard epidemiological measures of sleep disturbance and sleep quality such as the Nottingham Health Profile Sleep Subscale, the Pittsburgh Sleep Questionnaire, and the Epworth Sleepiness Index.

A total of 1011 women returned the surveys, an 84% response rate. Regardless of group, most women responded positively to at least one of the Nottingham Health Profile Sleep Subscale items. Even in the “no drugs, no difficulty” group only 29% of women had no problems. However, in the other groups less than 10% of women had no problems at the time of the sub-study. Waking in the early hours of the morning was common across all groups and so was not a good discriminator. Sleeping badly at night and lying awake most of the night were the best discriminating items.

Those who had not used drugs, and had low sleep difficulty scores, at Survey 2 were most likely to rate their sleep as very good or good. Those who had used drugs, and reported sleeping badly, at Survey 2 were most likely to rate their sleep as fairly bad or very bad in the subsequent sub-study.

Women classified as having sleeping difficulty at Survey 2 were also more likely to report that they could not sleep because of symptoms of pain, bad dreams, cough/snoring and difficulty breathing. Sleep quality scores in the sub-study were predicted by Survey 1 SF-36 subscale scores. Sleep quality scores in the sub-study were associated with all SF-36 subscale scores in the sub-study after adjustment for Survey 1 SF-36, comorbidity and Geriatric Depression Scale.

Respondents tried a variety of strategies to help them sleep, with the most common being reading, listening to the radio, and having a hot drink. Very few reporting using alcohol to help them sleep, which reflects a very low use of alcohol in the age cohort overall. Some of those in the sleeping difficulty groups took tea or coffee as an aid to sleep, which is against sleep hygiene advice. However comparison of the number of cups of tea, coffee or cola consumed by women with and without sleeping difficulty, and the timing of the last drink containing caffeine before bed-time, showed no differences.

A majority of women with sleeping problems had used prescribed medications and of those currently using medications, 60% were taking these medications 3 or more times per week.

Combining the results of all three phases of the study, the following conclusions are emerging.

- Sleep disturbance is a common and persistent complaint

- Use of sleeping medications is a common and persistent behaviour
- There are differences in the sleep-related behaviours and attitudes of women who do and do not use drugs that could be useful in the design of future health promotion campaigns

**Project:** Quality and accessibility of health care for women in Australia with diabetes

**WHA Investigators:** Dr Anne Young, Dr Amanda Patterson & Associate Professor Julie Byles

**Associate Investigator:** Dr Julia Lowe

**Funding:** Diabetes Australia

This project consists of three stages. The aims for each stage and the progress so far are given below.

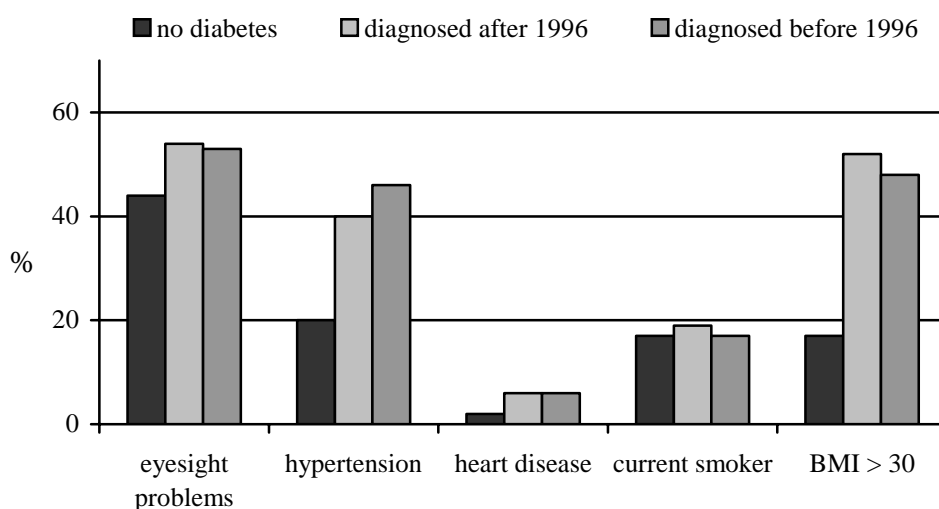
### Stage 1

*Aim:* To report on the prevalence of diabetes; risk factors for diabetes (such as inactivity, overweight and obesity); and the health, functional status and access to health care services for women with and without diabetes, by analysing data obtained from Survey 1 and Survey 2 of women in the ALSWH project.

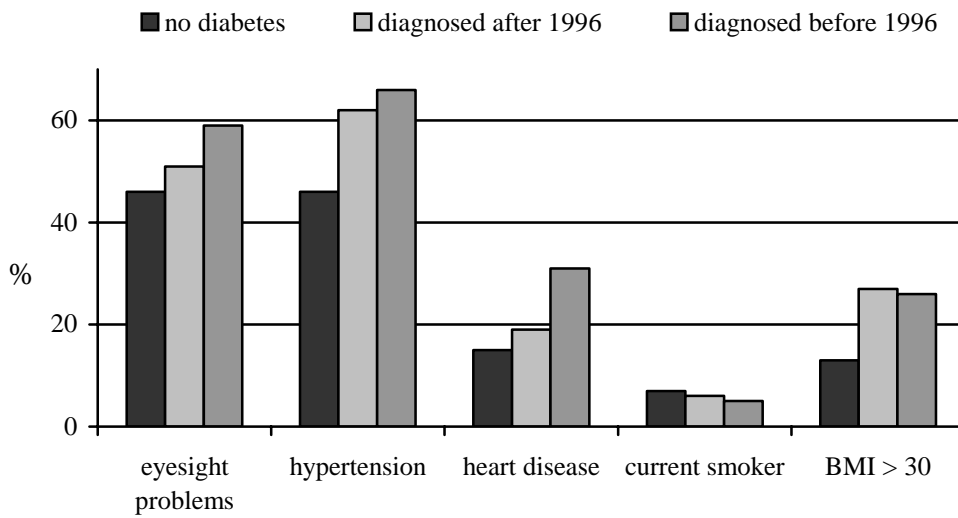
*Progress:* Analysis has been conducted to examine the health and characteristics of women with and without diabetes. Women who were diagnosed with diabetes after 1996 (new cases) were more like those who already had diabetes (existing cases) than like those who had no diabetes. They were significantly more likely to have hypertension and to be overweight in 1996, than women without diabetes (see Figures 1 & 2).

The proportion of older women who reported using four or more prescribed medications increased between Survey 1 and Survey 2, regardless of diabetes status. However, women with diabetes reported higher rates of medication use than women without diabetes (Figure 3).

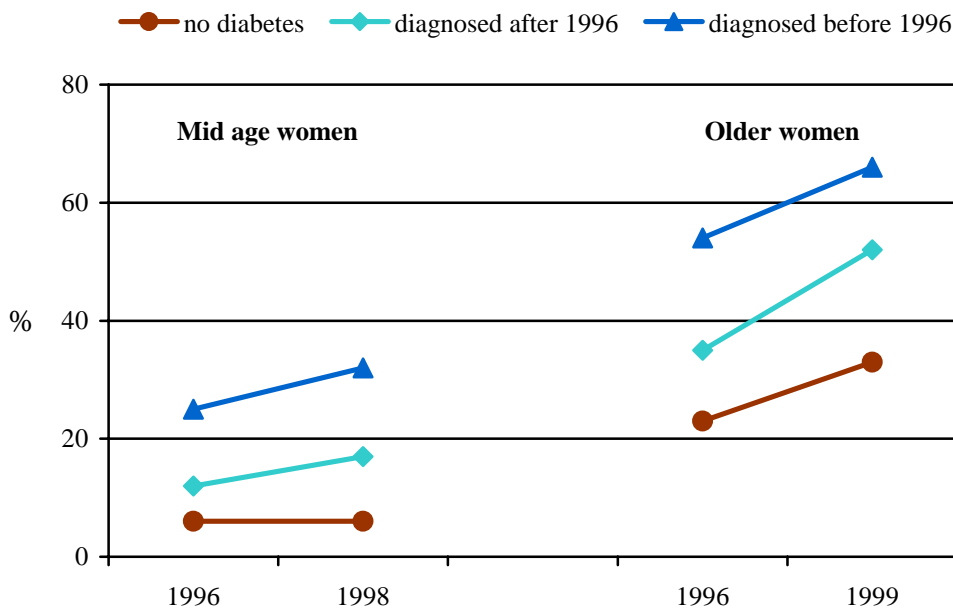
**Figure 1 Comorbidity and risk factors at Survey 1 (1996) Mid age women**



**Figure 2 Comorbidity and risk factors at Survey 1 (1996) Older women**



**Figure 3 Percentage of mid age and older women taking 4 or more prescribed medications**

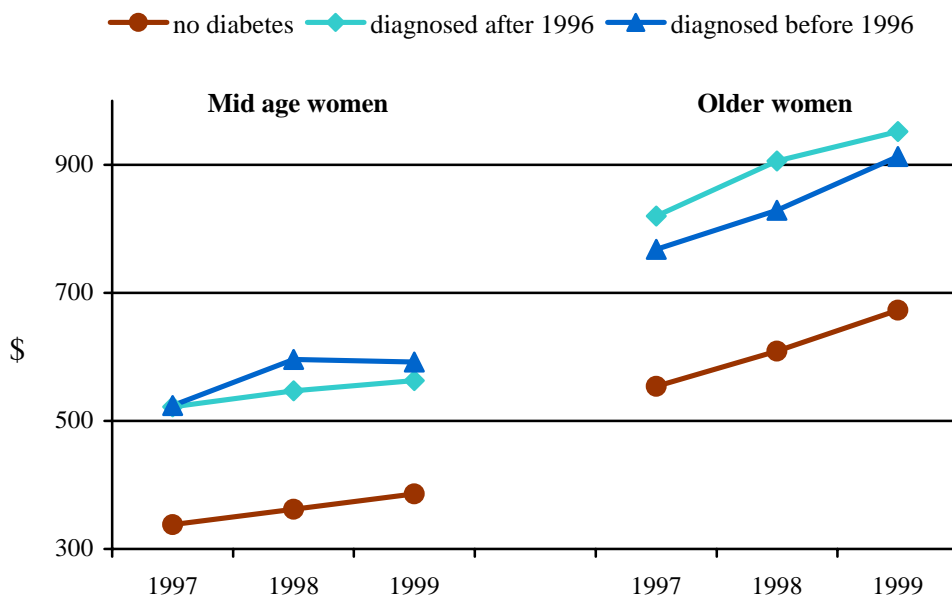


**Stage 2**

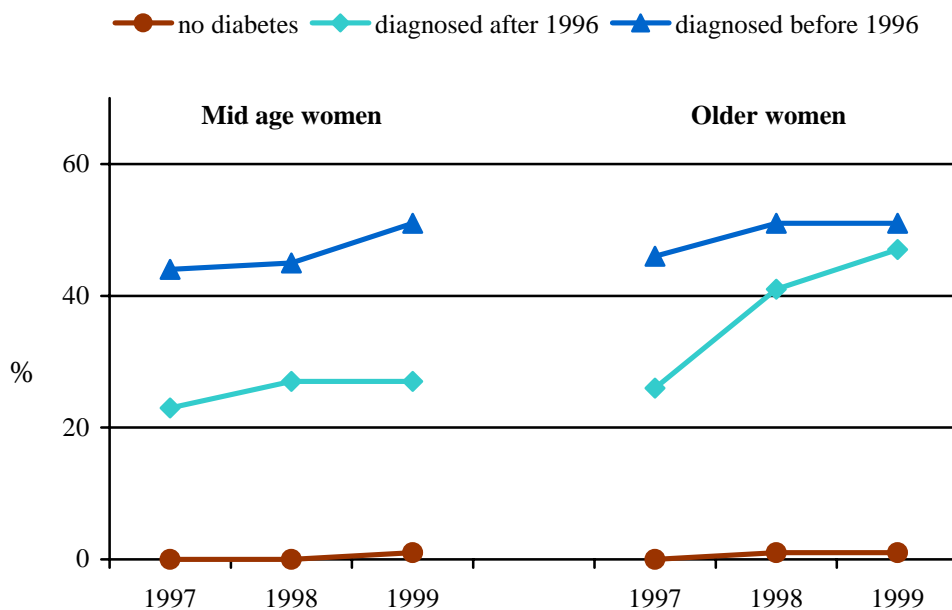
**Aim:** To examine the use of general practitioner and specialist services, out of pocket costs and use of best practice guidelines for HbA1c, lipids, microalbuminuria and retinal screening for women in the ALSWH with diabetes, using Medicare/Department of Veterans' Affairs data.

**Progress:** The Medicare/DVA claims for the period 1997-1999 have been analysed according to the diabetes status of the mid age and older women. Some results are shown in Figures 4 and 5.

**Figure 4 Total Medicare/DVA rebate (\$) per woman for services outside hospital**



**Figure 5 Percentage of women with diabetes having at least one HbA1c test per year**



Use of HbA1c testing appears to be increasing but rates of use remain lower than the recommendation that diabetes should generally have the test on an annual basis. Total cost for all Medicare services (outside hospital) was higher for women with diabetes.

**Stage 3**

*Aim:* To conduct a substudy of women with diabetes to assess diabetes-related health needs, access to and satisfaction with health care.

*Progress:* The substudy questionnaire was pilot tested during June and July 2001 and the revised survey was mailed to mid age and older participants with diabetes during September 2001 (see

Section 3.4 for details of the source of questions). The response rate to date (25 October, 2001) is 64% of eligible respondents and phone reminders are currently underway.

A grant application for financial support for 2002 has been submitted to Diabetes Australia. Results of the substudy to date were presented at the Australian Diabetes Society conference and the Australasian Epidemiological Association conference in September.

**Project:** Smoking patterns in young women: Evidence from the Australian Longitudinal Study on Women's Health  
**WHA Investigators:** Professor Annette Dobson & Ms Anne Russell  
**Collaborators:** Ms Liane McDermott  
**Funding:** National Tobacco Strategy, Commonwealth Department of Health and Aged Care

In Australia prevalence of smoking is highest among women and men in their twenties and then it declines. To reduce smoking it is important to know about factors associated with changes in smoking patterns in this age group.

The Australian Longitudinal Study on Women's Health provides an excellent way of exploring changes in smoking behaviour among young women in their social context. In this paper we examine the smoking behaviour of over 9,000 women when they completed the Survey 1 in 1996 and Survey 2 survey in 2000.

At Survey 1 27% of the young women, then aged 18 to 23, were smokers. In the four years between surveys one quarter of these women quit and a smaller proportion started smoking.

Becoming pregnant was the major factor related to giving up smoking. Among smokers in 1996 the proportion who said they were no longer smoking in 2000 was 54% among those who were pregnant and 56% among those pregnant for the first time. Quitting rates were also higher among married women compared to those who were not married or who were in a defacto relationship.

Smoking prevalence remained highest among women with lower education levels, women who lived with children but no partner and those who had more time on their hands.

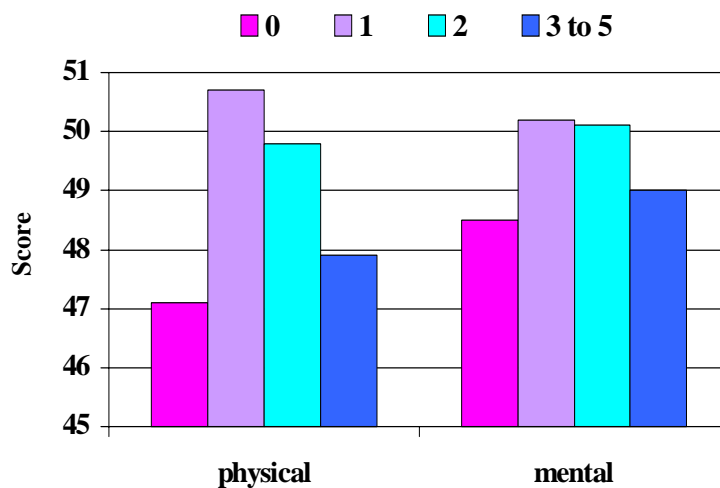
While only 6% of women took up smoking between 1996 and 2000, smoking adoption was most common among younger women and those not born in Australia. High prevalence of bingeing on alcohol was a powerful predictor of smoking adoption. The frequency of alcohol bingeing was the most persistent factor influencing smoking behaviour for adoption, maintenance and cessation of smoking.

While binge drinking and smoking indicates a continuance of a 'partying' lifestyle for young women, life changes such as marriage and pregnancy appear to modify smoking behaviour. Pregnancy is obviously a key opportunity for smoking prevention. Increased motivation to quit and increased contact with the health care system at this time in a woman's life provide ideal conditions for maximal support for behaviour change.

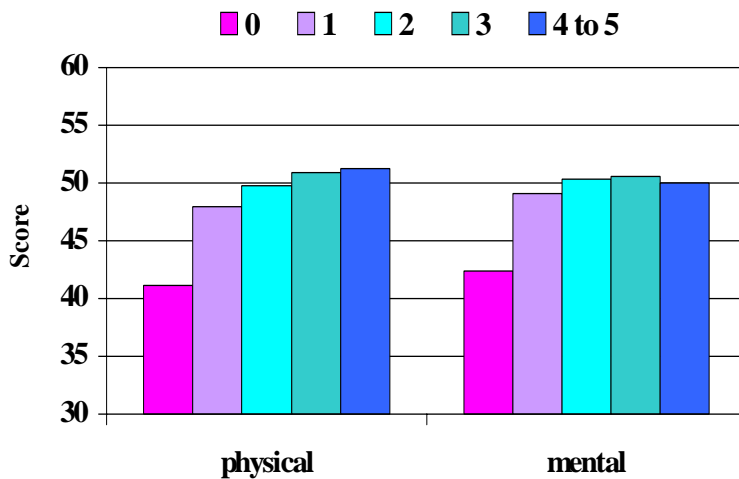
**Project:** Social roles, health and well-being in three generations of Australian women  
**WHA Investigators:** Professor Christina Lee and Ms Jennifer Powers

The relationship between multiple social roles and health is a particular issue for women, who continue to take major responsibility for childcare and domestic labour despite increasing levels of involvement in the paid workforce. This analysis of Survey 1 data explores relationships between role occupancy and health, well-being and health service use in three generations of Australian women. A total of 41,818 women from three age groups were included in the analysis. Young and mid-age women were classified according to their occupancy of five roles – paid worker, partner, mother, student and family caregiver – while older women were classified according to occupancy of partner and caregiver roles only. Common symptoms (headaches, tiredness, back pain, difficulty sleeping), diagnosis of chronic illness, use of health services, perceived stress, and the physical and mental component scores of the SF-36 were compared across groups characterized by number of roles. Among young women, the best health was associated with occupancy of one role; among mid-age women, those with three or more roles were in the best health; and for older women, those with one role were in the best health. Young women with none or with four or more roles, and mid-age and older women with none of the defined social roles, tended to be in the poorest health. Figures 6, 7 and 8 illustrate the pattern of findings by presenting the different patterns of SF-36 component scales across the three age groups. The patterns of results may be explained by differences in the extent to which women at different life stages feel committed to various social roles, and to the extent to which they are able to draw on social, material and economic supports. The results suggest that there is a need for social supports for young women who occupy multiple roles. This work was presented at the European Health Psychology Conference in St Andrews, Scotland, and a paper has been submitted for publication.

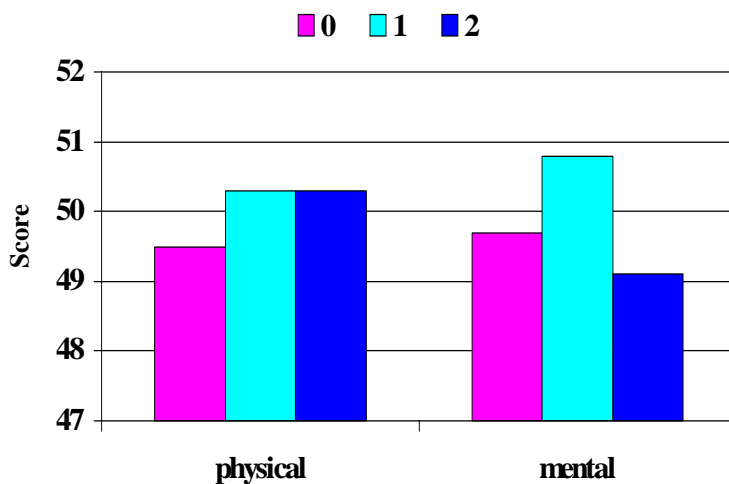
**Figure 6** Physical and mental component scales of the SF-36 for young women with varying numbers of social roles (student, worker, mother, partner, caregiver).



**Figure 7** Physical and mental component scales of the SF-36 for mid-age women with varying numbers of social roles (student, worker, mother, partner, caregiver).



**Figure 8** Physical and mental component scales of the SF-36 for older women with varying numbers of social roles (partner, caregiver)



**Project:** Effects of physical activity on emotional well-being among older Australian women: cross-sectional and longitudinal analyses

**WHA Investigators:** Professor Christina Lee & Ms Anne Russell

This analysis was designed to explore relationships between physical activity and mental health, cross-sectionally and longitudinally, among older Australian women. Data from the older cohort at Surveys 1 (1996) and 2 (1999) were used. Cross-sectional data were analyzed for 10,063 women and longitudinal data for 6,472. Women were grouped into four categories of physical activity at each time, and four physical activity transition categories across the three-year period were also defined. Outcome variables for the cross-sectional analyses were the mental health component score, and mental health subscales, of the SF-36. The longitudinal analyses focused on changes in these variables. Confounders included the physical health component scale of the SF-36, marital status, body mass index, and life events. Adjustment for baseline scores was included for the longitudinal analyses.

Cross-sectionally, higher levels of physical activity were associated with higher scores on all dependent variables, both with and without adjustment for confounders. Longitudinally, the effects were weaker, but women who had made a transition from some physical activity to none generally showed more negative changes in emotional well-being than those who had always been sedentary, while those who maintained or adopted physical activity had better outcomes.

The data indicate that physical activity is associated with emotional well-being among a population cohort of older women both cross-sectionally and longitudinally, supporting the need for the promotion of appropriate physical activity in this age group. Causal relationships between changes in emotional health and changes in physical activity are not clear, but women who are physically capable of exercise are likely to benefit emotionally from physical activity.

**Project:** Vulnerability to Abuse Screening Scale: Further validation in the Women's Health Australia study

**WHA Investigators:** Associate Professor Margot Schofield & Dr Gita Mishra

Currently elder abuse is likely to be detected only for severe cases and there is a need for better screening methods so that preventive and early treatment can be considered. This study examined the validity of the Vulnerability to Abuse Screening Scale (VASS), a 12-item self-report screening measure for risk of elder abuse, within the older cohort of the Women's Health Australia study. We compared the four factor structure (vulnerability, dependence, dejection, coercion) at Survey 1 with three year follow-up factors and correlations with conceptually related variables. We also determined whether Survey 1 elder abuse risk status independently predicted attrition over three years between Survey 1 and 2. Results provided strong support for the factor structure and construct validity of the VASS. The four factors explained 51% of variance at Survey 2. Two VASS factors, dependence and dejection, were significant predictors of three year attrition, after controlling for demographic variables and self-rated health. This brief screening instrument may be an efficient method for identifying vulnerable older women. It is particularly suitable for use in busy general practices and other health care settings where older people are present.

**Project:** Three year health outcomes among older women at risk of elder abuse: Women's Health Australia

**WHA Investigators:** Associate Professor Margot Schofield & Dr Gita Mishra

Elder abuse is increasingly being recognized as a serious form of familial violence, yet detection is poor and very little is known of the long term health effects of this psychosocial problem. The effectiveness of the brief, self-report Vulnerability to Abuse Screening Scale (VASS, based on the elder abuse scale previously investigated) in predicting three year health outcomes was analysed among women in the older WHA cohort. The sample comprised 10,421 women aged 73-78 who completed Surveys 1 and 2. Women who completed Survey 2 had been at slightly lower risk for elder abuse at Survey 1 and had better health on SF-36 than those who did not complete Survey 2. The dejection factor of the VASS, which measures emotional and psychological abuse, was strongly and consistently related to all subscales of the SF-36 quality of life measure and the physical and mental health component scales of the SF-36. The vulnerability factor, involving physical and psychological abuse, predicted mental health three years later. This study provides the first clear evidence of a long term impact of psychological abuse on health outcomes among older women, even when controlling for a large number of confounders. Health service providers may be able to enhance their recognition of psychological abuse through easily administered brief questions such as those provided in the VASS.

**Project:** Psychosocial and health behavioural covariates of cosmetic surgery: Women's Health Australia study.  
**WHA Investigators:** Associate Professor Margot Schofield  
**Collaborators:** Dr Rafat Hussain, Ms Deborah Loxton & Ms Zoe Miller

Psychosocial and health behavioural characteristics at Survey 1 were compared between mid-age women who reported having ever had cosmetic surgery and those who did not report cosmetic surgery. Seven percent (n=978) reported having ever had cosmetic surgery. Multivariate analysis found that self-reported dieting frequency in the past year and body mass index were highly significantly associated with having had cosmetic surgery; perception about body weight was moderately significant, and satisfaction with body weight was unrelated. A higher likelihood of cosmetic surgery was also found for women who had ever been in a violent relationship, those who had been verbally abused recently, smokers, those taking medication for sleep or nerves, and those with private hospital insurance. There were moderate associations between cosmetic surgery and state of residence (highest in South Australia), higher occupational status, alcohol use, higher stress, and poorer mental health. Life satisfaction, social support, recent life events, physical health, area of residence, country of birth, and marital status, though all significant at the univariate level, were unrelated in multivariate analyses.

**Project:** The differential experience of ageing for women in urban, rural and remote parts of Australia  
**WHA Investigators:** Associate Professor Julie Byles & Dr Gita Mishra

The main aim of this study was to explore three-year changes in health outcomes for older women living in urban, rural and remote parts of Australia. A secondary aim was to identify the proportion of women who move to more urban areas during this period, and the factors associated with this change of residence, with the hypothesis that those who move to more urban areas had poorer baseline health status.

At Survey 1 the majority (60%) of the 10,382 women in the older cohort lived outside capital cities or other metropolitan areas. At Survey 2, 275 (3%) women had moved to more urban areas. After adjustment for other factors in the models, several health and social factors were related to women's area of residence, or whether they had moved. There was a significant trend for women who moved to have more symptoms than women who remained in their original locational classifications. Also, unlike women who did not move, and who recorded significant increases in SF-36 Mental Health Component scores, women who moved had no significant increase in these scores. Among women who remained in their original locations, there was a significant trend for the increase in Mental Health scores to be greater with increasing remoteness.

Predictably, perceived access to health care decreased with increasing remoteness, and those who moved recorded scores that were consistent with women in capital cities and metropolitan areas. Similarly, satisfaction with general practitioner services was significantly higher for women in capital cities and other metropolitan areas. Conversely, women in rural and remote areas used more community services than women in capital cities or metropolitan areas.

There was a significant trend for the neighbourhood satisfaction score to increase from urban to remote areas, and women who moved between surveys reported the lowest scores at Survey 2. Similarly, while there was mean negative change in social support (DSSI) scores recorded for all areas, the greatest decrease was among women who moved to more urban areas.

Women living in rural and remote areas at both times, were less likely to have post-school qualifications, and more likely to be born in Australia than women in capital cities. Those who moved, however, were similar to women in capital cities in educational level.

Clearly, one advantage of ageing and not moving is the ability to retain social support networks. In this analysis, those women who moved had a greater reduction in their level of social support than women who remained in more rural areas. This difference in social support was not evident at Survey 1 and seems to be a consequence of moving rather than a cause of the move.

In this cohort, the majority of women who remarried did not move location. However, those women who did move had poorer health, and reported less social support, lower neighbourhood satisfaction and used fewer services. This highlights a gap between a need and the amount of help and support available. These women may constitute a group at high risk of poor longer-term health outcomes.

**Project:** Ethnicity and body image in the younger cohort  
**WHA Collaborators:** Associate Professor Justin Kenardy  
**Collaborator:** Dr Kylie Ball (School of Health Sciences, Deakin University)

A study was conducted to investigate associations between ethnicity and acculturation status, and risk factors for eating disorders among young adult women. Data from Survey 1 of the young cohort showed that risk factors for eating disorders were present across a range of ethnic groups. Further, a strong acculturation effect was observed, such that the longer the time spent in Australia, the more women reported weight-related values and behaviours similar to those of Australian-born women. These results challenge claims that risk factors for disordered eating are restricted to Caucasian females in Western societies, and raise. Implications for understanding ethnic and sociocultural influences on body weight, dieting and disordered.

**Project:** Which aspects of socioeconomic status are related to health in mid-aged and older women?  
**WHA Collaborators:** Dr Gita Mishra, Professor Annette Dobson, Dr Julie Byles & Dr Warner-Smith  
**Collaborator:** Dr Kylie Ball (School of Health Sciences, Deakin University)

Data from Survey 1 of the mid-age and older cohorts were used to validate gender- and age-specific indices of socioeconomic status (SES) and to investigate the associations between these indices and a range of health outcomes in two age cohorts of women. Confirmatory factor analysis produced four domains among the mid-aged cohort (employment, family unit, education and migration) and four among the older cohort (family unit, income, education and migration). Overall the results supported the factor structures derived from another population based study (Australian National Health Survey, 1995), reinforcing the argument that SES domains differs across age groups. In general, the findings also supported the hypothesis that the SES domains would be associated with physical and mental health for mid-aged women but not for older women.

**Project:** Usefulness of SES indices in predicting development of health conditions related to obesity  
**WHA Collaborators:** Dr Gita Mishra & Professor Annette Dobson  
**Collaborator:** Dr Kylie Ball (School of Health Sciences, Deakin University)

Data from Surveys 1 and 2 of the mid-age cohort were used to investigate the impact of different domains of socioeconomic status (SES) on the development of obesity-related conditions and symptoms over time. The analysis made use of gender-specific indices that reflected different dimensions of SES. Controlling for initial body weight and weight change, results of cross-sectional analyses showed strong relationships between three SES domains (employment, family unit, and education) and symptoms and conditions; on all measures, women in the lower SES categories had poorer health. Results of longitudinal analyses showed that women of lower SES were at higher risk of developing heart disease, diabetes, back pain, severe tiredness, and stiff/painful joints; and less likely to report that symptoms such as stiff/painful joints or back pain had ceased over time. Relationships between SES and health outcomes differed depending on the SES domain used, suggesting that the use of several indices measuring different dimensions of SES is more informative than relying on a single indicator. In addition to providing insight into potential mechanisms underlying SES gradients in these health outcomes, the findings have critical public health implications, suggesting that SES inequalities in health outcomes related to obesity may continue to increase over time.

**Project:** Socioeconomic differentials in health change over time among mid-aged and elderly women  
**WHA Collaborators:** Dr Gita Mishra, Professor Annette Dobson & Dr Julie Byles  
**Collaborator:** Dr Kylie Ball (School of Health Sciences, Deakin University)

This analysis aimed to investigate changes over time in health status and health service use, and their relationship with socio-economic status. Surveys 1 and 2 responses were used, and data from the mid-age and older cohorts were analysed separately in order to explore differences between the age groups. The analysis focused on changes in the eight dimensions of the SF-36, adjusted for initial scores, lifestyle and behavioural factors; health service use at Survey 2; and number of deaths (older cohort only). Cross-sectional analyses showed that clear socioeconomic differentials in health existed for both cohorts. Changes in health according to socio-economic status (SES) groups were more evident in the mid-age cohort. For these women, declines in physical functioning and general health perceptions were larger in the low-SES than the high-SES group. In the older cohort, women in the high-SES group were less likely to visit a family doctor frequently, and had lower risk of death, than women in the low-SES group.

**Project:** The relationship between work (paid and unpaid) and health, well-being and life quality  
**Collaborator:** Dr Barbara Pocock (Department of Social Inquiry, University of Adelaide)  
**WHA Collaborators:** Professor Lois Bryson & Professor Christina Lee

Researchers at the Centre for Labour Research (CLR), Adelaide University, have undertaken an analysis of the WHA data in relation to the effect of long hours of work on women's health. This analysis provides a background for the CLR's analysis of further interviews which they undertook in research commissioned by the Australian Council of Trade Unions. That qualitative study has been completed with the title '50 Families: What unreasonable hours of work do to Australians, their families and their communities' (see ACTU web site: [actu.asn.au](http://actu.asn.au)).

While the analysis of the WHA data was not included in the final report, it was used to inform the researchers' approach to questions and as general background. The research team found some relationships in the WHA data that suggested that longer hours of work were associated with some negative effects on women's health, and plan to return to this analysis at a later date.

**Project:** Alcohol consumption by young Australian women: Patterns, harm, and influences  
**Collaborators:** Dr Helen Jonas (School of Health & Environment, La Trobe University) & Professor Margaret Hamilton (Turning Point Alcohol and Drug Centre Inc, Fitzroy)  
**WHA Collaborator:** Professor Wendy Brown  
**Funding Source:** Victorian Health Promotion Foundation (July 1999 – June 2002)

### *Aim*

Despite concerted community efforts to highlight the risks and reduce the harms associated with heavy drinking, the proportions of young Australian women who drink at hazardous or harmful levels and who binge drink regularly remain high.

Most strategies aimed at reducing heavy drinking by young Australian women have failed because relevant information is lacking on the multiple factors that influence young Australian women's drinking patterns, attitudes, behaviours and drinking-associated harms. The aim of this project is to provide such information.

### *Methods*

In October 1999, we mailed a comprehensive survey to 2,400 women in the younger cohort. The young women were asked about:

- their patterns of drinking, and any harm arising from their drinking.
- the cultural and societal influences on their drinking.
- the settings in which they were most likely to consume alcohol.
- the perceived consequences of drinking harmful amounts.
- the strategies that they used to monitor/control their alcohol consumption.
- the strategies that they used to minimise potential harm resulting from drinking to intoxication.
- the influences of external organisations on their drinking practices.

54% of the young women mailed back their completed questionnaires. Another 30% could not be contacted, because they had changed their address, left no forwarding details, and could not be traced by WHA. The "open-ended" responses from the returned survey forms were coded, and all the responses entered on to a database.

In June 2001, the 1999 data were linked to data from the WHA 1996 and 2000 surveys.

### *Outcomes so far*

To date, we have shown that most of the young women (74%) had variable drinking patterns – that is, they had both "lighter" and "heavier" drinking days. The questions asked in the 1999 alcohol survey provided much higher estimates of total alcohol consumption, compared to the standard "usual" quantity/frequency alcohol questions used in Survey 1 and 2 of the younger cohort.

### *Work in progress*

- The characteristics of the responders, non-responders, and "uncontactable" young women are being compared, using data from Survey 1 and 2 of the younger cohort.

- The current knowledge, attitudes, beliefs and behaviour towards alcohol of young women drinkers are being examined, and we are investigating whether these characteristics vary with different lifestyles and demographics. For example: Do women living in the country have different approaches to drinking than their “city sisters”? To what extent do young women’s attitudes and behaviour to alcohol change with maturation (jobs; stable relationships; increased responsibilities)?
- Since a major aim of the project is to determine which combinations of factors (personal, societal, and environmental) lead to high risk drinking patterns and their harmful consequences, Structural Equation Modelling will be performed on the linked databases (1996, 1999 and 2000).

**Project:** Making time  
**WHA Collaborators:** Professor Wendy Brown, Emeritus Professor Lois Bryson & Dr Penny Warner-Smith  
**Collaborator:** Associate Professor Peter Brown (Department of Leisure and Tourism Studies, The University of Newcastle)  
**Funding Source:** University of Newcastle, Research Management Committee Project Grant

This study is part of a larger project that aims to develop an understanding of the role of leisure in women’s lives, and the relationships between leisure, well-being and gender relations. Leisure is commonly associated with that part of life where individuals exercise ‘freedom of choice’. As a corollary, leisure time is generally characterised by liberation from the constraints associated with employment, domestic work and other social obligations. As a number of writers have observed, leisure is seen as an avenue for the promotion of health through physical activity and through the psychological benefits associated with enjoyable leisure activities and sociability.

Over the last 20 years, many researchers have focused their attention on understanding the relative impact of constraints on leisure behaviour. With respect to leisure it is clear that so called ‘free choices’ are generally undertaken within a framework of constraints both explicit (e.g. available time, money, access to facilities and programs) and hidden (e.g. cultural expectations of what is ‘appropriate’ behaviour) and that for women, in particular, patterns of work and family circumstances, access to free time and discretionary income, the availability of social support (from partners, family and friends), and beliefs about motherhood and individual entitlement to leisure have been crucial influences on women’s participation or non-participation in leisure activities. While recognizing the limitations that are often placed on individual leisure, recent research has proposed that constraints may be negotiable and that people may use a range of strategies to achieve their leisure goals with beneficial outcomes for women’s health.

As a follow-up study to the ‘Women and Leisure 2000’ project, this sub-study is using time diaries and telephone interviews with women (and their partners) from the young and mid-age cohorts to explore issues relating to constraints on women’s leisure, and the ways in which constraints are negotiated within households. These data will also be used to examine associations between leisure, lifestyles, social support and health.

### 1.2.2 Completed postgraduate theses (since June 2001)

<b>Project:</b>	Psychological predictors of successful ageing in a cohort of Australian women
<b>Degree:</b>	Master of Medical Statistics
<b>Candidate:</b>	Ms Nadine Smith (Research Centre for Gender and Health, University of Newcastle)
<b>Supervisors:</b>	Professor Christina Lee & Dr Anne Young
<b>Funding Source:</b>	Research Centre for Gender and Health Scholarship, University of Newcastle

#### *Aims*

The project's main aim was to examine the extent to which the intrapersonal factors of optimism (the inclination to anticipate the best possible outcome) and health-related hardiness (a sense of control over one's health) allow us to explain the variance in older women's subjective health and well-being and perceived stress, over and above that which is explained by physical health, socioeconomic status, social support and healthcare access.

#### *Methods*

The study sample comprised the 9,501 women in the older cohort who completed the longer version of Survey 2. The explanatory variables of optimism and health-related hardiness were examined using the revised Life Orientation Test and the Health-Related Hardiness Scale, respectively. The eight subdimensions of the SF-36 measured the outcome variable of subjective health. Potential confounding variables of physical health, socioeconomic status, social support and access to healthcare were included in the analyses. Data were analyzed using descriptive statistics, chi-square analysis, Pearson correlations, factor analysis, multiple regression and structural equation modeling.

#### *Outcomes*

Positively phrased items tended to group together on the Life Orientation Test (optimism); the negatively phrased items also tended to group together (pessimism). This suggests that optimism and pessimism are related but distinct constructs, and not opposite ends of a continuum. Positively phrased items tended to group together on the Health-Related Hardiness Scale; the negatively phrased items also tended to group together. This suggests that the positively phrased items and the negatively phrased items on the Health-Related Hardiness Scale measure related but distinct constructs. Optimism and health-related hardiness explained 12% of the variance in older women's general health and mental health SF-36 scores, over and above that which is explained by physical health, socioeconomic status, social support and healthcare access. Structural equation models fitted using LISREL revealed moderate associations between optimism, pessimism and hardiness, and the outcome variables of general and mental health. These relationships provided general confirmation of the regression analysis. However, the structural models did not support the inclusion of variables associated with socioeconomic status, social support and healthcare access.

This project indicates that personal characteristics are important in predicting older women's self-reported well-being. The extent to which social and family factors might strengthen women's capacity to meet the challenges of ageing is an important question with theoretical and practical implications.

**Project:** Psychological distress among midlife Australian women  
**PhD Candidate:** Ms Sue Outram (Faculty of Medicine and Health Sciences, The University of Newcastle)  
**Supervisor:** Professor Jill Cockburn

This thesis has used a multidisciplinary perspective and qualitative and quantitative methods to explore mid-aged Australian women's perceptions and experiences of psychological distress, and in particular their experiences of seeking help for their difficulties. The high burden of illness for mental health problems in women is undisputed. However the diagnosis, aetiology and treatment of mental health problems is disputed territory, with the debate lying between extreme poles of the biomedical and social models of ill-health. The data used in this study came from Survey 1 of the mid-age cohort (n=14,000). Analysis was followed by a detailed sub-study of a sample of women with low mental health scores, and three indepth interviews four years later. The substudy used semi-structured telephone interviews with 322 women to explore their perceptions and experiences of mental health problems. There were many perceived causes, and these were mostly in the social domain, especially family difficulties. Women's dissatisfaction with their main relationship was one of the most consistent predictors of poor mental health. Women consulted a wide variety of health professionals, with GPs the professionals most often consulted. Although most women reported fairly high levels of satisfaction with the responses of their GP, many were also critical of GPs in general, in terms of communication and caring, interest, knowledge and skills in mental health problems, an over-reliance on psychotropic medicines, and lack of holistic care. The assumption that GPs are the "best people" to treat mental health problems was questioned, and respondents identified a need for greater choice in health services, particularly for rural women. Finally, there was no single explanation, or remedy, for psychological difficulties in these women's lives. Stereotyped images of mid-aged women made unhappy by their empty nests or hormonal unbalance was not supported by these women's stories of their lives.

### 1.2.3 Student projects in progress

**Project:** Factors influencing weight change in mid-aged women  
**PhD Candidate:** Ms Lauren Williams (Discipline of Nutrition and Dietetics, University of Newcastle)  
**Supervisors:** Professor Wendy Brown & Dr Anne Young  
**Funding Source:** Research Management Committee, University of Newcastle  
**Expected Completion:** 2002

This study is addressing the question of why many women gain weight in mid-life (45-55 years) through analysis of the main WHA survey results and a nested cohort study of weight change in menopausal women. Univariate analysis of the relationship between menopausal status and total body fatness (measured by body mass index) in the mid WHA cohort (N=14,100) shows that women in the late stages of peri-menopause (amenorrhic for 3 months but less than 12 months) have significantly higher body mass index than women at other stages of menopause, even after controlling for age, location, smoking and exercise. Longitudinal analysis of weight gain according to menopause category is currently being conducted.

In the nested cohort study, 875 women completed a survey containing pre-validated instruments measuring dietary intake, physical activity, emotional eating and questions relating to lifestyle that might affect weight in mid-aged women. Differences between the "weight gainers" (51% of the nested cohort) and non-weight gainers (49% of the nested cohort) are currently being investigated. Analysis of dietary intake measured by food frequency questionnaire (FFQ) has shown trends, but there were no significant differences in intake of energy, fat, or any nutrients for weight gainers

versus non-weight gainers. However, the non-weight gainers were more likely to report having made changes in food choice consistent with the dietary guidelines over the preceding three years. Analysis is continuing on other components of the survey and is expected to be completed by the end of 2001.

**Project:** Psychological factors in coronary heart disease  
**PhD Candidate:** Mr Esben Strodl (School of Psychology, University of Queensland)  
**Supervisor:** Associate Professor Justin Kenardy  
**Expected Completion:** August 2002

The first part of the PhD aimed at identifying psychosocial factors that were significant predictors of the new manifestation of self-reported coronary heart disease (CHD) in elderly women over a 3 year period. Low scores on the Mental Health Index (from the SF-36), low levels of social support (Duke Social Support Index) and high Perceived Stress were all significant predictors of the new diagnosis of CHD. These variables remained significant even after controlling for the frequency of GP visits and other significant risk factors (BMI, alcohol status, nutritional risk and having hypertension). The second and third parts of the PhD involve more detailed study of Brisbane women with angina, building on the findings from the initial analysis.

The second part of the study involves surveying patients hospitalised for angina. Time 1 (n=208) and Time 2 (3 month follow-up, n=145) surveys have been completed. Time 3 (12 month follow-up) survey will be completed by March 2002.

A pilot study (n=30) for the third study has been completed. This involves surveying a community sample of angina patients as well as measuring changes in blood pressure and heart rate variability at rest and when given mild mental stressors.

**Projects:** Mediating factors in the relationship between domestic violence and psychological and physical health  
**PhD candidate:** Ms Deborah Loxton (School of Health, University of New England)  
**Supervisor:** Dr Rafat Hussain  
**WHA collaborator:** Associate Professor Margot Schofield & Professor Christina Lee  
**Funding Source:** APA Postgraduate Award with HECS Stipend, Qualitative Interviews partially funded by: Keith and Dorothy McKay Travelling Scholarship  
**Expected Completion:** August 2002

Initial quantitative analysis of mid-age Survey 1 data indicated that women who had ever lived in a violent relationship had worse physical and psychological health than others. Furthermore, stress, number of life events, level of available social support, education, income management, and smoking mediated the relationship between domestic violence and health. Alcohol use did not mediate this relationship but ever having had five or more drinks on one occasion did affect this relationship. Information about the recency, frequency, and severity of violence, and duration of the violent relationship was not discernible from Survey 1. Also, the temporal sequence of events with regard to the mediating factors could not be obtained from Survey 1.

To determine the context and temporal location of domestic violence and to further elaborate on the occurrence of the mediating factors, qualitative telephone interviews are currently being conducted with women from the mid-age sample who have left a violent relationship and have agreed to participate in research on this topic. To date, 27 interviews have been conducted. The interviews should be fully transcribed by January 2002. Qualitative data analysis will follow.

**Project:** Young women, health, class, neighbourhood and health  
**PhD Candidate:** Ms Lisa Milne (Department of Sociology and Anthropology, University of Newcastle)  
**Supervisors:** Dr Deirdre Wicks & Dr Gita Mishra  
**Funding Source:** Departmental Grant, Department of Sociology and Anthropology, University of Newcastle  
**Expected Completion:** November 2002

This project focuses on the aspirations of young women for employment, motherhood and the combination of the two. It explores the extent to which sociocultural factors such as socioeconomic status (SES) affect young women's life plans, and the ways in which they envisage a future for themselves and their families.

***Aims, Methods and Outcomes so far:***

Building on a qualitative study completed last year, the project's present phase employs a quantitative survey instrument, with room for additional qualitative input, which is designed to determine the generalisability of results obtained in the qualitative phase of the study. The larger population targeted in this phase of data gathering allows for the strength of certain relationships between indicators (SES and location) and outcomes (aspirations for children, work, relationships and education) to be tested.

The survey has only recently been sent to participants; the response rate to date is around 50%.

**Project:** Lay perceptions of Queensland women's asthma  
**PhD Candidate:** Ms Gabrielle Rose (School of Population Health, University of Queensland)  
**Supervisors:** Professor Lenore Manderson & Professor Jake Najman  
**Funding Source:** Partial funding from Merck Sharp and Dohme  
**Expected Completion:** June 2002

***Aim***

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 life.

***Population***

The sub-study consisted of a sample of 239 mid-aged WHA participants from urban, rural and remote areas of Queensland. Women who had answered positively to the question "Have you ever been told by a doctor you have asthma?" at Survey 1 were selected for the asthma sub-study.

***Methods***

The study uses a combination of qualitative and quantitative research techniques. The first step involved in-depth interviews with 10 women with asthma to ensure that the study was grounded in lay perceptions of asthma. From these interviews and with the use of existing asthma questionnaires, a new questionnaire was developed and sent to women with asthma. Follow-up in-depth interviews were conducted with a smaller sample of the same women who had mild, moderate and severe asthma and who were from rural, remote and metropolitan regions. Four indigenous women with asthma were interviewed. The principal focus of the research was on women with asthma, however, people involved in asthma policy, practice and research were interviewed as well. Other methods included participant observation at hospitals, conferences, forums, critical reflexive journal entries, critical analysis of existing literature, and case

presentations. The sub-study data are currently undergoing analysis and integration with the qualitative data.

### ***Outcomes***

The results are now emerging and indicate that:

- 97% of the women have taken asthma medication which indicates that the sub-study was a relatively representative sample of women with asthma.
- 70% were over 20 years of age when first diagnosed with asthma
- 88% were over 20 when they first took reliever medication.
- 30% were treating their asthma with alternative and complementary methods of treatment only.

SF-36 scores from Survey 1 were utilised to investigate some characteristics of women with asthma.

- The self-reported health of the women with asthma was poorer than the rest of the population across all eight subscales - physical functioning, physical role functioning, bodily pain, general health, vitality, social functioning, role emotional and mental health.
- Women with asthma, who were married or in a partnership experienced better health than those who were single, divorced, separated, or widowed. Sixty two percent of the women were employed either on a full time or part time paid basis. Those who were in paid work experienced better health than those who were not. This pattern of better health among partnered women and those with paid work is also found among those without asthma.

**Project:** Coping with abuse in adult relationships: mid-age women's perspectives  
**PhD Candidate:** Ms Glennys Parker (Research Centre for Gender and Health, University of Newcastle)  
**Supervisor:** Professor Christina Lee  
**Expected Completion:** February 2003

Evaluation of Australian women's experiences of abuse and its effect on health and well-being continues to be the primary focus of this PhD thesis. Data from Surveys 1 and 2 of the mid-age cohort have been used to assess the health-related practices, socioeconomic status, and ethnicity of women who participated in the WHA abuse study conducted in 1999. A comparison of these women with non-abused women from the main cohort on these components has also been conducted. Those who report a history of abuse tend to be in poorer health, make more use of health services, and are higher users of prescription drugs, cigarettes and alcohol. The next stage of this ongoing research will be qualitative assessment of respondents' insights and observations from the 1999 survey. The information derived will be used to assess individual differences in coping with abuse, and to isolate positive strategies used by women to manage and deal with experiences of abuse.

**Project:** The transition to adulthood and health  
**PhD Candidate:** Ms Sandra Bell (Research Centre for Gender and Health, University of Newcastle)  
**Supervisor:** Professor Christina Lee  
**Funding Source:** Faculty of Science & Mathematics and Research Centre for Gender and Health Scholarship, University of Newcastle  
**Expected Completion:** December 2003

Four key indicators of the process of transition to adulthood (work/study; living arrangements; relationships; and parenthood) are being studied. Current analysis is working towards describing where participants were with respect to these four areas of their lives at Survey 1 and Survey 2, and the changes that have occurred between the two. The project focuses on the timing of transitions in each of these domains (eg. age of leaving family of origin) and their relationships to stress, health and health behaviours. The health behaviours of participants have been analysed using cluster analysis.

The substudy planned for 2002 will use both quantitative and qualitative measures to explore the timing and spacing of these four key indicators of the process from late adolescence to early adulthood and the relation of this to physical and mental well-being. The analyses completed by the end of 2001 will be used to select participants for the substudy.

**Project:** Childlessness and the role of choice in childless women's reproductive outcome  
**PhD Candidate:** Ms Heather McKay (Key Centre for Women's Health in Society, The University of Melbourne)  
**Supervisors:** Dr Jane Fisher & Professor Christina Lee  
**Funding Source:** Melbourne Research Scholarship, the Victorian component of data collection is supported by the Helen Macpherson Smith Trust.  
**Expected Completion:** October 2003

The rate of childlessness amongst women, and the number of women choosing this life course, continues to be of interest in Australia. Fertility rates in developed countries have been dropping steadily for decades, and it is predicted that the number of Australian women who will not give birth to a child will increase. Results from WHA, however, indicate that 91% of the older and mid-age cohorts have had children, and 91% of the younger cohort intend to have at least one child by the age of 35. This project aims to provide a better understanding of childlessness amongst mid-age Australian women, to investigate the range of feelings that these women may have about their childless status, and to look at the role of choice in their reproductive outcome. A substudy is currently in the planning stage, and a questionnaire will be sent to childless mid-age women.

**Project:** Women with menstrual symptoms, treatments tried, hysterectomy and satisfaction with outcomes  
**PhD Candidate:** Ms Melissa Graham (School of Health and Environment, La Trobe University, Bendigo)  
**Supervisors:** Dr Erica James & Dr Helen Keleher  
**Funding Source:** La Trobe University Bendigo Research Committee  
**Expected Completion:** October 2003

Hysterectomy is one of the most common gynaecological surgical procedures performed of a non-obstetric nature. Australian statistics indicate that just over one in ten women will undergo a

hysterectomy by the age of 40, and around one in five women will undergo a hysterectomy before the age of 50. The appropriateness of hysterectomy to treat non-malignant conditions has been debated in recent years. A variety of procedures, less dramatic than hysterectomy, are available to treat menstrual symptoms successfully. A woman's level of satisfaction is one measure of the successful treatment of symptoms. Other factors such as socio-economic status, social support, geographical location and education, menopause, emotional and sexual consequences, may also influence satisfaction. To investigate these issues, two studies are being conducted.

The first is a prospective cohort study which aims to determine women's satisfaction with the outcomes of hysterectomy compared to alternative treatments. Baseline data for the prospective study have been collected and the follow-up data are currently being collected.

The second study is a retrospective cohort study and aims to determine women's reasons for electing to have a hysterectomy. The retrospective study data collection stage has been completed and data entry and analysis are currently under way. The preliminary results indicate that the women are generally satisfied with their hysterectomy decision and outcome. However, very few of the women had tried other treatments for their menstrual symptoms prior to hysterectomy. It is interesting to note that those women who did try other treatments for their menstrual symptoms were also satisfied with these treatments.

**Project:** Coping with the transition to widowhood: a statistical analysis  
**PhD Candidate:** Ms Nadine Smith (School of Population Health, University of Queensland)  
**Supervisors:** Professor Annette Dobson, Professor Wendy Brown, Professor Gail Williams  
**Funding Source:** Australian Postgraduate Award, University of Queensland  
**Expected Completion:** August 2004

### *Aims*

To undertake methodological research to refine statistical tools that can be used to examine the complex relationships between personal characteristics and environmental factors among participants in the Australian Longitudinal Study on Women's Health. A further aim of this project is to identify factors associated with successful management of the transition to widowhood, and factors that predict a poor outcome of this major life change.

### *Method*

The study sample will include women in the older cohort (70-75 years at Survey 1, N=12,767). Seven hundred women in this cohort became widows between Survey 1 (1996) and Survey 2 (1999). Survey 3 for this cohort will be conducted in 2002. It is anticipated that about 500 women will have become widows between Survey 2 and Survey 3. This project will focus on the correlation between data items to gain 'statistical strength' through use of composite variables and to impute missing data. In order to explore predictors of adjustment to widowhood the main challenges are groups of correlated variables, multiple imputation, composite variables and data modelling. Identification of major groups of inter-related variables and investigation into the robustness of such groups will be conducted using the multivariate methods of factor analysis, cluster analysis, and split samples. The identification of stable groups of related variables is needed to assist the use of multiple imputation of missing data and in the definition of composite variables. Statistical modelling of the adjustment to widowhood will involve differing numbers of observations among the women (due to time of widowhood relative to survey occasions), repeated measurements over time, and composite predictor variables representing each of the main groups of correlated variables. Multilevel mixed models will be used to model time-varying effects.

**Project:** Psychosocial risk factors for pregnancy and pregnancy risk-taking in late adolescent females: A Women's Health Australia longitudinal inquiry.  
**PhD Candidate:** Ms Lauren Miller-Lewis (School of Psychology, Flinders University of South Australia)  
**Supervisors:** Dr Tracey Wade & Professor Sue Richardson  
**WHA collaborator:** Professor Christina Lee  
**Funding Source:** Australian Postgraduate Award, Flinders University of South Australia  
**Expected Completion:** March 2004

This study aims to identify psychosocial risk factors of late adolescent pregnancy and pregnancy risk taking. Two stages to this project will be combined in order to achieve this aim. Firstly, existing WHA data from Surveys 1 and 2 of the young cohort will be analysed. Variables such as depression, self-esteem, geographical location, socio-economic status, educational qualifications, and vocational aspirations, will be examined as possible predictors of subsequent adolescent pregnancy and contraceptive use. Secondly, a sub-study will be conducted, in which approximately 100 of the youngest women from the young cohort will be surveyed to determine their level of pregnancy risk-taking. Pre-existing information on their psychosocial status will then be used to identify possible risk and protective factors for this risk-taking behaviour, which is defined as inconsistent and non-optimal use of contraception. The findings from this study will be used to inform future Australian research and to provide recommendations for adolescent pregnancy prevention efforts.

**Project:** Young women, multiple roles and mental health: an investigation of epidemiological and lay perspectives.  
**PhD Candidate:** Ms Beverley Lloyd (Dept of Public Health and Community Medicine, University of Sydney)  
**Supervisors:** Associate Professor Susan Quine & Professor Christina Lee  
**Expected Completion:** December 2004

The study will investigate the impact of multiple social roles on the mental health of young Australian women, with particular emphasis on maternal and employment roles. The study aims to:

1. Describe the association between social roles and mental health longitudinally;
2. Identify the model/s of role occupancy that best explain the association between social roles and mental health among young Australian women;
3. Identify the psychological, social and structural factors that young women with maternal and employment roles consider significant to undertaking their social roles.

The study will use quantitative (aims 1 and 2) and qualitative (aim 3) methods. At present a literature review is being undertaken to identify the appropriate theoretical approach to address the third aim.

## 2 CONDUCT OF SURVEYS

Approval from the University of Newcastle Human Research Ethics Committee, previously granted for a three-year period in August 1998, expired during the reporting period. An application for renewal of approval was submitted in August 2001 and a further three-year ethics approval was obtained. Appendix 2.1 includes the application, supporting material, and approval letter from the Human Research Ethics Committee.

## 2.1 MAIN COHORTS

### 2.1.1 Mid Survey 3 (in progress)

Survey 3 of the mid-age cohort was described in detail in Report 16, but receipt of responses and tracking of non-respondents have continued throughout the second half of the year. Table 1 summarizes response rates to Survey 3 as at 10 October 2001. It should be noted that the denominator for these response rates includes all women who responded to Survey 1, excluding those who had died or withdrawn before March 2001.

**Table 1 Response rates for Mid Survey 3 (as at 8 November 2001)**

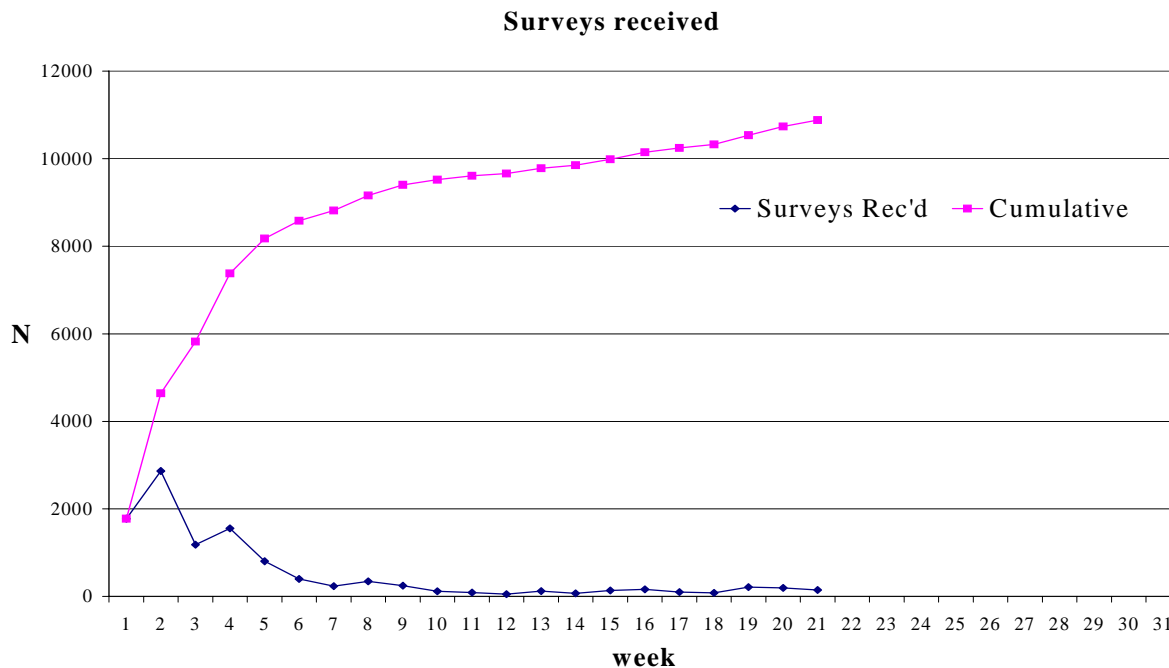
	N	%
Completed survey	11,189	83.7
Deceased	26	0.2
Withdrawn	153	1.1
Not this time	1,178	8.8
No contact yet	190	1.4
Lost to follow-up	626	4.7
<b>TOTAL</b>	<b>13,362</b>	<b>100</b>

Efforts to track those women who have not yet been contacted, and those with mail returned to sender, are continuing. Subsidiary mailouts were sent on 7 June (n=345), 23 July (n=955) and 16 August (n=111) to a total of 1411 women who had been tracked through the procedures described in Report 14.

Women who have not yet responded have been vigorously tracked, including checks with secondary contacts, and searches in telephone directories and electoral rolls. All have been telephoned at least six times, unless all known telephone contacts have been disconnected. The "Lost to follow-up" category generally consists of women whose telephones have been disconnected and/or the numbers have been reassigned; who are not listed in the electronic White Pages; and who do not appear on the Electoral Roll. Attempts to track these women are continuing.

Figure 9 shows the weekly response rates, and the cumulative response, for Mid Survey 3. This demonstrates that the greatest rate of response occurred in the first few days after the mailout. A total of 4,642 women (over 35% of the sample) completed and returned their surveys within a few days of receiving it. A second, smaller, peak was associated with the thank you /reminder card – a further 2,735 (around 20%) completed and returned their surveys in response to that. While response rates dropped rapidly after the first few weeks, there has been a consistent level of return that suggests that the majority of participants in this age group are sufficiently interested in the project to continue their participation.

**Figure 9** Weekly and cumulative response rates for Mid Survey 3



### 2.1.2 Older Survey 3 (pilot phase)

The development of Older Survey 3 is described in Report 16. Following pre-piloting with five women in the appropriate age group, Survey 3 was piloted during August to November 2001. Approval for piloting was obtained from the University of Newcastle Human Research Ethics Committee on 24 July 2001, and the pilot survey was mailed to 253 women in the Bathurst and Illawarra areas, who had also served as pilot participants for Older Surveys 1 and 2. Participants were mailed a package containing the large-font survey, a covering letter, a separate form asking them to evaluate specific aspects of the survey, a pencil, a change of details card and a reply paid envelope (see Appendix 2.2 for copies of all materials).

The aims of previous pilot surveys have been to check the appropriateness of the wording and ordering of items, to examine rates of missing data, and to examine the adequacy of response options. This pilot survey had these same aims but was also designed to assess two aspects of survey delivery which had the aim of improving the quality of completed returns.

- 1 Response formats. While it is the normal practice to prepare pilot surveys in-house, this pilot survey was printed by NCS-Pearson so that we could trial the layout of response formats. In particular, we were interested in using elliptical response “boxes” in place of open circles, as we had gained the impression that women with arthritis, tremor or coordination difficulties would find these easier to adequately fill in.
- 2 Pencils. Provision of a suitable pencil may also make it easier for older women to complete the survey precisely. This could reduce the workload on project assistants, who check every returned survey. If necessary, they fill in response boxes more completely to improve the accuracy of scanning. A considerable amount of time has been spent exploring possible alternatives, which were eventually reduced to two – standard 2B pencils, or thicker 6B art markers. The 2B pencil is considerably cheaper (\$0.17 per unit in bulk, vs \$1.05 for 6B) but may be less effective.

Pilot participants were randomly assigned to receive only one type of pencil, and were asked to comment on the pencil in their evaluation sheet.

Tables 2 and 3 summarize the pilot procedure and preliminary response rates (at 15 November 2001).

**Table 2 Piloting Older Survey 3: Response rates at each contact stage**

	<b>Date</b>	<b>Number sent/phoned</b>	<b>Response rate up to each stage (%)</b>	<b>Cumulative response rate (%)</b>
Package	3 Sept	253		
Thank you reminder	19 Sept	238	57.8	57.8
Reminder 2	15 Oct	46	20.0	77.8
Phone reminder	29 Oct	39	2.4	80.2
<i>Response rate to date</i>	<i>6 Nov</i>			<i>84.1</i>

*Deceased excluded from response rates*

**Table 3 Piloting Older Survey 3: Summary of response rates**

<b>Status</b>	<b>Number</b>	<b>%</b>
Packages sent	253	
Completed	207	81.8
Not this time	10	4.0
Deceased	7	2.7
Withdrawal	13	5.1
Lost to follow-up	6	2.4
Will do survey	10	4.0

Data from the first 199 responses to the pilot of Older Survey 3, conducted by Joy Goldsworthy in September – October 2001, were checked and entered, and frequency distributions tabulated. Responses to the evaluation sheet, included with the pilot survey, were also collated. Consideration of the response distributions and levels of missing data led to a number of minor changes, summarized in Table 4.

**Table 4 Differences between the pilot (2001) and the main (2002) survey for Older Survey 3**

No. In Main	Question Description	Change Made	Reason for change
1	Diagnoses	The order of items a (high blood pressure) and b (arthritis) was reversed (from b and a) from the pilot.	Ordered according to frequency of reported diagnosis among pilot sample (57% reported high blood pressure; 47% arthritis)
5	Days in hospital	Response options were changed from none/one/two/three/four or more to None/1-2/3-7/8-13/14+	Distribution of pilot responses was: none 68%; one 7%; two 5%; three 2%; four or more 16%. Need to provide more categories at upper end. The new response options match those in the diabetes substudy and can be mapped on to response options for Old 2.
8	Medications	The order of items was changed. Item a (high blood pressure) had been item c in the pilot, and Items b and c (arthritis; pain) had been a and b.	Ordered according to frequency of reported diagnosis among pilot sample (59% reported medication for high blood pressure; 34% for arthritis; 24% for pain).
12	Access to health care	The order of items was changed. Item i (after-hours care) had been item c in the pilot. It was shifted to the end and the other items re-lettered.	High rates of missing data for “after-hours care” item and following items (14% missing for “after-hours care”, compared with 3% for previous items and 7-10% for subsequent items). Women who were unsure about the “after-hours care” item might leave it out and then be more likely to skip subsequent items. Placement at the end of the question could reduce missing data in other items.
43	Sources of income	Items marked a, b and c; “Yes” added to top of response column	Correcting formatting error
50	When widowed	NEW ITEM: If you have ever been widowed, please write the date of bereavement on the line (if widowed more than once, please give all dates)	Substudy on adjustment following widowhood (50% of pilot sample are now widowed).
62	Assistance from others (61 in pilot)	Items spaced out further	High rate of missing for item b (14%); possibly respondents failed to notice this short question
FINAL	Proxy items	Name request deleted	Confidentiality and record storage

One major change that had been made from Survey 2, and from the surveys for the younger and mid-age women, was the replacement of a 10-item version of the Center for Epidemiological Studies Depression Scale (CES-D) with the 18-item Goldberg Anxiety and Depression Scale (GADS). In the pilot for Survey 2 of the older cohort, rates of missing data for items of the CES-D ranged from 11% to 19%. Despite changes intended to improve the response rate in the main survey, rates of missing data for these 10 items in the main survey ranged from 32% to 47%. Only 44% of respondents completed all ten items, with an additional 5% completing nine items, enough to calculate a scale score. This compares with missing data rates among the younger and mid-age cohorts for the same items of around 1% to 3%, and with missing data rates among the older cohort for different items with similar layout (e.g. vitality and general health items from the SF-36) of around 1% to 4%. A detailed report on the CES-D among the older cohort is included in Report 16 and a paper on this work has now been submitted to a journal.

A review of the literature on ageing, missing data, and survey characteristics associated with poor completion among older respondents was undertaken. On the basis of this work, it was decided to trial the GADS as an alternative measure of depression. The GADS has a yes/no response format rather than a graduated scale and consists of simple, direct questions.

Missing data rates for items of the GADS in the pilot sample ranged from 3% to 7%. These rates of missing data are actually lower than the rates found for the vitality and general health items from the SF-36, which in this pilot sample ranged from 7% to 13%. This suggests that the GADS is likely to provide usable data for a larger sample of older women than the CES-D. Three respondents (1.5%) indicated that they would have preferred a “sometimes” option for the GADS, but the possibility that any such change would make the scale noncomparable with previous research and could increase rates of missing data make this infeasible.

Another aim of this pilot was to trial the inclusion of a 2B pencil or a 6B marker with the survey, in order to see whether the use of pencils would reduce the need to edit surveys before scanning. Table 5 summarizes the outcome of this trial.

**Table 5 Outcome of provision of pencils/markers to older pilot participants (as at 6 November 2001)**

		<b>Received 2B pencil</b>	<b>Received 6B marker</b>
Surveys sent		127	126
Surveys returned		105	98
Completed with pencil/marker	Editing needed	24	7
	No editing needed	64	75
Completed with other	Editing needed	9	7
	No editing needed	8	9

In response to specific questions on the additional evaluation sheet, 177 respondents (95%) reported receiving a pencil and 7 (4%) said they had not. As this small survey was individually hand-packed in the WHA office and numbers of pencils checked, it seems most likely that these pencils have fallen out unnoticed when the surveys were opened. Overall, 151 women (81%) said they had used the pencil and 30 (16%) said they had not. Twenty (10%) reported that the pencil had arrived broken and unusable; nine preferred to use their own pen (e.g. “I always use a pen to fill in forms”);

one felt that corrections could be marked more clearly with a pen, and one that pencil could be erased or altered by someone else; one could not hold the pencil; and one woman's pencil went missing after the great-grandchildren had been to visit. Only three women had positive comments about the pencil.

The 6B markers also left black marks on the surveys and marked the hands of respondents and office staff.

Overall, the conclusion was that the pencils and markers has an unacceptably high rate of breakage in the mail and were unacceptable for a minority of women. They did appear to reduce the extent to which surveys would need editing by office staff, but left black marks which will interfere with scanning and could require manual correction of the entire survey. Any possible advantages of provision of pencils to the main cohort were not clearly demonstrated, and did not justify the additional cost of pencils and postage.

Other comments on the evaluation sheets suggested that the survey was generally acceptable to participants. A total of 172 (92%) rated the instructions as helpful, and 179 (96%) rated the elliptical response bubbles as easy to mark as instructed. The others said that they found it easier to tick or cross than to shade in a bubble; however, ticks, crosses and lines cannot be read by the scanner and this necessitates manual correction for the entire survey before scanning.

To the question, "Were there any questions you found difficult to understand?", 133 (71%) replied that there were not. Most of the 30 who replied "yes" to this question did not seem to have problems with comprehension, but actually wanted an opportunity to elaborate or explain their responses – particularly to the physical activity items (e.g., "Osteoarthritis in right hand – damaged right shoulder (heavy fall). Therefore inability to use right arm and extreme cold in our climate prevents outdoor gardening at this time – cannot now swim, play sports etc, or use vacuum cleaner.") There is already a space on Page 22 of the survey for respondents to tell us about anything else they feel is important. Several said they had difficulty identifying a "typical day" for the physical activity items, because they had "good days and bad days," or because every day was different. For example, "Living on a farm, activity can be hectic or leisurely. Depends on the cows and the weather."

In response to "Were there any questions you did not want to answer?", 153 (82%) replied "no" and 24 (13%) did not reply. Ten (5%) said "yes". Of these, one stated that she found the question about sources of income intrusive and irrelevant to the purpose of the study; the others did not seem unwilling to answer, but had comments about interpretation (e.g., "Have you been worried about your health? Well as one gets older and I am 77 one becomes conscious or perhaps concerned about one's health but not necessarily worried").

Other general comments were mainly positive (e.g., "I just want to say that I'm very satisfied with the way the survey is conducted. I have no complaints or objections to the layout or how the questions are worded, I understand what you are trying to achieve and I hope most people do the same."). Others provided further details about their health and personal situations (e.g., "I belong to a group called Rural Women's Access Group which was formed 10 years ago as an offshoot to Farmsafe. It was a combination of Health, CAN and community funded by State Government with a project officer for five years. We are still continuing, taking information on health to smaller communities with information days.")

In conclusion, some minor changes have been made on the basis of the pilot but overall it appears to have worked well and to have been appropriate for women in this age group. The next stage of the process is preparation of a draft cover letter and submission to the University of Newcastle Human Research Ethics Committee.

## 2.2 SUBSTUDIES

The conduct of substudies is an important aspect of the project that permits a more detailed analysis of specific topics than is possible in the three-yearly main surveys. Substudies are targeted studies of selected participants, using a variety of methods including posted questionnaires, telephone interviews, face-to-face interviews, and focus groups. Participants for substudies are generally identified on the basis of “screening” items included in the main surveys. Topics that are relevant only to a small proportion of participants (e.g. treatment for diabetes), that require detailed and in-depth discussions (e.g., experiences of domestic violence), or that require only a small representative sample (e.g., older women’s preferences for mailed versus phone surveys) are better approached through substudies. Substudies also provide an opportunity for research students and collaborators to explore and to expand on aspects of the data that are not closely related to the core themes. The project currently has no specific funds for substudies, and all substudies have had to be funded through additional grants, student fellowships, and Research Quantum funds.

Reports on substudies have appeared in these reports as the substudies have been completed, but previous reports have not listed the number, range and type. Table 6 below provides details of substudies conducted during the current reporting period, while Table 7 provides a timeline for the conduct of these substudies and the other participant-contact activities over the current reporting period, indicating the complexity of office procedures.

**Table 6 List of substudies and other participant contact activities conducted during the reporting period.**

<b>Topic</b>	<b>Student/ collaborator</b>	<b>Funding source</b>	<b>Research method</b>	<b>Participant numbers</b>
Hysterectomy	Melissa Graham, PhD student, La Trobe University	La Trobe University	Mailed surveys	468 Mid-age women
Diabetes	Dr Julia Lowe, Discipline of Endocrinology, University of Newcastle	Diabetes Australia	Mailed surveys	355 mid-age women 1032 older women Total = 1387
Aspirations	Lisa Milne, PhD student, Department of Sociology and Anthropology, University of Newcastle	Department of Sociology & Anthropology, University of Newcastle	Mailed Surveys	806 younger women
Violence	Deborah Loxton, PhD student, University of New England	University of New England	Telephone interviews	50 mid-age women
Older Pilot 3	WHA staff	WHA	Mailed Surveys	253 older women (pilot sample)
HIC Access	WHA staff	WHA	Mailed request	13,091 younger women 12,845 mid-age women 11,089 older women Total = 37,025

**Table 7 Timetable of mailouts and associated activities during the current reporting period**

<b>Week beginning</b>	<b>Activity</b>	<b>Numbers</b>
18 June	Aspirations pilot survey	75
25 June	HIC/Newsletter Diabetes Pilot surveys	37,025 27
2 July		
9 July		
16 July	Aspirations Pilot reminder letter to non-respondents Diabetes Pilot reminder card to non-respondents	45 10
23 July		
30 July	Diabetes Pilot Phone reminder	7
6 Aug		
13 Aug	Violence letters HIC thank you/reminder card	10 21,816
20 Aug	Violence letters	10
27 Aug	Diabetes surveys	1,387
3 Sept	Hysterectomy survey Violence letters Older Pilot Survey 3 Aspirations Pilot phone reminder HIC Consent forms to those who requested new form	468 10 253 32 1,219
10 Sept		
17 Sept	Older 3 Pilot thank you/reminders	238
24 Sept	Aspirations survey	806
1 Oct	Diabetes reminder card to non-respondents Hysterectomy reminder card to non-respondents Violence letters	567 163 10
8 Oct		
15 Oct	Older 3 Pilot reminder to non-respondents Violence letters Aspirations thank you/reminder	46 10 806
22 Oct		
29 Oct	Diabetes phone reminder to non-respondents Older 3 Pilot phone reminder to non-respondents Hysterectomy phone reminder to non-respondents	392 38 88

### **3 METHODOLOGICAL ISSUES: SOURCES AND DEVELOPMENT OF INSTRUMENTS, RELIABILITY AND VALIDITY**

#### **3.1 DUKE SOCIAL SUPPORT INDEX (DSSI)**

Jennifer Powers, Brendan Goodger, Julie Byles

##### **3.1.1 Background**

It is generally agreed that social networks and support are important for older people (Litwin, 2001). Social networks consist of family and friends and tend to be larger for older women than for older men (Gibson, 1998). As well as instrumental support, these networks provide friendships, confidence and expressive support that make older women feel supported emotionally. Social support is not only correlated with sociodemographic factors such as age, marital status, living arrangements and income, but it has also been found to be important to the health of older people (Litwin, 2001; Simonsick et al., 1998). Among older adults, higher social support has been associated with better physical and mental health and reduced mortality risks (Penninx et al., 1997; Seeman, 1995). Some studies suggest that lower social support could be associated with higher use of health and social services (Bowling, 1991) and premature admission to institutional care (Steinbach, 1992).

Despite the importance of social support, few social support scales have been developed and used with older people. A review of the literature from 1970 to 1998 revealed the 11-item Duke Social Support Index (DSSI) was the only short scale written in English and validated for use with older people (Goodger, 2000). The DSSI was developed in the United States to provide a brief, easily administered instrument to determine an individual's level of social support (Koenig et al., 1993), and its reliability and validity has been confirmed in a sample of community dwelling older Australian men and women (Goodger et al., 1999). Two sub-scales that measure social interaction and satisfaction with support (subjective support) were identified. This report examines the reliability and construct validity of the DSSI among the older WHA cohort, as well as its associations with socio-demographic and health characteristics.

##### **3.1.2 Methods**

Data from Survey 1 of the older cohort were used. In this survey, the 11-item DSSI was included to measure social support (Table 8). The responses to the satisfaction with social support items, 'hardly ever', 'some of the time' and 'most of the time', were scored from 1 to 3. The social interaction items were also scored from 1 to 3, with the highest score indicating most contacts. The response options for the item, 'How satisfied are you with the kinds of relationships you have with your family and friends?' were scored from 1 to 3 for 'very dissatisfied', 'somewhat dissatisfied' and 'satisfied'. Higher scores indicate better social support.

Exploratory factor analyses using the principal components method with orthogonal (varimax) and oblique rotations (promax) were performed on the DSSI items. Kaiser's measure of sampling adequacy (MSA) was used to quantify the degree of intercorrelations among the items. Cronbach's alpha coefficients for standardised variables were used to estimate the inter-item reliability for each factor and all items. The suitability of the factor analyses was assessed by the percentage of variance explained and by communalities that show the amount of variance each item shares with all other items (Hair et al., 1998). Summed scores were obtained by adding the response scores for the items that loaded together for each of the factors and correlations with the composite factor scores were estimated.

**Table 8** Factor loadings, cumulative percentage of variation explained, internal reliability estimated from responses of 12,939 women aged 70-75 (items contributing the most to each factor are shown in bold and factor scores are given in brackets for these items only).

Item	%*	Factor	Factor	Communality
<i>Satisfaction with social support</i>				
Do you feel you have a definite role (place) in your family and among your friends?	86.3	<b>0.77</b> (0.26)	0.13	0.61
Does it seem that your family and friends (ie people who are important to you) understand you?	88.3	<b>0.72</b> (0.25)	0.07	0.53
Do you feel useful to your family and friends (ie people important to you)?	83.2	<b>0.70</b> (0.24)	0.10	0.50
When you are talking with your family and friends, do you feel you are being listened to?	83.1	<b>0.69</b> (0.24)	0.05	0.47
Do you know what is going on with your family and friends?	75.7	<b>0.69</b> (0.24)	0.08	0.48
Can you talk about your deepest problems with at least some of your family and friends?	76.4	<b>0.64</b> (0.21)	0.17	0.44
<i>Social interaction</i>				
How many times during the past week did you spend time with someone who does not live with you, that is, you went to see them or they came to visit you or you went out together?	55.0	0.09	<b>0.76</b> (0.45)	0.58
Other than members of your family how many persons in your local area do you feel you can depend on or feel very close to?	58.9	0.22	<b>0.66</b> (0.37)	0.48
How many times did you talk to someone, friends, relatives or others on the telephone in the past week (either they called you, or you called them)?	42.3	0.14	<b>0.61</b> (0.35)	0.39
About how often did you go to meetings of clubs, religious meetings, or other groups that you belong to in the past week?	2.2	-0.03	<b>0.59</b> (0.37)	0.35
<i>Excluded item</i>				
How satisfied are you with the kinds of relationships you have with your family and friends?	81.6			
<b>Cumulative percentage of variance 'explained'</b>		34%	48%	
<b>Cronbach's alpha</b>		<b>0.80</b>	<b>0.58</b>	

\* Percent responding with the highest score  
Responses were missing for between 1% and 3% of items.

To assess construct validity, scores for the identified factors and the overall DSSI were compared with variables thought to be related to DSSI. Positive correlations were hypothesised with PCS, MCS, the eight sub-scales of the SF-36, and life satisfaction, a negative correlation with mean stress, and no association with body mass index. Differences in mean DSSI scores for different socio-demographic and health related groups were estimated, taking the over-sampling in rural and remote areas into account, using the least squares mean option in the general linear model procedure in SAS. The level of significance was set to 0.005 to reduce the effects of multiple comparisons and the large sample size.

### 3.1.3 Results

Of the 12,939 older women who returned Survey 1 in 1996, 12,223 (94.5%) completed all DSSI items and another 347 (2.7%) missed one or two items. Percentages who gave the highest scored response for each of the DSSI items are shown in Table 8. Despite the majority of women being 'satisfied' most of the time with their relationships with family and friends, almost 14% answered 'very dissatisfied' to the item about satisfaction with "kinds of relationships". This was contrary to the pattern of responses for the other 'satisfaction' items, where endorsement of the lowest response was very low (1% to 6%). Many felt they could depend on at least two other people or spent time with at least two people in the past week, although few women (2% to 3%) went to religious meetings, clubs or other meetings more than five times a week.

Orthogonal and oblique rotations identified the same two factors in the exploratory factor analyses (Table 8 – oblique rotation data not shown). The last item, 'How satisfied are you with the kinds of relationships you have with your family and friends?' was excluded from the final factor analyses as it did not load on either factor and had low communality (0.01). The first factor related to satisfaction with social support and included six items. The second factor consisted of four items relating to social interaction. The overall sampling adequacy for the two factors was good with  $MSA = 0.85$ . Cronbach's alpha coefficients of 0.80, 0.58 and 0.76 for the two factors 'satisfaction', 'interaction' and the 10 DSSI items indicated reasonable internal reliability. The communalities for the first two factors ranged from .4 to .6, demonstrating that the shared variance between individual items and all the other items was reasonable. Correlations were high between the factor scores and summed scores both for 'satisfaction' (0.89) and 'interaction' (0.98). Hence, summed scores for 'satisfaction', 'interaction' and DSSI (10 items) were used in the remaining analyses. Mean imputation was used to replace up to two missing items in the 10-item DSSI, but no missing items were imputed in the two sub-scales. Correlations between DSSI, 'satisfaction' and 'interaction' and variables expected to be associated with social support were as hypothesised (Table 9).

Women with higher social support tended to be Australian born, be widowed or married, have more education and found it easier to manage on their available income (Table 10). In terms of health, they rated their general health more highly, had fewer chronic conditions and symptoms, took fewer medicines, did not need help with daily tasks and had fewer visits to GPs. Social support was positively correlated with satisfaction with GP (0.21). Women had higher social support if, in the last year, they had no major illness or injury, there had been no major decline in health, or death, of their spouse and no major conflict with their children.

**Table 9 Construct validity: correlations for social support and variables hypothesised to be associated with social support for 12,939 women aged 70-75 years.**

	<b>DSSI</b> (10 items)	<b>Support</b> (6 items)	<b>Interaction</b> (4 items)
<b><i>SF-36 Physical Health Component Score</i></b>	0.14	0.13	0.10
Physical health sub-scales			
Physical functioning	0.20	0.17	0.14
Role limitations due to physical health	0.18	0.18	0.11
Bodily pain	0.16	0.16	0.09
General health	0.25	0.23	0.17
<b><i>SF-36 Mental Health Component Score</i></b>	0.34	0.33	0.22
Mental health sub-scales			
Vitality	0.28	0.27	0.18
Social functioning	0.28	0.26	0.18
Role limitations due to emotional health	0.23	0.23	0.14
Mental health	0.37	0.35	0.24
<b><i>Mean stress score</i></b>	-0.30	-0.33	-0.14
<b><i>Life satisfaction score</i></b>	0.42	0.40	0.27
<b><i>Body mass index (BMI)</i></b>	0.01	-0.0004	0.02

All *p*-values <0.0001 except for BMI where no *p*-values were <0.05

**Table 10 Characteristics significantly associated with Duke Social Support Index (DSSI 10 items); mean and 95% confidence interval.**

	<b>N</b>	<b>Mean</b>	<b>Confidence interval</b>
<b><i>Socio-demographics</i></b>			
Country of birth			
Australian born	9222	28.4	(28.3; 28.5)
Other English speaking background	1515	28.1	(27.9; 28.2)
Non-English speaking background	1227	27.2	(27.0; 27.3)
Area of residence			
Non-urban	7438	28.4	(28.3; 28.5)
Urban	5062	28.1	(28.1; 28.2)
Marital status			
Widowed	4311	28.3	(28.2; 28.4)
Married/defacto	7109	28.2	(28.1; 28.3)
Never married	347	27.8	(27.5; 28.1)
Separated/ divorced	707	27.6	(27.4; 27.8)
Highest qualification completed			
Post-school	1778	28.4	(28.3; 28.6)
School	6133	28.4	(28.3; 28.5)
No formal	4184	27.8	(27.7; 27.9)
Manage on income available			
Easy	2731	28.7	(28.6; 28.8)
Not to bad	6302	28.4	(28.3; 28.4)
Difficult some of the time	2467	27.7	(27.6; 27.8)
Difficult all of the time/ impossible	865	26.9	(26.7; 7.1)

**Table 10 continued.**

	<b>N</b>	<b>Mean</b>	<b>Confidence interval</b>
<b><i>Health related characteristics</i></b>			
Self-rated health			
Excellent	770	29.0	(28.7; 29.2)
Very good	3213	28.9	(28.8; 29.0)
Good	4797	28.3	(28.2; 28.4)
Fair	2910	27.4	(27.3; 27.5)
Poor	507	26.0	(25.8; 26.3)
Number of chronic conditions ever diagnosed			
0 to 2	9697	28.3	(28.2; 28.4)
3 to 10	2680	27.9	(27.8; 28.0)
Number of symptoms in the last year			
0 to 2	2455	28.9	(28.7; 29.0)
3 to 6	4501	28.5	(28.5; 28.6)
7 to 21	4872	27.6	(27.5; 27.7)
Regularly need help with daily tasks			
No	10672	28.4	(28.3; 28.4)
Yes	1014	26.7	(26.5; 26.9)
Number of GP visits in the last year			
Less than five	5789	28.4	(28.3; 28.5)
Five or more	6549	28.0	(28.0; 28.1)
Number of prescribed medicines taken in last 4 weeks			
Less than four	9030	28.3	(28.3; 28.4)
Four or more	3463	27.8	(27.7; 27.9)
Taken any medication for nerves in past 4 weeks			
No	10996	28.4	(28.3; 28.4)
Yes	1410	27.0	(26.9; 27.2)
Taken any medication for sleep in past 4 weeks			
No	10229	28.3	(28.3; 28.4)
Yes	2154	27.6	(27.5; 27.7)
<b><i>Life events in last year</i></b>			
Major personal illness			
No	10534	28.3	(28.2; 28.3)
Yes	1744	27.5	(27.4; 27.6)
Major personal injury			
No	11798	28.2	(28.2; 28.3)
Yes	482	27.6	(27.4; 27.9)
Major decline in health of spouse			
No	9602	28.3	(28.3; 28.4)
Yes	2269	27.9	(27.8; 28.0)
Death of spouse			
No	11764	28.2	(28.2; 28.3)
Yes	573	27.8	(27.5; 28.0)
Major conflict with children			
No	11831	28.3	(28.3; 28.4)
Yes	536	25.7	(25.5; 26.0)

*P*<0.0001 for all associations except for 'need help' and 'death of spouse' (*p*=.0009).  
Analyses were weighted to account for over-sampling in rural and remote areas.

### 3.1.4 Discussion

The overall DSSI scale and the sub-scales measuring social interaction and satisfaction showed good reliability and concurrent validity. The large size and representative nature of this study provides considerable confidence in the reliability of the results. The scope of the survey also allowed the relationship between social support and a variety of socio-demographic and health related factors to be investigated in a large group of community-dwelling older women.

In previous studies where the 11-item DSSI was administered to older men and women by interview, a factor of seven items relating to satisfaction with social support and a factor of four items relating to social interaction were identified (Goodger, 1999). In the WHA mailed survey to older women, the same social interaction factor was identified but one of the seven items was excluded from the satisfaction with social support factor. The excluded item asked about satisfaction with the kinds of relationships and the first two responses were 'very dissatisfied' and 'somewhat dissatisfied'. Almost 14% of women responded 'very dissatisfied' to this item while less than 6% endorsed the response indicating least satisfaction for the items loading on the 'satisfaction' factor. This may be due to the response options being misread in our self-complete survey.

The construct validity of the 10-item DSSI and the 'satisfaction' and 'interaction' sub-scales was supported by significant correlations between the DSSI and its sub-scales, 'satisfaction' and 'interaction', and stress, life satisfaction, physical and mental health. The longitudinal nature of the WHA study will allow investigation of the long term health impact of social support and may contribute to strategies to improve the health of older women.

### 3.1.5 References

- Bowling A. Social support and social networks: their relationship to the successful and unsuccessful survival of elderly people in the community. An analysis of concepts and a review of the evidence. *Family Practice*, 1991; 8: 68-83.
- Gibson DM. *Aged Care: Old policies new problems*. Melbourne: Cambridge University Press, 1998.
- Goodger B. *An examination of social support amongst older Australians*. Thesis submitted for the degree of Doctor of Philosophy, University of Newcastle, 2000.
- Goodger B, Byles J, Higginbotham N & Mishra G. Assessment of a short scale to measure social support among older people. *Australian and New Zealand Journal of Public Health*, 1999; 23: 260-265.
- Koenig HG, Weslund RE, George LK, Hughes DC, Blazer DG & Hybels C. Abbreviating the Duke Social Support Index for use in chronically ill elderly individuals. *Psychosomatics*, 1993; 34: 61-69.
- Litwin H. Social network type and morale in old age. *Gerontologist*, 2001; 41: 516-24.
- Penninx BW, van Tilburg T, Kriegsman DM, Deeg DJ, Boeke AJ & van Eijk JT. Effects of social support and personal coping resources on mortality in older age: the Longitudinal Aging Study Amsterdam. *American Journal of Epidemiology*, 1997;146: 510-9.

Seeman TE, Berkman LF, Charpentier PA, Blazer DG, Albert MS & Tinetti ME. Behavioral and psychosocial predictors of physical performance: MacArthur studies of successful aging. *Journal of Gerontology*, 1995; 50A: M177-183.

Simonsick EM, Kasper JD & Phillips CL. Physical disability and social interaction: factors associated with low social contact and home confinement in disabled older women (The Women's Health and Aging Study). *Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 1998; 53: S209-17.

Steinbach U. Social networks, institutionalization and mortality among elderly people in the United States. *Journal of Gerontology*, 1992; 47: S183-190.

### **3.2 PSYCHOLOGICAL PREDICTORS OF WELL-BEING IN THE OLDER COHORT: OPTIMISM AND HEALTH-RELATED HARDINESS**

The question of whether psychological characteristics – specifically optimism and health-related hardiness - contribute to perceived and objective levels of health has been the focus of a series of analyses. This report, prepared by Christina Lee, Nadine Smith and Anne Young, focuses on the psychometric properties of the measures used in Survey 2 of the Older cohort.

Optimism. Scheier and Carver (1992) argued that optimism was a stable personality characteristic that influenced attitudes and behaviour, and therefore had consequences for both physical and emotional health. Optimism is widely seen as a positive personal characteristic, and it is assumed that optimistic older adults may be able to cope better with the challenges of ageing. It is assumed that an optimistic person will adopt attitudes and behaviours associated with good health even in objectively difficult circumstances. Yet there has been very little research that has addressed the assessment of optimism or its relationship with psychological and physical well-being.

The most extensively used measure of optimism, incorporating both positively and negatively worded items, is the Life Orientation Test - Revised (LOT-R) (Scheier & Carver, 1992), which includes three positive and three negative items. The LOT-R has good internal consistency and retest reliability, convergent and discriminant validity, but it is necessary to examine the characteristics of the scale within this sample.

Health-Related Hardiness. The concept of “hardiness” was developed out of research that investigated the reasons why some people appear to cope successfully in extremely stressful circumstances. Kobasa et al. (1982) argued that hardiness serves as a buffer against the adverse effects of stress by influencing people’s cognitive interpretations of objectively difficult circumstances. Thus, a high level of health-related hardiness may lead to a relatively positive self-rating of health and well-being despite the presence of major illness or the absence of appropriate services and supports.

Health-related hardiness is conceptualised as a multifaceted construct, composed of three subordinate concepts: a sense of control over one’s health (control dimension), a commitment to the maintenance of one’s health (commitment dimension), and a tendency to prefer to take direct action in the face of challenges (challenge dimension). The “control” dimension of the health-related hardiness construct has been defined as a sense of mastery or self-confidence regarding the skills needed to appropriately appraise and interpret threats to health (Pollock, 1986). The Health Related Hardiness Scale (HRHS; Pollock & Duffy 1990), which measures hardiness through a combination of positive and negative items, is the most widely-used and most rigorously developed measure available. It has been developed with attention to psychometric properties, including assessment of

item-to-concept content validity. However, it has only ever been tested with small clinical samples, and thus it was necessary to examine its psychometric properties when completed by older Australian women before using it to examine the relationship between health-related hardiness and health.

### 3.2.1 Measures

Optimism and pessimism were measured using the LOT-R, which has six items (see Table 11), three positively phrased and three negatively phrased. Response options of ‘strongly disagree’; ‘disagree’; ‘neutral’; ‘agree’; ‘strongly agree’, are coded from 0 to 4, respectively.

The control dimension of health-related hardiness was measured using the Health-Related Hardiness Scale (HRHS) which contains two dimensions: commitment/challenge, and control. The current study used only the control sub-scale, which contains fourteen items (see Table 12), seven positively phrased and seven negatively phrased. Response options were ‘strongly disagree’; ‘disagree’; ‘slightly disagree’; ‘slightly agree’; ‘agree’; ‘strongly agree’. Response options for the seven positively phrased items were coded from 1 to 6, respectively. Response options for the seven negative items were coded in the opposite direction.

**Table 11 Factor loadings for rotated exploratory factor analysis of optimism/pessimism items (Older Survey 2)**

Item	Factor 1	Factor 2	% with item missing
<i>Optimism</i>			
I'm always optimistic about my future	<b>0.77</b>	0.17	5.9
In uncertain times, I usually expect the best	<b>0.75</b>	0.07	7.6
Overall, I expect more good things to happen to me than bad	<b>0.74</b>	0.19	3.0
<i>Pessimism</i>			
I hardly ever expect things to go my way	0.20	<b>0.84</b>	7.3
I rarely count on good things happening to me	0.17	<b>0.81</b>	6.5
If something can go wrong for me, it will	0.09	<b>0.79</b>	7.4
Eigenvalue	2.63	1.21	
Cumulative percentage of variance explained	44%	64%	
Cronbach's alpha	0.64	0.77	

**Table 12 Factor loadings for rotated exploratory factor analysis of health-related hardiness items**

<b>Item</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>% with item missing</b>
<b><i>Hardiness 1</i></b>			
I can avoid illness if I take care of myself	<b>0.75</b>	0.04	2.5
I am in control of my health	<b>0.73</b>	0.04	3.3
Setting goals for health is realistic	<b>0.58</b>	0.00	8.4
If I take the right actions, I can stay healthy	<b>0.79</b>	0.00	5.3
The main thing which affects my health is what I do myself	<b>0.63</b>	-0.06	6.0
I can be as healthy as I want to be	<b>0.76</b>	-0.09	8.0
If I get sick, it is my own behaviour that determines how soon I will get well	<b>0.62</b>	-0.15	5.9
<b><i>Hardiness 2</i></b>			
Luck plays a big part in determining how soon I will recover from an illness	-0.13	<b>0.66</b>	5.6
No matter what I do, if I am going to get sick, I will get sick	0.15	<b>0.66</b>	6.9
My good health is largely a matter of good fortune	-0.20	<b>0.63</b>	6.2
I will stay healthy if it's meant to be	-0.22	<b>0.61</b>	6.2
I have little influence over my health	0.30	<b>0.55</b>	6.2
No matter what I do, I am likely to get sick	-0.27	<b>0.50</b>	5.3
Most things that affect my health happen to me by accident	-0.23	<b>0.44</b>	7.4
Eigenvalue	3.79	2.41	
Cumulative percentage of variance explained	27%	44%	
Cronbach's alpha	0.83	0.68	

### **3.2.2 Psychometric evaluation**

Multi-item scales of optimism and health-related hardiness were evaluated psychometrically using three methods, in line with the standard protocol developed by the data management and analysis group (see Appendix 3.1 of Report 16 for a general description and justification). After examining the distribution of individual item responses, factor analysis was used to determine whether the hypothesized groupings of items were supported by the data. This procedure is important as factor structure can be population dependent. The item groupings and contribution to factors were checked using factor patterns from principal components analysis with varimax rotation.

Composite factor scores were then created based on the information provided by factor analyses. Each item was weighted by the appropriate standardized factor coefficient. These figures were summed to produce a new factor score for each woman with complete data for the items of interest. A second score was obtained by simply adding the response scores for the items that loaded together. Results from the factor score and the summed score methods were then compared using Pearson's product moment correlation coefficient.

To overcome the problem of missing data for items in a scale, a score for each factor was calculated using the average of the non-missing data for those women with some missing items. The average of non-missing data was calculated if no more than two items of a seven-item factor were missing, or no more than one item of a three-item factor was missing. If more items were missing, this variable was treated as missing for this individual. A final way in which the multi-item scales were evaluated was to calculate the reliability coefficient, Cronbach's alpha.

### **3.2.3 Optimism**

Two factors were identified in the factor analysis of the six items in the revised LOT-R; together they accounted for 64% of the variance (see Table 11). Values of the coefficient alpha for the two factors were both moderate but acceptable, indicating that these subsets of items produced reliable measures. The technique of summing the responses to all six items to produce a single measure was not supported by the factor structure for this population of women, as the items do not appear to measure a unitary construct. In the current sample the three positively phrased items loaded strongly together to form a measure of 'optimism'. Similarly, the three negatively phrased items loaded strongly together to form a measure of 'pessimism'. The factor scores correlated very highly with the score obtained through the simple addition of responses that loaded most highly on each factor ( $r=0.97$ ,  $p<0.0001$  for optimism;  $r=0.99$ ,  $p<0.0001$  for pessimism). Values for missing data were imputed for the 4.3% of women who missed one of the three optimism items and the 4.4% of women who missed one of the three pessimism items, by substituting the mean of the two completed items.

### **3.2.4 Health-related Hardiness Scale (HRHS)**

Two factors emerged from the factor analysis of the Health-Related Hardiness Scale which together accounted for 44% of the variance in the response to the fourteen items (see Table 12). The seven positively phrased items loaded strongly together to form one measure of the control dimension of health-related hardiness (this factor is denoted "hardiness 1"). Similarly, the seven negatively phrased items loaded strongly together to form another measure of the control dimension of health-related hardiness (this factor is denoted "hardiness 2"). The factor scores correlated very highly with the score obtained by the addition of the responses to the items that loaded most highly on each factor ( $r=0.98$ ,  $p<0.0001$  for hardiness 1;  $r=0.99$ ,  $p<0.0001$  for hardiness 2). Responses for the 7.5% of women missing one or two hardiness 1 items, and the 8.7% of women missing one or two hardiness 2 items were imputed by substituting the respondent's mean value for non-missing items.

### **3.2.5 Summary of new variables**

The mean values of the new variables are shown in Table 13. The distributions for these variables did not deviate substantially from normality. These variables have been used in work that is currently being prepared for publication, that assessed the extent to which optimism and hardiness predict well-being in the older cohort, once physical health and socioeconomic status are taken into account.

**Table 13 Mean scores for new variables obtained from multi-item scales**

Variable	Range	Shape of distribution	Mean (sd)	Skewness	Kurtosis
Optimism	0-12	symmetric	8.1 (1.8)	-0.5	1.3
Pessimism	0-12	symmetric	4.5 (2.4)	0.3	-0.2
Hardiness 1	7-42	symmetric	29.6 (6.1)	-0.6	0.4
Hardiness 2	7-42	symmetric	27.1 (6.0)	-0.1	-0.2

### 3.2.6 References

Kobasa S, Maddi S & Kahn S. Hardiness and health: a prospective study. *Journal of Personality and Social Psychology*, 1982; 42(1): 168-177.

Pollock S. The hardiness characteristic: a motivating factor in adaptation. *Advances in Nursing Science*, 1989; 11(2): 53-62.

Pollock S & Duffy M. The Health-Related Hardiness Scale: development and psychometric analysis. *Nursing Research*, 1990; 39(4): 218-222.

Scheier M & Carver C. Effects of optimism on psychological and physical well-being: theoretical overview and empirical update. *Cognitive Therapy and Research*, 1992; 16(2): 201-228.

## 3.3 WHA PERCEIVED STRESS MEASURE: ANALYSES FROM YOUNG SURVEYS 1 AND 2

### 3.3.1 Young Survey 1

Preliminary analysis of Survey 1 data showed that the young women had high levels of stress, and that these tended to be associated with poor health and with risky health behaviours. A psychometric analysis of the Perceived Stress Measure among the younger cohort at Survey 1 appeared in Report 15.

### 3.3.2 Young Survey 2

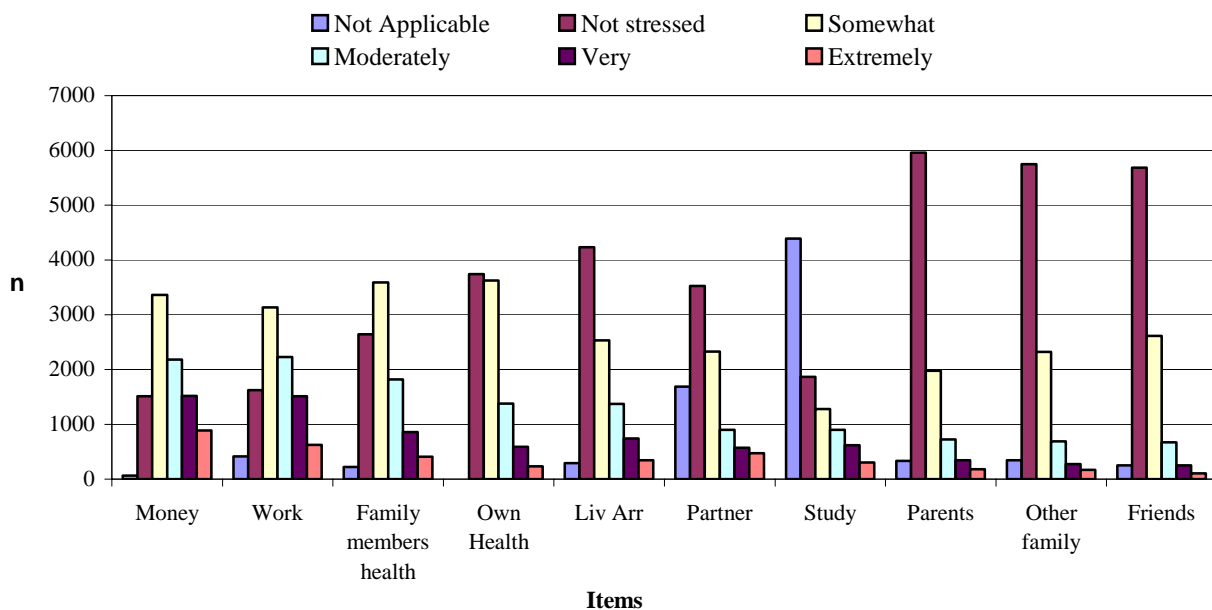
The stress question used in Survey 1 was included, in a revised form, in Survey 2 of the younger cohort (2000). It was shortened to 10 items. The final “anything else” item was no longer included as its purpose was to ascertain content validity, and analysis of Survey 1 responses had indicated that all salient sources of stress in the younger cohort had been sufficiently addressed. The “relationships with boyfriends” item was deleted due to the high correlation between this item and the “relationship with partner/spouse” item. The other alteration to occur is the “relationships with girlfriends” item was changed to “friends” in order to distinguish more clearly between sexual and platonic relationships.

Table 14 presents the Perceived Stress items from Young Survey 2, in order of means. Figure 10 represents the distribution of the items for Young Survey 2. For the computation of the means “not applicable” and “not at all stressed” are coded as zeroes, and remaining responses are from 1 to 4.

**Table 14** Descriptive statistics for items in the Young Survey 2 Perceived Stress Measure

Items	N	Mean	Std Dev	Skewness
Money	9538	1.66	1.20	0.37
Work/Employment	9542	1.53	1.18	0.17
Other Family Members' Health	9550	1.20	1.09	0.64
Own Health	9572	0.95	1.0	1.06
Living Arrangements	9517	0.93	1.12	0.93
Relationship with Partner/Spouse	9497	0.82	1.14	0.90
Study	9354	0.66	1.10	1.05
Relationship with Parents	9526	0.55	0.92	1.64
Relationship with Other Family Members	9544	0.54	0.88	1.62
Relationships with Friends	9581	0.54	0.82	1.54

**Figure 10** Item distributions for Young Survey 2 Perceived Stress Measure



Those items with the highest means have “somewhat stressed” as their modal response. From “own health” onwards all items except “study” have “not at all stressed” as their modal response. For the lowest three item means it is the large numbers of women who are “not at all stressed” that keep the means low.

Cronbach’s alpha was calculated and indicated an acceptable level of internal reliability, alpha=0.74. Table 15 lists item-total correlations. There were 2 items that did not reach the 0.3 level; “health of family members” and “study”. Removing “health of family member” had a small reduction effect on internal reliability, with alpha = 0.73. The “study” items removal does not change the alpha and removing both items again has a small negative effect with alpha=0.74.

**Table 15 Item - total correlations: Young Survey 2 Perceived Stress Measure**

<b>Item</b>	<b>Correlation With Total</b>
Living Arrangements	0.50
Money	0.50
Relationships with Friends	0.43
Relationship with Other Family Members	0.42
Relationship with Parents	0.42
Own Health	0.42
Work/Employment	0.40
Relationship with Partner/Spouse	0.37
Health of Family Members	0.30
Study	0.26

\*n=8944

A factor analysis was also undertaken, with all items loading on to one factor which had an eigen value=2.42, as is shown in Table 16.

**Table 16 Young Survey 2 Perceived Stress Measure: Item loadings and eigen value**

<b>Item loadings</b>	<b>Factor 1</b>
Living Arrangements	0.58
Money	0.58
Relationship with Other Family Members	0.54
Relationship with Parents	0.54
Relationship with Friends	0.50
Own Health	0.49
Work/Employment	0.47
Relationship with Partner/Spouse	0.46
Health of Family Members	0.36
Study	0.31
<b>Eigen value</b>	<b>2.42</b>

A further factor analysis was undertaken with the Perceived Stress Measure, selected life events, and the physical health component score of the SF-36. Table 17 presents the rotated factor loadings and eigen values.

The “general life” factor represents the most stressful and personal areas of life, with money, own health and work. Related life events also load and higher scores on this factor are associated with poorer reported physical health. Relationships with friends also loads on to this factor, indicating that high levels of stress need not be domain-specified but that difficulties in one area of life may “spill over” and affect others.

The “family” factor includes relationships with parents and other family members, and living arrangements, as well as relationship with friends. Relevant life events, such as increased hassling with parents and serious conflict between family, load on this factor.

The “partner” factor represents the relationship with a partner/spouse, life events to do with this relationship and again living arrangements, suggesting that if living arrangements are problematic then this may impact broadly across life domains.

**Table 17 Rotated factor loadings and eigen values**

<b>Var</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>
	<b>General Life</b>	<b>Family</b>	<b>Partner</b>
<b>EIGEN VALUE</b>	<b>1.99</b>	<b>1.93</b>	<b>1.39</b>
<i>Perceived Stress items</i>			
Own health	0.55		
Other’s health	0.28		
Work/Employment	0.48		
Living Arrangements	0.35	0.28	0.38
Study	0.26		
Money	0.54		
Relationship parents		0.71	
Relationship partner			0.59
Relationship other family		0.58	
Relationship friends	0.30	0.26	
SF-36 Physical Component Score	-0.41		
<i>Life Events</i>			
Major personal illness	0.31		
Starting relationship			0.40
Problem or break-up relationship			0.66
Divorce or separation			0.34
Increased hassling parents		0.65	
Serious conflict between family members		0.58	
Difficulty finding a job	0.39		
Loss of job	0.34		
Decreased income	0.37		

\* only loadings over 0.25 are shown

### 3.3.3 Longitudinal analysis of Perceived Stress among younger cohort

Table 18 shows data for the 9,573 participants who completed the Perceived Stress Measure at Surveys 1 and 2. The change score was calculated by subtracting the Survey 1 mean from the Survey 2 mean. Overall stress levels have stayed at virtually the same level. However the correlation between stress levels at Survey 1 and Survey 2 was only  $r=0.501$ , and the change scores range from  $-3$  to  $+3$ . This indicates that, whilst overall mean stress levels have stayed the same, individual respondents have shown considerable change.

**Table 18 Mean Perceived Stress scores and change: Young Surveys 1 and 2**

Variable	n	Mean	Median	Mode	Std Dev	Range
Survey 1	9573	0.89	0.82	0.55	0.56	0.00 – 3.73
Survey 2	9573	0.94	0.80	0.70	0.58	0.00 – 4.00
Change	9573	0.05	0.05	0.00	0.57	-3.05 – 2.92

### 3.3.4 Change from Young Survey 1 to Survey 2

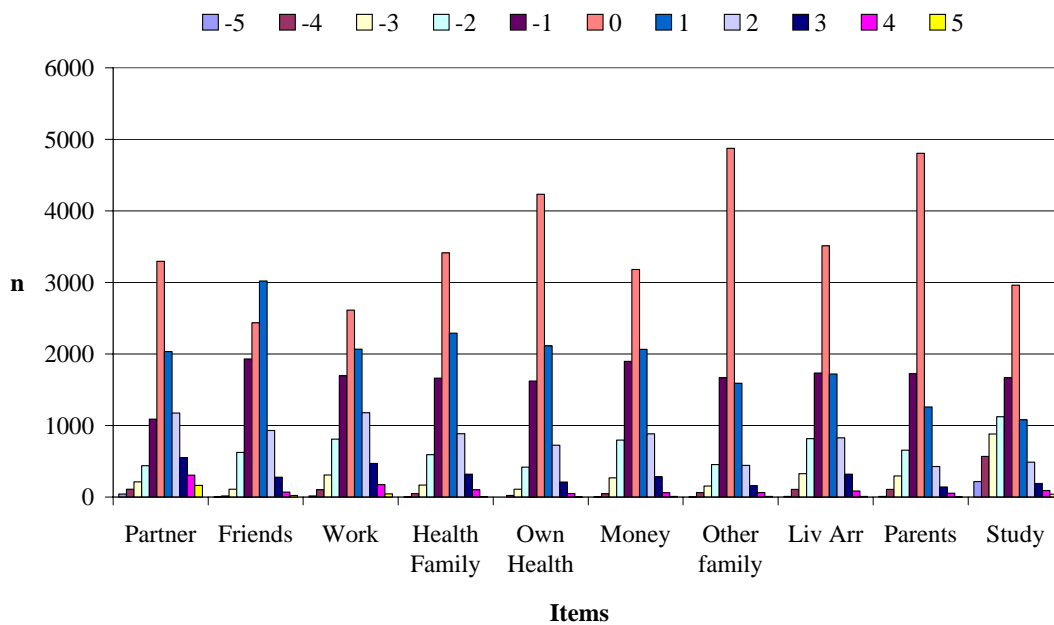
Change variables for individual items were created by subtracting the Survey 1 response for each item from the Survey 2 response. A certain amount of caution needs to be taken with interpretation of the change variables for “relationship with partner/spouse” and “relationships with friends” items due to changes in the items. The “relationship with partner/spouse” item at Survey 1 was subtracted from the same item at Survey 2 despite the overlap found with the Survey 1 item of “relationships with boyfriends”. Further, the “relationships with boyfriends” and “relationships with girlfriends” items at Survey 1 were added and halved before being subtracted from the “relationships with friends” item at Survey 2. Examining each item in turn indicates that study showed the greatest decrease, and relationship with partner/spouse the greatest increase.

**Table 19 Descriptive statistics for change in Perceived Stress items between Young Surveys 1 and 2**

Variable	N	Mean Change	Std Dev
Relationship with partner/spouse	9428	0.51	1.66
Relationships with friends	9441	0.25	1.12
Work	9485	0.21	1.60
Health of other family members	9500	0.20	1.32
Own health	9508	0.16	1.13
Money	9497	0.05	1.36
Relationship with other family members	9485	-0.00	1.13
Living arrangements	9468	-0.01	1.43
Relationship with parents	9485	-0.17	1.21
Study	9316	-0.72	1.83

Figure 11 displays the distribution of these change scores, from the highest increase in stress to the highest decrease in stress.

**Figure 11** Distribution of change scores for Perceived Stress items between Young Survey 1 and 2



### 3.4 DIABETES

A group of ALSWH investigators and associates (Dr Anne Young, Dr Amanda Patterson, Dr Julia Lowe and Associate Professor Julie Byles) have developed an instrument for the assessment of diabetes-related variables.

#### 3.4.1 Development of the substudy survey

The diabetes substudy was designed to target women in the mid-age and older cohorts who reported having been diagnosed with diabetes. The diabetes substudy survey was designed to measure the type and duration of diabetes, level and frequency of diabetes care including home blood glucose monitoring, foot and eye care, measurement of HbA1c, lipids, microalbuminuria and retinal screening, and access to diabetes-related health services such as nutrition advice, podiatry services and diabetes education services. The survey was also intended to identify diabetes related health care need.

The survey items were based on a questionnaire developed and pilot tested with a hospital population (J Lowe, unpublished data), supplemented with questions from the AusDiab (Dunstan et al., 2001) survey instruments. The AusDiab Study (The Australian Diabetes, Obesity and Lifestyle Study) assessed diabetes knowledge and risk factors in the non-diabetic population as well as addressing the specific needs of respondents with diabetes. It involved five questionnaires:

- General questionnaire (for all people in the study)
- Health knowledge, attitudes and practices questionnaire (for all people in the study)
- General health and well being questionnaire (for all people in the study)

- Diabetes complications survey form (for people known to have diabetes prior to the survey plus those with abnormal glucose readings)
- Diabetes knowledge questionnaire (for people known to have diabetes prior to the survey)

The data collected within AusDiab included demographic characteristics, medical and family history, lifestyle related factors (including diet), health-behaviour related factors, physical measurements, pathology variables and, for persons with glucose intolerance, foot screening, neuropathy assessment and an eye examination. The questionnaires were reviewed and items were selected and incorporated in the WHA diabetes substudy questionnaire.

Twenty one of the 39 items in the ATT39 (Dunn et al., 1986) were added to the substudy questionnaire to measure emotional adjustment in women with diabetes. These 21 items were selected because they were found to load onto a single factor in a study of three patient samples (Welch, Smith & Walkey, 1992). The subscale measures the integration of diabetes and its treatment into the lifestyle and personality of a patient with diabetes. The WHA diabetes substudy provides an opportunity to examine the factor structure of these 21 items in a large population of women with diabetes.

A data dictionary has been compiled for the WHA diabetes substudy that lists the source of each question and the reasons for any modifications to the wording of the item or responses. Some modifications were made to the items following pilot testing with focus groups, conducted in both urban and rural settings. The questionnaire and the mailing protocol for the substudy were pilot tested with 27 women with diabetes in the WHA mid and older pilot cohorts.

Surveys have been sent to 1,387 women. Completed surveys have been received from 57% (as at 14 November) and follow up telephone reminders are currently underway.

### 3.4.2 References

Dunn SM, Smartt HH, Beeney LJ & Turtle JR. Measurement of emotional adjustment in diabetic patients: validity and reliability of ATT39. *Diabetes Care*, 1986; 9: 480-89.

Dunstan D, Zimmet P, Welborn T, Sicree R et al. *Diabesity and associated disorders in Australia – 2000: the accelerating epidemic*. The Australian Diabetes, Obesity and Lifestyle Study (AusDiab). International Diabetes Institute, Melbourne; 2001.

Welch G, Smith RBW & Walkey FH. Styles of psychological adjustment in diabetes: a focus on key psychometric issues and the ATT39. *Journal of Clinical Psychology*, 1992; 48: 648-658.

## 4 MAINTENANCE OF COHORTS

Maintenance of cohorts, and tracking of participants, are core activities of the Study staff. Tables 20, 21 and 22, on the next three pages, specify the maintenance rates for each cohort at Survey 2, and also specify the exact reasons for all losses to follow-up. In summary, the Study team collected valid data at Survey 2 from 71% of the younger cohort, 92% of the mid-age cohort, and 89% of the older cohort. Contact (or reliable notification of death or withdrawal) was established with 81.1% of the younger cohort, 95.5% of the mid-age cohort, and 97.7% of the older cohort.

Response rates across waves of the survey compare satisfactorily with those obtained by comparable projects both in Australia and overseas. Comparisons with other surveys are not

straightforward. There are differences between studies in populations of interest; sampling and recruitment methods; sampling unit (specific individual vs anyone in the household); administration methods (mailed survey, telephone, face-to-face); survey length and content; load on participants; and the length of the interval between waves of data collection. All of these may affect attrition rates. Another issue is that there are many different ways of defining the denominator when calculating attrition rates, which will affect the resulting figure. For example, different research teams may or may not include in the denominator individuals who were approached but never responded to the first interview; participants who are known to have died; those who have emigrated permanently; those with major psychiatric disorders; etc. However, what comparisons can be made suggest that maintenance of sample size is at least as good as that reported by other researchers.

A report from CEPS/INSTEAD in Belgium (Singh, 1995) reviews attrition rates in household surveys conducted annually in several European countries. These are methodologically different from ALSWH, in that they are administered annually, conducted face-to-face, and require only that any one adult from each household provides information<sup>1</sup>. Retention rates between Waves 1 and 2 (Waves 1 to 3 in brackets) were: Britain 88.4% (82.3%); France 88.7% (83.5%); Luxembourg 84.7% (73.8%); Germany 87.6% (79.0%). Other European studies report similar losses to follow-up: for example, a five-year follow-up of cardiac patients in the Augsburg (Germany) MONICA project located 78% of those who were still living.

A brief overview of loss to follow-up in US longitudinal surveys (Mihelic & Crimmins, 1997) provides an indication of retention rates for surveys in that country: 77.9% over 5 face-to-face interviews in 15 months from the National Medical Care Utilization and Expenditure Survey; 77.7% over 9 face-to-face interviews in 36 months for the Survey of Income and Program Participation; 56% over 20 interviews in the Panel Study of Income Dynamics. Retention rates are very good in some surveys. For example, the National Long Term Care Survey retained 94% of surviving participants over 7 years, but these people were selected on the basis of specific health needs from a group who had already chosen to complete a screening interview. A survey with some similarities to the older cohort of the Study, the Longitudinal Study of Older Americans (Mihelic & Crimmins, 1997), surveyed women and men aged 70 and over across four waves, each two years apart. Initial interviews were face-to-face, with subsequent waves by telephone or mail. Their retention rates across Surveys 2, 3 and 4 respectively were 79.9%, 64.3% and 52.0% of all initial participants (N=5,151). When those who were known to have died between waves were excluded, retention rates were 91.3%, 85.9%, and 81.2%.

In Australia, attrition is generally recognized as a methodological concern in all longitudinal research. The Melbourne Women's Midlife Study<sup>2</sup>, involving annual face-to-face visits within a restricted geographical area, has retained 56% of its original 779 longitudinal participants over nine years. A Brisbane survey of neonatal deaths and their impacts on families (Boyle et al., 1996) retained 77% of mothers and 71% of fathers over four waves of data collection, despite again using face-to-face interviews in a restricted geographic area.

In this context, it appears that the retention rates for the ALSWH Main Studies, conducted on a three-year cycle and by mail rather than face-to-face, are more than adequate.

---

<sup>1</sup> Only those surveys using a single panel without replacement are mentioned here

<sup>2</sup> See <http://www.psychiatry.unimelb.edu.au/midlife/long.htm>

#### 4.1 REFERENCES

- Boyle FM, Najman JM, Vance JC & Thearle MJ. Estimating nonparticipation bias in a longitudinal study of bereavement. *Australian and New Zealand Journal of Public Health*, 1996; 20: 483-487.
- Mihelic AH & Crimmins EM. Loss to follow-up in a sample of Americans 70 years of age and older: the LSOA 1984-1990. *Journal of Gerontology: Social Sciences*, 1997; 52(1), S37-S48.
- Singh, C. 1995. A comparative analysis of attrition in household panel studies. PACO Document no 10, CEPS/INSTEAD, Differdange, Belgium. <http://www.ceps.lu/paco/pacopub.htm>

**Table 20 Response rates and tracking outcomes for Survey 2 of the Young Cohort, 2000.**

<i>YOUNG 2 - 2000</i>	N		
Observations at Survey 1	<b>14,779</b>		
Observations with no participant details	532		
Total observations with participant details	<b>14,247</b>		
No longer participating	126	12 Deceased 114 Withdrawn	
Previous withdrawals reinstated	2		
Participants	<b>14,123</b>		
Not mailed by NCS	607	93 Overseas 166 Lost 307 RTS 41 Telephone interviews	
Surveys mailed out by NCS	<b>13,516</b>		
Surveys mailed out by WHA	<b>205</b>	41 Telephone interviews 60 Overseas 104 Extra found and mailed	
<b>Total surveys mailed</b>	<b>13,721</b>		
<b>SUMMARY</b>			
Participants not mailed surveys	526		
Scanned surveys returned early	7,284	53.09%	(of surveys mailed)
Scanned surveys returned late (after phone reminder)	2,273	16.57%	
Scanned surveys returned late (short surveys by phone)	85	0.62%	
Scanned surveys (Telephone interviews)	15	0.11%	
Surveys returned very late (entered at WHA)	25	0.18%	
Completed surveys in dataset	<b>9,682</b>	<b>70.56%</b>	
Will not do survey this time, but remain in study, Overseas	1,314	9.58%	
Not returned, unsuccessful contact	2,593	18.90%	
Deceased	7	0.05%	
Withdrawn	125	0.91%	
<b>TOTAL</b>	<b>13,721</b>	<b>100.00%</b>	

**Table 21 Response rates and tracking outcomes for Survey 2 of the Mid-Age Cohort, 1998.**

<b>MID 2 - 1998</b>			
Observations at Survey 1	<b>14,100</b>		
Observations with no participant details	386		
Total observations with participant details	<b>13,714</b>		
No longer participating	63	10 Deceased 53 Withdrawn	
Participants	<b>13,651</b>		
Not mailed	359	62 Overseas 245 Lost 52 Telephone interviews	
Surveys mailed out	<b>13,292</b>		Mail surveys
Surveys mailed out by WHA	<b>93</b>	52 Telephone interviews 41 Overseas	
<b>Total surveys mailed</b>	<b>13,385</b>		
<b>SUMMARY</b>			
Participants not mailed surveys	329		
Scanned surveys returned early	11,469	85.69%	(of surveys mailed)
Scanned surveys returned late (after phone reminder)	179	1.34%	
Scanned surveys returned late (short surveys by phone)	690	5.16%	
Scanned surveys (Telephone interviews)		0.00%	
Completed surveys in dataset	<b>12,338</b>	<b>92.18%</b>	
Will not do survey this time, but remain in study, Overseas	253	1.89%	
Not returned, unsuccessful contact	594	4.44%	
Deceased	35	0.26%	
Withdrawn	165	1.23%	
<b>TOTAL</b>	<b>13,385</b>	<b>100.00%</b>	

**Table 22 Response rates and tracking outcomes for Survey 2 of the Older Cohort, 1999.**

<b>OLD 2 - 1999</b>			
Observations at Survey 1	<b>12,939</b>		
Observations with no participant details	507		
Total observations with participant details	<b>12,432</b>		
No longer participating	693	396 297	Deceased Withdrawn
Participants	<b>11,739</b>		
Not mailed	223	1 61 161	Overseas Lost RTS Telephone interviews
Surveys mailed out by Harbour Data	<b>11,516</b>		
Surveys mailed out by WHA	<b>161</b>		Telephone interviews
<b>Total surveys mailed</b>	<b>11,677</b>		
<b>SUMMARY</b>			
Participants not mailed surveys	755		
Scanned surveys returned early	8,664	74.20%	(of surveys mailed)
Scanned surveys returned late (after phone reminder)	758	6.49%	
Scanned surveys returned late (short surveys by phone)	920	7.88%	
Scanned surveys (Telephone interviews)	91	0.78%	
Completed surveys in dataset	<b>10,433</b>	<b>89.35%</b>	
Will not do survey this time, but remain in study, Overseas	487	4.17%	
Not returned, unsuccessful contact	274	2.35%	
Deceased	92	0.79%	
Withdrawn	391	3.35%	
<b>TOTAL</b>	<b>11,677</b>	<b>100.00%</b>	

## 5 DATA LINKAGE

### 5.1 CONSENTS TO ACCESS MEDICARE AND DVA DATA

A major activity in the second half of 2001 has been the process of seeking consent from all women to obtain unit records from the Health Insurance Commission (HIC), who hold records of individual Medicare and Department of Veterans' Affairs (DVA) health service claims, and to link their individual data with survey data from WHA. Legal protection means that HIC may not provide information at an individual level to any third party without signed consent of the person concerned. On previous occasions, WHA was required to place a time limit on the consent requested, and consent for those who had previously agreed will expire at the end of 2001. Because of this, it was necessary to approach all women who are still participating in WHA, during 2001, and invite them to consent to further data linkage.

WHA staff have been working closely with staff of the Health Insurance Commission as well as staff from the Department for Veterans' Affairs, which handles health insurance for war veterans and eligible family members. Changes to procedures at HIC have meant that this time we were able to ask women to consent not only to access to the Medicare claims data but also to other administrative data including changes of address and – most importantly – end dates. An end-dated record indicates that the woman has died or has become ineligible for Medicare benefits; this information will be useful in the statistical analysis of the data but will also assist us in tracking of “lost” participants. We are also able to invite the participants to consent to access to Pharmaceutical Benefits Service (PBS) and Repatriation Pharmaceutical Benefits Service (RPBS) records which will give data on the majority of prescription medications. The invitation to consent was included with the newsletter mailout to all women, except for those who had formerly informed us that they definitely did not want to consent to our access to HIC data (2% of the sample). These women received the same newsletter, but were sent a letter stating that our records showed that they did not wish to consent to access.

Materials were prepared and clearance was obtained from the Health Insurance Commission, Department of Health and Aged Care, Department of Veterans' Affairs, and the University of Newcastle Research Ethics Committee. Copies of all materials are included in Appendix 5.1. Table 23 below summarises the procedure that was followed.

**Table 23 Health Insurance Commission consents: Response rates at each contact stage (current at 8 November)**

	Date	Number Sent	Response rate up to each stage (%)	Cumulative response rate (%)
Newsletter and package	25 June 2001	37,025	39.4	39.4
Reminder card	13 August 2001	21,816	8.5	47.9

The intention had been to follow the reminder card with a second mailout to all non-respondents and then to begin telephone follow-up of non-respondents (see Report 16 for planned procedure). However, it quickly became clear that this was both impractical at a logistical level and inappropriate for the participants. The reminder card produced approximately 1,500 telephone requests for replacement consent forms between 8 August and 24 August, an average of 116 calls per working day. Answering and logging these calls required the equivalent of one full-time staff

member during that time, causing extensive delays to other activities. The reminder card also produced a number of calls from participants who did not want to give consent and were annoyed at having been asked a second time. During this period, a total of 24 women withdrew completely from the project and gave their primary reason as confidentiality or invasion of privacy. A further concern for the research team was that four sub-studies (focusing on diabetes care among the mid-age and older cohorts; aspirations and employment among the younger women; menstrual problems and hysterectomy among the mid-age women; and coping after abusive relationships among the mid-age women) were under way at the same time, leading to the possibility of confusion among both participants and staff.

Thus, the research team decided to modify the procedure. A second mailout was sent to those women who had telephoned to request a consent form (n=1219 ) on 5 September 2001, and a further mailout was sent to another 519 on 19 October 2001. In mid-October, a review of response rates by comparison with the numbers who had previously given consent for access to HIC data (see Table 25) suggested that targeted reminders would be unlikely to produce sufficient additional consents to be worth the additional expense and the risk of antagonizing women who did not want to give consent.

Table 24 outlines the overall responses to the request for access to Health Insurance Commission data across all three age groups, and Table 25 shows the breakdown of consents across those who had consented on previous occasions and those who had not. These tables suggest that responses to this mailout are roughly comparable to those obtained on previous occasions, and that women are relatively consistent in their willingness or otherwise.

**Table 24 Consent rates in 2001 to access to HIC data (at 8 November 2001)**

	Younger		Mid-age		Older		TOTAL	
	N	%	N	%	N	%	N	%
Signed consent	4267	32.6	7649	59.5	5847	52.7	17,763	48.0
Not this time	83	0.6	176	1.4	28	0.3	287	0.8
Refuse/withdraw	15	0.1	39	0.3	59	0.5	113	0.3
No reply	8725	66.7	4981	38.8	5155	46.5	18,861	50.9
<b>TOTAL</b>	<b>13,091</b>		<b>12,845</b>		<b>11,089</b>		<b>37,024</b>	

**Table 25 Consent rates in 2001 for those who had, and had not, previously consented to access to HIC data**

	Previous consent		No previous consent	
	N	%	N	%
Consented 2001	14,326	66.1	3437	22.4
No consent 2001	7,354	33.9	11,907	77.6
<b>TOTAL</b>	<b>21,680</b>	<b>100.0</b>	<b>15,344</b>	<b>100.0</b>

## 6 DATA ANALYSIS

### 6.1 PROCEDURES FOR DATA CHECKING AND RELATED QUALITY ASSURANCE ACTIVITIES

#### 6.1.1 Missing data for surgical operations

Question 2 in Survey 2 of the older cohort (1999) asked women to report on operations and procedures. Column A was used for the last three years (since Survey 1 in 1996) and Column B for events occurring more than three years ago (see Table 26). This question was not included in the short survey, so the figures and percentages presented below refer only to the 9,501 members of the older cohort who completed the long version of Survey 2.

**Table 26 Surgical procedures item in Old Survey 2**

#### 2 Have you had any of the following operations or procedures?

*(Mark all that apply to you)*

		<b>A</b>	<b>B</b>
		Yes- in the last 3 years	Yes – more than 3 years ago
<b>a</b>	Eye surgery	O	O
<b>b</b>	Hip surgery	O	O
<b>c</b>	Knee surgery or arthroscopy	O	O
<b>d</b>	Endoscopy (gastroscopy, colonoscopy, sigmoidoscopy)	O	O
<b>e</b>	Hysterectomy	O	O
<b>f</b>	Both ovaries removed	O	O
<b>g</b>	Skin surgery (eg. cancer or sun spots removed)	O	O
<b>h</b>	Cholecystectomy (gall bladder removed)	O	O
<b>i</b>	Heart surgery (heart bypass, angioplasty, angiography)	O	O
<b>j</b>	Repair of prolapsed vagina, bladder or bowel	O	O
<b>k</b>	None of these operations or procedures	O	O

If participants marked “yes” to any procedure in Column A, they were assigned a response of “no” to all other procedures in Column A. If participants marked “yes” to “None of these operations or procedures” in Column A, they were assigned “no” for all procedures in Column A. If there was no response to any item in Column A, they were assigned a “missing” response to all items. A similar logic was followed for Column B. This is in line with the general principles previously developed, and described in Report 14.

Following this procedure, 28.9% women (n = 2,749) had missing data for Column A (procedures in the last three years) and 39.6% (n=3,760) had missing data for Column B (procedures more than three years ago).

In an effort to reduce the amount of missing data for this item, the following process was undertaken by Nadine Smith.

### **Procedures in the last three years (Column A)**

Of the 28.9% with missing data for Column A:

- 5.0% (n=279) of all women were also missing all of Column B (more than 3yrs). No recoding can be done.
- 21.5% (n=2040) marked at least one procedure in Column B, more than 3yrs, not including “none of these”). It might be assumed that they marked only those that applied but missed “none of these” for Column A.
- 2.4% (n=230) marked “none of these” in Column B (more than 3yrs “none of these”). These women marked “none of these” for “more than 3yrs” and left the whole “less than 3yrs” column unmarked. It might be assumed that they had had none of the procedures at any time, and marked “none of these” only once. Why they marked Column B and not Column A is unclear.

#### **Recoding option 1**

- Leave the 5.0% who did not respond at all to entire item as “missing”.
- Recode all other missing (23.9%) to “no” by assuming that they marked all that applied and had missed “none of these” in Column A.
- RESULT: 5.0% missing

#### **Recoding option 2**

- Leave the 5.0% who did not respond at all to entire item as “missing”
- Recode the 21.5% (n=2040) who marked at least one procedure in Column B, more than 3yrs, not including “none of these”) to “no”. Assume they only marked all that apply and missed “none of these” for less than 3yrs.
- Leave 2.4% who marked “none of these” in Column B and left the whole of Column A blank, as “missing”. Assume they overlooked the entire column.
- RESULT: 7.4% missing

#### **Recoding option 3**

- Leave the 5.0% who did not respond at all to entire item as “missing”
- Recode all “no” responses from all participants to “no-definite”
- Recode missing 23.9% who marked at least one item in Column B (more than 3yrs, including “none of these”) to “no-unsure (did not mark Column A)”
- RESULT: 5.0% missing. Allows researchers to decide analysis by analysis what they want to do with the 23.9% who did not mark Column A.

### **Procedures more than three years ago (Column B)**

Of the 39.6% with missing data for Column B:

- 5.0% (n=279) of all women were also missing for all of Column A (less than 3yrs). No recoding can be done.
- 25.4% (n=2410) marked at least one procedure in Column A (less than 3yrs, not including “none of these”). It might be assumed that they marked only those that applied but missed “none of these” for Column B.
- 9.2% (n=871) marked “none of these” in Column A (less than 3yrs “none of these”). These women marked “none of these” for “less than 3yrs” and left the whole “more than 3yrs” column unmarked. It might be assumed that they had had none of these procedures at any time, and marked “none of these” only once. Why they marked Column A and not Column B is unclear.

### Recoding option 1

- Leave the 5.0% who did not respond at all to entire item as “missing”.
- Recode all other missing (34.6%) to “no” by assuming that they marked all that applied and had missed “none of these” in Column B.
- RESULT: 5.0% missing

### Recoding option 2

- Leave the 5.0% who did not respond at all to entire item as “missing”.
- Recode the 25.4% (n=2410) who marked at least one procedure in Column A (less than 3yrs, not including “none of these”) to “no”. Assume they only marked all that apply and missed “none of these” for more than 3yrs.
- Leave 9.2% who marked “none of these” in Column A and left the whole of Column B blank, as “missing”. Assume they overlooked the entire column.
- RESULT: 14.2% missing

### Recoding option 3

- Leave the 5.0% who did not respond at all to entire item as “missing”.
- Recode all “no” responses from all participants to “no-definite”
- Recode missing 34.6% who marked at least one item in Column A (less than 3yrs, including “none of these”) to “no-unsure (did not mark Column B)”
- RESULT: 5.0% missing. Allows researchers to decide analysis by analysis what they want to do with the 34.6% who did not mark Column B.

## **Other items to provide more evidence**

### ***Procedures asked at Survey 1***

In 1996 Survey 1 asked, “have you ever had any of the following: hysterectomy; both ovaries removed; repair or prolapsed vagina, bladder or bowel; cholecystectomy (gall bladder removed).” Responses to these items were compared to Column B responses (more than 3yrs) at Survey 2, 1999.

### Hysterectomy

- 78.8% of the 3760 missing Column B responses had reported “no” to hysterectomy at Survey 1; 19.8% reported “yes” at Survey 1. Majority consistent with a “real” response of “no”.

Of those with valid Column B responses:

- 87.6% of the 3693 who reported “no” to hysterectomy at Survey 2 also reported “no” at Survey 1”. (11.1% reported “yes” at Survey 1 and were inconsistent)
- 98.5% of the 2048 who reported “yes-more than 3yrs” to hysterectomy at Survey 2 also reported “yes” at Survey 1. (1.2% reported “no” at Survey 1 and were inconsistent)

### Both ovaries removed

- 88.1% of the 3760 missing Column B responses had reported “no” to both ovaries removed at Survey 1; 9.7% reported “yes” at Survey 1. Majority consistent with a “real” response of “no”.

Of those with valid Column B responses:

- 86.2% of the 5012 who reported “no” to both ovaries removed at Survey 2 also reported “no” at Survey 1”. (10.5% reported “yes” at Survey 1 and were inconsistent)

- 87.4% of the 728 who reported “yes-more than 3yrs” to both ovaries removed at Survey 2 also reported “yes” at Survey 1”. (11.0% reported “no” at Survey 1 and were inconsistent)

#### Repair of prolapsed vagina, bladder or bowel

- 86.4% of the 3760 missing Column B responses reported “no” to repair of prolapsed vagina, bladder or bowel at Survey 1; 11.1% reported “yes” at Survey 1. Majority consistent with “really” being “no”.

Of those with valid Column B responses:

- 90.7% of the 4809 who reported “no” to repair of prolapsed vagina, bladder or bowel at Survey 2 also reported “no” at Survey 1. (6.7% reported “yes” at Survey 1 and were inconsistent)
- 95.0% of the 931 who reported “yes-more than 3yrs” to repair of prolapsed vagina, bladder or bowel at Survey 2 also reported “yes” at Survey 1”. (4.1% reported “no” at Survey 1 and were inconsistent)

#### Cholecystectomy (gall bladder removed)

- 84.4% of the 3760 missing Column B responses reported “no” to cholecystectomy at Survey; 13.8% reported “yes” at Survey 1. Majority consistent with “really” being “no”.

Of those with valid Column B responses:

- 87.9% of the 4844 who reported “no” to cholecystectomy at Survey 2 also reported “no” at Survey 1”. (9.9% reported “yes” at Survey 1 and were inconsistent)
- 92.9% of the 896 who reported “yes-more than 3yrs” to cholecystectomy at Survey 2 also reported “yes” at Survey 1”. (6.4% reported “no” at Survey 1 and were inconsistent).

### ***Conclusion***

The majority of those missing Column B, referring to procedures more than 3 years ago, had reported never having had the procedure in 1996 (3 years earlier). Inconsistencies are not much greater than inconsistencies in reported procedures for those who responded to these items at Survey 1 and Survey 2. It seems reasonable to assume that the same would be the case for procedures that were not asked at Survey 1, and for procedures in the last 3yrs (Column A).

### ***Major surgery (not including dental work)***

An item in the Life Events section of Survey 2 asked whether participants had experienced “major surgery (not including dental work) in the last three years. Responses to this item were compared with responses in Column A (procedures less than three years ago).

- 93.8% of the 2748 missing Column A also reported no major surgery. This is consistent with these women having had no procedures and a “real” response of “no”.
- 5.2% of the 2748 missing Column A reported major surgery. This need not be inconsistent, as they may have had major surgery of a type not listed in this question.
- 1.0% of the 2748 missing Column A did not respond to the major surgery item either.

Of those with valid Column A responses:

- 96.1% of the 2147 who reported “none of these procedures” in Column A also reported “no” major surgery.
- 24.0% of the 4605 who reported at least one procedure in Column A also reported “yes” to major surgery. This number is low, but this may be because women did not consider some of the procedures listed to be “major”.

At Survey 1 (1996), respondents were asked whether they have experienced “major surgery (not including dental work)” in the last 12 months. This was compared to Column B responses (more than three years ago) at Survey 2 (1999). Note that the time frames do not fully overlap since Survey 1 covered 12 months only.

- 90.2% of the 3759 missing Column B had reported no major surgery at Survey 1. This is consistent with these women having had no procedures. This may over-estimate consistency since Survey 1 only covered major surgery in the last 12 months.
- 7.2% of the 3759 missing Column B had reported major surgery at Survey 1. This need not be inconsistent, as they may have had major surgery of a type not listed in this question.
- 2.6% of the 3759 missing Column B did not respond to the major surgery item at Survey 1.
- 85.8% of the 4437 who reported “none of these procedures” in Column B had reported “no” major surgery at Survey 1.

### ***Conclusion***

The evidence suggests that the majority of those with missing data on this item (Columns A and B) have not had surgical procedures. Following Recoding Option 1 (basically assuming that missing an entire column is equivalent to “no” to all procedures in that timeframe) would reduce the level of missing data on this item to 5%. The level of error that would be introduced into the data is roughly equivalent to the level of error which is already apparent between parallel questions at Survey 1 and Survey 2.

## **6.2 DATA COLLECTION AND ENTRY, DATA BOOKS, DATA DICTIONARIES**

A databook for Survey 2 data of the Young cohort has been prepared by Sandra Bell and Jean Ball, and has been circulated to the research team. This lists item-by-item responses and missing data rates for all survey items. Percentage responses for each option of each item are presented for four groups categorized by area of residence (urban; large rural; small rural; remote, using RRMA definitions and based on the postcode recorded in Survey 2). Overall responses, weighted according to area of residence at Survey 1 in order to account for oversampling of rural and remote areas, is also included.

## **6.3 USE OF DATA BY OTHER RESEARCHERS**

The number of researchers outside the central research team who are making use of survey data continues to increase. Table 27 below lists those “external” researchers who are currently collaborating or planning collaborative activities that make use of data from the project. In acknowledgement of a number of changes, including an increased number of collaborators and increasing complexity of the project, and changes to Commonwealth Privacy Legislation, the Study Privacy Protocol has been revised and updated. All staff, researchers, students, and collaborators are required to sign a statement agreeing that they will abide by this protocol (see Appendix 6.1)

**Table 27 External Collaborators currently working with the research team**

Name	Institution	Project	Current status	Notes
Helen Keleher	La Trobe University	Qualitative analysis of rural women's satisfaction with health services	Analysis in progress	Using open-ended comments from Mid Survey 1
Helen Jonas	La Trobe University	Alcohol use	Analysis in progress	Using data from Young Surveys 1 and 2, plus sub-study
Kylie Ball	Deakin University	Predictors of weight maintenance	Analysis in progress	Using data from Young Surveys 1 and 2
Julia Lowe	University of Newcastle	Diabetics' treatment	Sub-study in progress	Using data from Mid and Older Surveys 1 and 2, plus sub-study
Melissa Graham	PhD student, La Trobe University	Hysterectomy and menstrual problems	Sub-study in progress	Sub-study of mid-age women
Deborah Loxton	PhD student, University of New England	Domestic violence	Sub-study in progress	Interviewing mid-age women
Lisa Milne	PhD student, University of Newcastle	Aspirations for work and motherhood	Sub-study in progress	Sub-study of Young women
Angela Taft	Monash University	Pregnancy and domestic violence	Seeking funding	Using data from Young Survey 2
Ruth McNair	University of Melbourne	Lesbians' health	Seeking funding	Using data from Young and Mid Survey 2
Lauren Miller-Lewis	Flinders University	Early pregnancy	Planning analysis	Using data from Young Surveys 1 and 2
Cathy Turner	University of Queensland	Illicit drug use	Planning analysis	Using data from Young Survey 2
Beverley Lloyd	PhD student, University of Sydney	Multiple roles in midlife	Planning analysis	Using data from Mid Survey 2
Barbara Pocock	University of Adelaide	Work, childcare and health	Planning analysis	Using data from Mid Surveys
Heather McKay	PhD student, University of Melbourne	Childlessness	Planning sub-study	To survey mid-age women
Cathy Hawes	Flinders University	Lymphoedema	Planning project	To survey mid-age women
Linnett Sanchez	Flinders University	Sensory deficits and falls	Planning project	To use Older Survey 2 data
Samantha Hollingworth	University of Queensland	Contraception	Planning project	To use Young Surveys 1 and 2 data,
Edith Weisberg	FPA Health	Contraception	Planning project	To use Mid Survey 1, 2 and 3 data, plus possible sub-study
Julie Hodges	PhD student, University of Newcastle	Yoga and leisure	Planning project	To use Mid Survey 2 and 3 data.

## **6.4 AD HOC DATA ANALYSIS FOR THE DEPARTMENT OF HEALTH AND AGED CARE**

The Project Manager has provided information, simple frequency data, and publications to Robyn Milthorpe on the topic of the assessment of socioeconomic status and to Donna Urwin on the topic of falls and related injuries among the older cohort. The prospect of including items on falls in future surveys of the mid-age cohort, as well as those already included in the older cohort, has been discussed.

### **6.4.1 Smoking patterns in young women**

DHAC is responsible for the administration of the National Tobacco Strategy, with the advice of the National Expert Advisory Committee on Tobacco. In this capacity, it requested a review and analysis of ALSWH data in order to inform the development of smoking prevention and cessation programmes, and more generally to derive the most effective target groups for intervention and develop an appropriate balance between prevention, cessation, and general education activities. Professor Annette Dobson, with Ms Anne Russell and Ms Lianne McDermott, conducted a series of analyses to examine predictors of stability and change in smoking status between Surveys 1 and 2 of the younger cohort. A summary of their report appears in Section 1.2.1.

The report showed that smoking adoption and maintenance were both associated with binge drinking and with remaining single. On the other hand, life changes such as marriage and pregnancy were associated with high rates of smoking cessation. Pregnancy is obviously a key opportunity for smoking prevention. Increased motivation to quit and increased contact with the health care system at this time in a woman's life provide ideal conditions for maximal support for behaviour change.

The analysis showed that pregnancy was the factor most strongly associated with giving up smoking, and that married women were more likely than those in de facto relationships or single women to quit. As expected, smoking prevalence is associated with socioeconomic status. Smoking adoption was predicted by younger age and country of origin outside Australia, but was also strong, remained highest among women with lower education levels, women who lived with children but no partner and those who had more time on their hands.

While only 6% of women took up smoking between 1996 and 2000, smoking adoption was most common among younger women and those not born in Australia. High prevalence of bingeing on alcohol was a powerful predictor of smoking adoption. The frequency of alcohol bingeing was the most persistent factor influencing smoking behaviour for adoption, maintenance and cessation of smoking.

While binge drinking and smoking indicates a continuance of a 'partying' lifestyle for young women, pregnancy and marriage are markers of important lifestyle transitions, and provide a window for health-promotion messages at a time when women may be highly motivated to make health-related lifestyle changes.

## 8 DISSEMINATION OF STUDY FINDINGS

### 8.1 COMMUNICATION WITH STUDY PARTICIPANTS

The annual newsletter to participants this year, including the request for consent to access Health Insurance Commission data, appears in Appendix 5.1.

Feedback was also provided to women who had participated in a small sub-study that comprised a minor thesis project for a Master of Medical Science degree completed by Barbara Reen. The fact sheet appears in Appendix 8.1.

### 8.2 WEB SITE

The web site (<http://www.fec.newcastle.edu.au/wha>) has been updated and the new privacy policy has been added. The site has an average of 30 hits per day with an overall total of 18,808 hits (from 9 March 2000 – 13 November 2001).

### 8.3 PUBLICATIONS

#### 8.3.1 Papers published

**Young AF, Dobson AJ & Byles JE. Determinants of general practitioner use among women in Australia. *Social Science and Medicine*, 2001; 53: 1641-1651.**

This study investigates the use of general practitioner services by women in Australia. Although there is a universal health insurance system (Medicare) in Australia, there are variations in access to services and out of pocket costs for services. Survey data from 2350 mid age (45-50 years) and 2102 older (70-75 years) women participating in the Australian Longitudinal Study on Women's Health were linked with Medicare data to provide a range of individual and contextual variables hypothesised to explain general practitioner use. Structural equation modelling showed that physical health was the most powerful explanatory factor of general practitioner use. However, after adjusting for self-reported health, out of pocket cost per consultation was inversely associated with use of services. The out of pocket cost was generally lower for women with low socioeconomic status but cost was also directly related to geographical remoteness. Women living in more remote areas had higher out of pocket costs and poorer access to services. Women who reported better access to care were more likely to be satisfied with their most recent general practice consultation and less likely to be sceptical of the value of medical care. These results show the need for health policies that improve the equitable use of general practitioner services in Australia.

**Lee C. Experiences of family caregiving among older Australian women. *Journal of Health Psychology*, 2001; 6: 393-404.**

This paper uses quantitative and qualitative methods to examine the effects on family caregiving on physical and emotional wellbeing, finances and leisure among a cohort of Australian women aged 70 to 75. A total of 11,939 women, of whom 10% (N=1,235) identified themselves as caregivers for frail, ill or disabled family members and 168 made open-ended comments about their experiences, was examined. Unlike other surveys with younger respondents, the data failed to demonstrate any differences in physical health between caregivers and others. They were, however, significantly more likely to have low levels of emotional well-being and to feel stressed, rushed and pressured.

Qualitative analysis supported the value of the concept of the "ethic of care" in understanding the social and individual forces which propel vulnerable older women into providing family care despite its demonstratively negative effects on their wellbeing.

**Patterson AJ, Brown WJ & Roberts DCK. Dietary and supplement treatment of iron deficiency results in improvements in general health and fatigue in Australian women of childbearing age. *Journal of the American College of Nutrition*, 2001; 20: 337-342.**

Objective: To examine the effects of iron deficiency, and its treatment by iron supplementation or a high iron diet, on fatigue and general health measures in women of childbearing age.

Design: Randomised controlled trial to compare supplement and dietary treatment of iron deficiency.

Subjects: 44 iron deficient (serum ferritin <15µg/L or serum ferritin 15-20µg/L, plus two of: serum iron <10 µmol/L; total iron binding capacity >68 µmol/L; or transferrin saturation <15%) and 22 iron replete (haemoglobin ≥ 120g/L and serum ferritin >20µg/L) women, aged 18-50 years were matched for age and parity.

Interventions: Iron deficient women were randomly allocated to either iron supplementation or a high iron diet for 12 weeks.

Measures of Outcome: Iron deficient and iron replete participants had iron studies performed and completed the Piper Fatigue Scale (PFS) and the SF-36 general health and well-being questionnaire at baseline (T0), following the 12 week intervention (T1) and again after a 6 month non-intervention phase (T2). The SF-36 includes measures of physical (PCS) and mental (MCS) health and vitality (VT).

Results: MCS and VT scores were lower, and PFS scores were higher for iron deficient women (diet and supplement groups) than iron replete women at baseline. Both intervention groups showed similar improvements in MCS, VT and PFS scores during the intervention phase, but mean increases in serum ferritin were greater in the supplement than the diet group. PCS scores were not related to iron status.

Conclusions: Treatment of iron deficiency with either supplementation or a high iron diet results in improved mental health and decreased fatigue among women of childbearing age.

**Warner-Smith P & Lee C. Hopes and fears: the life choices, aspirations and well-being of young rural women. *Youth Studies Australia*, 2001; 20: 32-37.**

Data from the Australian Longitudinal Study on Women's Health, now known as Women's Health Australia (WHA) show that young rural women's life experiences and aspirations are very different from those of their city cousins, suggesting that national policies need to take rural women's needs into account. For example, young rural women are more likely to be married or in a permanent relationship, more likely to have children, and are also more likely than young city women to want three or more children by the time they are 35 years old. Given the earlier age at which they become mothers, and their relative lack of post-school qualifications, young rural women may be disadvantaged if they attempt to return to the workforce after childbearing and possibly a period spent at home with small children.

This paper examines the possible implications of young rural women's life choices for their continued well-being in the current economic climate. Their situation is likely to be exacerbated by on-going processes of restructuring and the dismantling of infrastructure which are disadvantaging people in rural areas, and it is argued that there is a particular need for supportive social policies which enable young rural women to make choices about parenting, relationships and paid work.

**Patterson AJ, Brown WJ & Roberts DCK Dietary and lifestyle factors influencing iron stores in Australian women: an examination of the role of bioavailable dietary iron. *Australian Journal of Nutrition and Dietetics*, 2001; 58: 107-113.**

Background: Research to date has not been able to adequately describe the relative impact of dietary and lifestyle variables on iron status. While total iron intake appears unrelated to iron status, bioavailable dietary iron should correlate with iron stores, after adjustment for iron losses.

Objective: To determine dietary and lifestyle variables which are important in the determination of iron status for Australian women of childbearing age.

Design: Serum ferritin and body mass index were measured in 52 iron deficient and 24 iron replete women. Dietary data were collected using 7-day weighed food records and bioavailable dietary iron calculations were performed using the methods of Monsen et al and Tseng et al. Self-report data on demographic characteristics, parity, breastfeeding, oral contraceptive pill (OCP), intrauterine device and hormone replacement therapy use, menstruation, smoking, alcohol intake, exercise, dieting, vitamin and mineral supplement use and blood donation were collected. Multiple linear regression was used to examine dietary and lifestyle factors associated with serum ferritin.

Results: Current OCP use (0.01) and alcohol intake (0.001) were positively associated and phytate intake was negatively associated (0.05) with serum ferritin in multiple linear regression. Total iron, heme iron and bioavailable dietary iron intakes were not associated with iron stores.

Conclusions: Factors other than dietary iron, such as alcohol and phytate intake, and use of the OCP may be important in the aetiology of iron deficiency.

**Kenardy J, Brown WJ & Vogt E. Dieting and health in young Australian women. *European Eating Disorders Review*, 2001; 9: 242-254.**

This paper examines the prevalence of dieting behaviours and correlates with physical and mental health in young Australian women who are participants in the Australian Longitudinal Study of Women's Health. 14,686 women aged 18-23, randomly selected from the National Medicare database, with over-sampling from rural and remote areas, responded to a questionnaire seeking dieting and health information. The results showed that 66.5% of the women had a BMI within the healthy weight range (18- <25 kg/m<sup>2</sup>). However only 21.6% of these women were happy with their weight and almost half (46%) had dieted to lose weight in the last year (including one in five who had a BMI <18.5 kg/ m<sup>2</sup> ). High frequency of dieting (rather than dieting *per se*) and earlier dieting onset were associated with poorer physical and mental health (including depression), more disordered eating (bingeing and purging), extreme weight and shape dissatisfaction and more frequent general health problems. The results suggest that there is a need for programmes which will enhance self esteem and weight/shape acceptance and promote more appropriate strategies for maintenance of healthy weight.

**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: 417-420.**

Objective: To assess consent to record linkage, describe the characteristics of consenters and compare self-report versus Medicare records of general practitioner use.

Method: Almost 40,000 women in the Australian Longitudinal Study on Women's Health were asked for permission to link their Medicare records and survey data.

Results: 19,700 women consented: 37% of young (18-23 years), 59% of mid-age (45-50 years) and 53% of older women (70-75 years). Consenters tended to have higher levels of education and,

among the older cohort, were in better health than non-consenters. Women tended to under-report the number of visits to general practitioners.

Conclusions: Record linkage of survey and Medicare data on a large scale is feasible. The linked data provide information on health and socioeconomic status which are valuable for understanding health service utilisation.

Implications: Linked records provide a powerful tool for health care research, particularly in longitudinal studies.

**Doran CM, Chiarelli P & Cockburn J. Economic costs of urinary incontinence in community-dwelling Australian women. *Medical Journal of Australia*, 2001; 174: 456-458.**

Objective: To estimate the economic cost of urinary incontinence in community-dwelling Australian women for the year 1998.

Design: Micro level costing approach.

Setting: Urinary incontinent community dwelling Australian women.

Patients, Participants: Urinary incontinent women 18 years of age and over.

Interventions: The framework integrates evidence of the prevalence of urinary incontinence among Australian women aged over 18 years, together with the resource implications (both personal and treatment) of their incontinence, in an attempt to quantify the economic costs of urinary incontinence.

Main outcome measure: Australian dollar cost in 1998.

Results: An estimated 1,835,628 community dwelling women over the age of 18 years were incontinent of urine in 1998. The total annual cost of urinary incontinence in 1998 is estimated at \$710.44 million or \$387 per incontinent woman that is comprised of \$338.47 million in treatment costs and \$371.97 million in personal costs. Extrapolating 20 years hence, holding constant both prevalence of incontinence and inflationary pressures, the total cost is projected to be \$1,267.85 million of which 93% (\$1.18 billion) will constitute costs associated with incontinent women aged over 40 years.

Conclusions: The results of this analysis demonstrate that: 1) urinary incontinence imposes a considerable drain on scarce health care resources in Australia; and, 2) there exists a need for research to facilitate a clearer understanding of the magnitude of the problem and potential gains from the pursuit of continence promotion.

**Mishra GD, Ball K, Dobson AJ, Byles JE & Warner-Smith P. The measurement of socio-economic status: Investigation of gender-and age-specific indicators in Australia: National Health Survey '95. *Social Indicators Research*, 2001; 56: 73-89.**

Age- and gender-specific measures of socio-economic status (SES) in Australia were investigated using data from the 1995 National Health Survey. Factor analysis produced consistent results that were interpreted in terms of five conceptually meaningful domains (employment, housing, migration, family unit and education). Age- and gender-specific SES scores based on these factors had stronger associations with physical and mental health, as measured by the component summary scores of SF-36, than either an area based index or scores derived only from males aged 40-45 years. Overall the results supported the hypothesis that SES measures composed of social and demographic items exhibit important age- and gender-specific differences which are relevant for health.

### 8.3.2 Papers accepted

**Parker G & Lee C. Violence and abuse: an assessment of mid-aged Australian women's experiences. *Australian Psychologist*, in press.**

Little systematic research has been conducted in Australia to develop a picture of women's experiences of violence and abuse across their lifetimes. The present study was designed to address this deficiency by assessing the prevalence of different types of abuse, the situations in which they occur, how women have coped, and the effect of abusive encounters on general health and well-being. Using self-report questionnaires, data were obtained from 1159 women aged 48-53, previously recruited in the Women's Health Australia longitudinal project. The most frequently reported forms of abuse were emotional, physical and sexual. Measures included descriptors of the abuse, the SF-36 physical and mental health summary measures, GHQ-12, and the CES-D depression scale. Abuse overwhelmingly occurred in the home, and across all life stages, but mostly in adulthood, and most commonly on an occasional or weekly basis. Almost all perpetrators were persons known to the victim, and most abusive encounters had persisted over time. The majority of women had discussed their circumstances with close relatives, friends, or professional persons. Those who had discussed the situation with counsellors or psychologists found it most helpful. One-third of respondents had reported abusive episodes to the police, and almost half of these had found it helpful to do so. The data show that abuse is a fact of life for many Australian women, and demonstrate a continuing need for appropriate prevention and intervention strategies. It is recommended that wider recognition of gendered abuse, the parameters within which it is experienced, and its impact on psychological functioning would be useful for policy and procedural development by social welfare agencies and private consultants.

**Warner-Smith P & Imbruglia C. Motherhood, employment and health: is there a deepening divide between women? *Just Policy*, in press.**

This paper addresses the issue of the "deepening socio-economic divide" between the "haves" and "have-nots" in Australian society. The divide reflects divergence in patterns of motherhood and employment. It involves a developing polarisation between young women who have an interest in getting further education, pursuing a career, and deferring motherhood, and young women who have not been particularly interested in school, or who see femininity as equated with demonstrable sexuality and motherhood and do not aspire to further education. This paper presents data from Women's Health Australia that illustrates the differences between young women who become mothers at an early age and those who do not. The analysis suggests that young women who wish to consolidate their career options are postponing motherhood, or possibly relinquishing it altogether, whereas those without good labour market prospects are turning to early motherhood, in effect by default. Such a choice is likely to lock young mothers into long-term socio-economic disadvantage and, given the demonstrated centrality of employment to women's well-being, there are implications for the long-term health of young mothers. Clearly there is a need for more supportive policies which will help to bridge the growing divide among Australian women by enabling all young women to choose how they wish to achieve their aspirations for both motherhood and employment.

**Bryson L. Motherhood and gender relations: where to in the twenty-first century? *Just Policy*, in press.**

In Australia, the birthrate is just under 1.8, and fertility issues and motherhood are becoming a focus of interest for both academics and policy makers. This paper sets motherhood within its broad

historical context, and discusses young women's aspirations about motherhood at a time when public concern about falling birth rates may well generate pressures for policies which deliberately encourage women to have more babies. Relevant empirical research findings, which have already been published, are drawn from the Women's Health Australia study. They relate specifically to women's aspirations about family size and career, and use of contraception. The data are used to reflect specifically on issues relating to fertility and motherhood and their complex and contradictory implications for social policy in Australia at the beginning of the twenty-first century. The bigger picture demonstrates a degree of change which challenges most former taken-for-granted notions of family and parenthood. This changing context would render futile any attempt to prevent further decline in fertility by trying to recapture a largely mythological era of women living in 'contented suburban domesticity'. The extent of change also suggests that even sensible and modest policy approaches, such as promoting family friendly workplace policies, while necessary, alone are not likely to be adequate either for arresting the decline in fertility or for promoting women's rights to freely choose the direction of their lives.

**Brown WJ, Mishra GD & Dobson AJ. Changes in physical symptoms during the menopause transition. *International Journal of Behavioral Medicine*, in press.**

This paper analyses physical symptoms experienced by mid-age Australian women in different stages of the menopause transition. A total of 8,623 women, aged 45 to 50 years in 1996, who participated the mid-age cohort of the Australian Longitudinal Study on Women's Health, completed Survey 1 in 1996 and Survey 2 in 1998. Women were assigned to one of six menopause groups according to their menopausal status at Surveys 1 and 2, and compared on symptoms experienced at Surveys 1 and 2, adjusted for lifestyle, behavioural and demographic factors. At Survey 1, the most commonly reported symptoms were headaches, back pain, stiff joints, tiredness and difficulty sleeping. Peri-menopausal women were more likely than pre-menopausal or post-menopausal women to report these symptoms. Hot flushes and night sweats were more common among post-menopausal women. Compared with those who remained pre-menopausal, women who were in the early stages of menopause or peri-menopausal were more likely to report tiredness, stiff joints, difficulty sleeping and hot flushes at Survey 2. Women who remained peri-menopausal were also more likely to report back pain and leaking urine. Compared with pre-menopausal women, odds ratios for night sweats increased for women in consecutive stages of the menopause transition and remained high in the post-menopausal women.

**Brown WJ & Miller YD. Too wet to exercise? Leaking urine as a barrier to physical activity in women. *Sports Medicine*, in press.**

Leaking urine is frequently mentioned (anecdotally) by women as a barrier to physical activity. The aim of this paper was to use results from the Australian Longitudinal Study on Women's Health (ALSWH) to explore the prevalence of leaking urine in Australian women, and to ascertain whether leaking urine might be a barrier to participation for women.

More than 41,000 women participated in the baseline surveys of the ALSWH in 1996. More than one third of the mid-age (45-50 years) and older (70-75) women and 13% of the young women (18-22) reported leaking urine. There was a cross-sectional association between leaking urine and physical activity, such that women with more frequent urinary leakage were also more likely to report low levels of physical activity. Leaking urine was more prevalent in women with children, and in women with BMI > 25 kg.m<sup>-2</sup>.

More than one thousand of those who reported leaking urine at baseline participated in a follow-up study in 1999. Of these, more than 40% of the mid-age women (who were aged 48-53 in 1999), and one in seven of the younger (21-26 years) and older (73-79 years) women reported leaking urine during sport or exercise. More than one third of the mid-age women and more than one quarter of the older women, but only 7% of the younger women said they avoided sporting activities because of leaking urine.

The data are highly suggestive that leaking urine may be a barrier to physical activity, especially among mid-age women. As current estimates suggest that fewer than half of all Australian women are adequately active for health benefit, health professionals could be more proactive in raising this issue with women and offering help through non-invasive strategies such as pelvic floor muscle exercises.

**Miller YD, Brown WJ & Chiarelli P. Urinary incontinence in Australian women: barriers to and outcomes of help-seeking behaviours. *Public Health*, in press.**

Background: In the 1996 baseline surveys of the Australian Longitudinal Study of Women's Health (ALSWH) 12.8% of young women (18-22 years), 36.1% of mid-age women (45-50) and 35% of older women (70-75) reported leaking urine. However, the majority of women who experience leaking urine do not appear to seek help for the problem.

Aims: To establish the determinants of help-seeking behaviour, treatments suggested by health care professionals (for those who sought help), and satisfaction with treatment outcomes among women in each age group who reported leaking urine at baseline.

Methods: Five-hundred participants were randomly selected from women in the young (aged 21-26 in 1999), mid-age (48-53) and older (72-79) cohorts of the Australian Longitudinal Study of Women's Health (ALSWH) who had reported leaking urine in a previous survey. Details about Urinary Incontinence (UI) (frequency, severity, and situations), advice or treatment for the problem, and perceived changes in leakage over time were sought through self-report mailed follow-up surveys.

Results: Response rates were 50%, 83%, and 80% in the young, mid-age and older women respectively. Most respondents had leaked urine in the last month (78%, 94%, and 91% of young, mid-age and older women respectively), but only 20%, 57%, and 54% of young, mid-aged, and older women respectively had sought help or advice about managing UI. The most common reasons for not seeking help were that the women felt they could manage the problem themselves, or did not consider it to be a problem. Among those who did seek help, satisfaction was generally high. More than half of those who did pelvic floor exercises were satisfied with the outcome.

Conclusions: Strategies are needed to encourage women who experience UI to seek help. Health care professionals should be aware of the possibility of early onset and progression of UI, and make conservative treatment options available.

**Feldman S, Byles J, Mishra G & Powers J. The health and social needs of recently widowed older women in Australia. *Australasian Journal on Ageing*, in press.**

Objective: To identify women's health and social needs immediately following the death of their husband.

Method: Follow-up survey of 430 widowed women participating in the Australian Longitudinal Study on Women's Health.

Results: Surveys were returned by 340 women (79%) and 231 of these women had been widowed three years or less. While 81% of the 231 women still lived in their own homes, 19% had moved house since being widowed for financial or social reasons. There were prevalent needs for legal

services (44%), and home maintenance (55%). Assistance from medical practitioners included understanding (54%), support (32%) and information (20%). Thirty percent said they had received medication to assist their bereavement, and 30% had taken medication to help them sleep or “for their nerves” within the four weeks prior to survey. Most women (85%) felt they had maintained or increased their level of social contact since becoming widowed.

**Conclusion:** Widowed women have broad needs for practical help and advice. Appropriate services for widowed women need to encompass the social context in which widowed women are attempting to reconstruct their lives.

**Patterson AJ, Young AF, Powers JR, Brown WJ, Byles JE. Relationships between nutrition screening checklists and the health and well being of older Australian women. *Public Health Nutrition*, in press.**

**Objectives:** To examine associations between nutrition screening checklists and the health of older women.

**Methods:** The Australian Nutrition Screening Initiative (ANSI), adapted from the Nutrition Screening Initiative (NSI), was completed by 12,939 women aged 70-75 years as part of the Australian Longitudinal Study on Women's Health. Responses to individual items in the checklist, and ANSI and NSI scores, were compared with measures of health and health service utilization. The performance of an unweighted score (TSI) was also examined.

**Results:** Women with high ANSI, NSI and TSI scores had poorer physical and mental health, higher health care utilization and were less likely to be in the acceptable weight range. Whereas ANSI classified 30% of the women as ‘high risk’, only 13% and 12% were classified as ‘high risk’ by the NSI and TSI respectively.

**Conclusions:** Higher scores on both the ANSI and NSI are associated with poorer health. The simpler unweighted method of scoring the ANSI (TSI) showed better discrimination for the identification of ‘at risk’ women than the weighted ANSI method. The predictive value of individual items and the checklist scores need to be examined longitudinally.

**Warner-Smith P & Brown P. ‘The town dictates what I do’: the leisure, health and wellbeing of women in a small country town. *Leisure Studies*, in press.**

The contribution of leisure to individual health and wellbeing is well documented. It is also clear that patterns of leisure activity are differentiated by gender and regional differences, as well as those of age, class and ethnicity. This paper explores the leisure and wellbeing of mid aged rural women in a small Australian country town in the late 1990’s, focusing on issues which have been identified as being significant for women in isolated areas. These include poor job opportunities, a lack of public transport and other facilities, community designs that isolate women in their homes, family transience, and the politics of being “different” in a small community. Data are drawn from focus group interviews, augmented with observation, and the study is contextualised in findings from the Women’s Health Australia longitudinal study.

**Wicks D, Mishra G & Milne L. Young women, work and inequality: is it what they want or what they get? An Australian contribution to research on women and workforce participation. Edited by P. Black, N. Crossley, C. Fagan, M. Savage, & L. Turney. *Proceedings from the British Sociological Association Conference: 2001. Globalisation and Social Capital*, in press.**

The Australian Longitudinal Study on Women's Health was established to track the health of three age cohorts of Australian women - 40,000 in total - over a 20 year period. It provides opportunities for research into health and related issues for women. In this paper, we investigate (1) baseline data from the young cohort of 1400 survey participants and (2) follow up in-depth interview data from a small sample of 100 of the original respondents. The focus of the paper is on the aspirations of young women (aged 18-23) for work, their ideal job, relationships (including children) and further education, particularly in the context of gender inequality in labour markets.

Through an analysis of the data, we look at the extent to which gender inequalities are the result of free choices and preferences and to what extent they are conditioned by socio-economic structures and processes that reproduce inequalities over time. This issue is further explored through a classification of women by socio-economic status. In this way, we can analyse the gender dimension of labour market inequality in general as well as the relationship of gender inequality to class inequality in the areas of work, work choice and the ability to combine work and family responsibilities.

Analysis of the two data sets sheds light on debates about women's workforce participation as well as establishing baseline data for future research on the options chosen and available for this group of young women. The information will have significance for policy debates in several areas, including those concerned with worker entitlements, childcare, access to higher education and workforce planning. More particularly, it makes a significant contribution to current debates about women's alleged preference for part-time rather than full-time work.

## **8.4 CONFERENCE ORGANIZATION**

As well as specific conference papers, ALSWH is expected to organize a series of workshops, seminars and symposia at or in conjunction with appropriate existing conferences, in order to disseminate the findings of the project as widely as possible. The following organizational activities have taken place or are in the planning stages.

### **8.4.1 Public Health Association Annual Conference, Sydney, 23-26 September 2001.**

Associate Professor Julie Byles and a group of doctoral students working on Women's Health Australia presented the following workshop.

#### ***Qualitative and quantitative research methods in the Australian Longitudinal Study on Women's Health: Interaction and integration***

The Australian Longitudinal Study of Women's Health (Women's Health Australia) aims to clarify cause-effect relationships between a range of biological, social, psychological and lifestyle factors associated with women's physical health and emotional well-being, and use of and satisfaction with health services. It involves three large cohorts of women who were aged between 18-23 (n=14,700), 45-50 (n=14,028) and 70-75 (n=12,600) at the time of Survey 1 in 1996. The women were recruited

following random selection from the Health Insurance Commission data base, and they are largely representative of the population of Australian women in these age groups. The study is designed to track the health of the same women for 20 years.

While the main emphasis of the study is on collection of large amounts of quantitative data (many items of data, from many women, over many years), a large and significant component involves qualitative data collection. The integration of these quantitative and qualitative components adds a richness to the research that could not be achieved through either method alone. This symposium will highlight some examples of the integration of these two fundamental research methodologies. Throughout the symposium participants are asked to consider:

- What does the qualitative add that the quantitative couldn't?
- What does the quantitative add that the qualitative couldn't?
- How can the methods be combined?
- What information is gained through the "harmonics" of using both methods?

Speakers in this symposium, in addition to Associate Professor Julie Byles, were Sue Outram, Glennys Parker, Lisa Milne and Lauren Williams, all currently enrolled in PhD degrees and making use of a combination of quantitative survey data and various types of qualitative data derived from the project.

#### **8.4.2 The Australian Sociological Association Annual Conference, Sydney, New South Wales. 13-15 December 2001.**

ALSWH researchers will present two workshops. The first, held as part of TASA's pre-conference Health Sociology Day, is a half-day workshop presented by Penny Warner-Smith, Lois Bryson and Glennys Parker, which covers a broad outline of the Study and the challenges for sociologists working in multidisciplinary teams to understand health in its broadest context.

The second, held as part of the conference as a whole, is entitled, "Methodological Issues in the Australian Longitudinal Study of Women's Health" and is presented by Christina Lee, Anne Young, and Lois Bryson. This workshop will discuss some of the methodological issues inherent in longitudinal survey research. Christina Lee will introduce the project, and then discusses the tensions between traditional empiricist, "big science" and a feminist, participatory approach to research. Anne Young will discuss the extent to which self-report surveys and administrative data from the Health Insurance Commission provide triangulation in understanding the needs of women who are very high users of health services. Lois Bryson will discuss the use of qualitative data within such a quantitative project, and the capacity for the project to address participants' concerns and perspectives.

#### **8.5 CONFERENCE PRESENTATIONS**

**Byles J, Feldman S & Mishra G. The health and social transitions for recently widowed older Australian women: a longitudinal study. *Global Aging: Working together in a changing world. 17th World Congress of the International Association of Gerontology. Vancouver, Canada. 1-6 July 2001.***

The Australian Longitudinal Study on Women's Health provided an opportunity to explore and gain a broader understanding of the health and social needs of women as they age and following the death of their partner. Analysis of the baseline ( cross-sectional data) from a population survey of

12624 women aged 70-75 revealed that 4106 women were widowed. Overall - between baseline study and follow up - 700 women became widowed. This paper will present an analysis of the women who had chosen to repartner, with a particular focus on the changes in health and social outcomes for these women. The paper will also compare the women participants who are of the same age and remain married and those women who were already widowed at baseline. The women were asked both qualitative and quantitative questions that covered spheres of their lives, including their health, social circumstances, life changes and transitions since the death of their spouse or partner. What emerged from analysis of both quantitative and qualitative data was the identification of persistent and recurring themes of coping and transition particularly in relation to expressed needs for health support, strong social networks and physical resources. The study confirmed that the needs of widowed women who remain unpartnered go beyond a narrow definition of health, the key concerns commonly extending into more practical and social arenas. This national study has broad implications for health, for family life in both the public and private domains of the lives of older widowed women, particularly services and support that encompass a broader focus than bereavement only.

**Schofield MJ & Mishra GD. Vulnerability to elder abuse: predicting health outcomes among older Australian women. Global Aging: Working together in a changing world. 17th World Congress of the International Association of Gerontology. Vancouver, Canada. 1-6 July 2001.**

Purpose: The Women's Health Australia study is the first large scale community study to examine longitudinally the relationship between vulnerability to abuse and health outcomes among older women. This presentation examines relationships between baseline vulnerability scores and health outcomes three years later.

Methods: A nationally representative sample of over 12,000 older women in the Australian Longitudinal Study on Women's Health were screened in 1996 for vulnerability to elder abuse, using a brief self-report screening measure. This was part of a mailed survey comprising over 200 items covering demographic, psychosocial and health variables. There was a three year follow-up mailed survey with a telephone follow-up to maximise cohort retention.

Results: Validation of the baseline abuse screening measure identified four factors, each of three items, representing the following domains: 'vulnerability', 'dependence', 'dejection' and 'coercion'. This presentation examines the relationships between baseline vulnerability factor scores and follow-up measures of physical and mental health conditions and health service use. The predictive validity of the 12-item screening instrument and a shorter 6-item version controlling for potential demographic, psychosocial and health confounders will be reported.

Conclusion: The valuable policy and service delivery implications of this large community cohort study will be discussed.

**Warner-Smith P & Brown P. The town dictates what I do: the leisure and well being of rural mid age women. 5<sup>th</sup> Australian and New Zealand Association for Leisure Studies Biennial Conference. Perth, Western Australia. 2-4 July 2001.**

The contribution of leisure to individual health and wellbeing is well documented. It is also clear that patterns of leisure activity are differentiated by gender and regional differences, as well as those of age, class and ethnicity. This paper explores the leisure and wellbeing of mid-aged rural women in a small New South Wales country town in the late 1990s, focusing on issues which have been identified as being significant for women in isolated areas. These include poor job opportunities, a lack of public transport and other facilities, community designs that isolate women in their homes, family transiency, and the politics of being "different" in a small community. Data is drawn from

focus group interviews, augmented with observation, and the study is contextualised in findings from the Women's Health Australia longitudinal study (WHA).

**Brown P & Warner-Smith P. 'Mothers' and 'daughters' – exploring generational differences in women's attitudes to leisure and time. 5<sup>th</sup> Australian and New Zealand Association for Leisure Studies Biennial Conference. Perth, Western Australia. 2-4 July 2001.**

Data from the Women's Health Australia project indicate that 62% of women aged 18-23 (N=13,864) and 64% of women aged 45-50 (N=13,856) felt rushed/pressured/busy more than a few times a week, and that women who feel time pressured have significantly worse mental health scores than women who are not rushed/pressured busy (Brown, Brown and Powers in press).

Using selected data from a series of 12 focus groups involving 62 women aged 20-25 and 47-52; this paper will explore sources of time pressure for two generations of Australian women. While the sources of stress for younger women seem to be associated with juggling jobs, study and social relationships, it is likely that women born in the 70s and 80s may have an 'accelerated sense of time' with potential detrimental effects on their health. Many of the sources of time pressure for the mid-aged cohort can be attributed to a sense of role overload and role conflict arising from the volume and often fragmentary nature of activities associated with women's domestic and employment roles.

The findings suggest a need to pay attention to leisure and to a balanced lifestyle in order to maximise the health and well being of Australian women.

**Brown WJ. The benefits of physical activity during pregnancy. Invited address to the National Sport and Pregnancy Forum (Australian Sports Commission). Sydney, New South Wales. 1 August 2001.**

Most of the recent debate about sports and pregnancy has focussed on the perceived 'dangers' of participation, with little consideration of the benefits to women of continued participation in sport during pregnancy.

While the social, economic and health benefits of sports participation are profound, population participation rates are low. This is particularly true for organised sport, in which participation rates are lower for women than for men, and decrease markedly with age. Data from the Australian Longitudinal Study on Women's Health indicate that participation rates fall most markedly during the life stage at which women experience childbirth and motherhood. In terms of population social, economic and health benefits, it might therefore be valuable to encourage women to continue to play sport during their childbearing years, in order to prevent the decline in participation at this life stage.

The question at the centre of the current debate is whether it is safe for women to continue to participate in sport during pregnancy, and indeed to assess whether the benefits of continuing to play outweigh the potential risks. During the last twenty years there has been a marked shift in attitudes towards this issue. On balance, the available evidence now suggests that healthy pregnant women (with normal pregnancies) can begin or maintain a regular exercise program or sports participation without affecting the course or outcome of the pregnancy. There are of course provisos in terms of the type, intensity, duration and frequency of exercise, but participation in appropriate sports at a level which complies with current guidelines is, on balance, likely to have more beneficial than adverse effects.

This paper will outline the evidence relating to the *benefits* of participation for pregnant women, in terms of maternal weight gain, maternal fitness, gestational diabetes, and the effects of exercise on gestational age, labour and birthweight. Controlling weight gain and maintaining fitness during pregnancy are likely to be important determinants of continued participation after pregnancy. This is important as recent data suggest that participation in organised sport is declining, and one of the aims of the new Federal sport policy is to promote 'greater participation in sports for all ages'. Banning women from playing sport during pregnancy will not help to achieve this goal.

**Lee C & Powers J. Social roles, health and well-being in three generations of Australian women. 15<sup>th</sup> European Health Psychology Conference. St Andrews, Scotland. 6-9 September, 2001.**

Purpose: The relationship between multiple social roles and health is a particular issue for women, who continue to take major responsibility for domestic labour despite increasing involvement in the paid workforce. This paper analyzes Survey 1 data from the Australian Longitudinal Survey on Women's Health to explore relationships between role occupancy and health, well-being and health service use in three generations of Australian women.

Methods: A total of 41,818 women in three age groups (young, 18-23; mid-age, 40-45; older, 70-75) responded to mailed surveys. Young and mid-age women were classified according to their occupancy of five roles – paid worker, partner, mother, student and family caregiver – while older women were classified according to occupancy of partner and caregiver roles only. Common symptoms (headaches, tiredness, back pain, difficulty sleeping), diagnosis of chronic illness, use of health services, perceived stress, and the physical and mental component scores of the SF-36 were compared across groups characterized by number of roles.

Results: Among young women, the best health was associated with occupancy of one role; among mid-age women, those with three or more roles were in the best health; and for older women, those with one role were in the best health. Young women with four or more roles, and mid-age and older women with none of the defined social roles, tended to be in the poorest health.

Conclusions: The results may be explained by differences in the extent to which women at different life stages feel committed to various social roles, and to the extent to which they are able to draw on social, material and economic supports.

**Strodl E, Kenardy J & Aroney C. Prediction of the new diagnosis of CHD in elderly women: A prospective study using psychosocial and non-psychosocial risk factors. Australian Cardiac Rehabilitation Association's National Conference. Tewantin, Queensland. 7-9 September 2001.**

This presentation will describe one aspect of a prospective cohort study of 10 432 women aged between 70 to 75 years of age in 1996. The women were first surveyed in 1996 and then again in 1999. This allowed the identification of 503 women, who were diagnosed with coronary heart disease (CHD), during this 3-year period. A number of 1996 psychosocial risk factors (Duke Social Support Index, time pressure, Perceived Stress, the Mental Health Index, having a partner, educational attainment, and location of residence) were analysed using univariate binary logistic regression for their ability to predict CHD. Of these variables, the Duke Social Support Index, Perceived Stress and the Mental Health Index all proved to be significant predictors of CHD diagnosis. However, when these three variables were entered into a multivariate binary logistic regression analysis only Perceived Stress proved to be a significant predictor. Of the 1996 non-psychosocial risk factors that were entered into a multivariate binary logistic regression analysis (BMI, smoking status, exercise status, alcohol status, current use of HRT, having diabetes or hypertension or nutritional risk), BMI, alcohol status, nutritional risk, diabetes and having hypertension proved to be significant independent predictors of a new diagnosis of CHD. After

controlling for these non-psychosocial variables, as well as the frequency of family doctor visits in 1996, Perceived Stress remained a significant predictor of the first time diagnosis of CHD in this cohort of elderly women.

**Brown WJ & Trost SG. Socio-economic status, physical activity and obesity - does one size fit all? *Tenth Annual Scientific Meeting of the Australasian Society for the Study of Obesity. Gold Coast, Queensland. 8-9 September 2001.***

Education, income and occupation are often used as indicators of socioeconomic status (SES) in Australia, and there is evidence from several large cohort studies to suggest direct associations between (lower) levels of education, income and occupation and (higher) levels of overweight and obesity. As physical inactivity is an important determinant of overweight and obesity, similar associations might be expected between these socio-economic indicators and physical activity.

Although low levels of PA have been shown to be strongly associated with low income and education, these relationships are not always straightforward, or consistent across different life stages. For example, students and unemployed people may have higher activity levels because they do not have access to motor vehicles. Similarly, the relationships between occupation and PA can be complex, as people with lower status occupations may have higher levels of occupational activity, but lower levels of leisure time activity. Hence the way that PA is measured becomes an important factor in assessing these relationships. Similarly, the measurement of SES can be problematic in some population groups, such as women and retirees.

In this paper data from the Australian Longitudinal Study on Women's Health will be used to illustrate the variability in the relationships between SES and PA at different life stages, and to highlight the difficulties of accurately assessing these measures. Differences in the relationship between PA and obesity in these three generations of Australian women will also be explored.

**Kenardy J & Brown WJ. Adult lifetime weight variation and association with physical and mental health in mid-aged women. *Tenth Annual Scientific Meeting of the Australasian Society for the Study of Obesity. Gold Coast, Queensland. 8-9 September 2001.***

This study examined self-reported adult weight range and weight variation in approximately 14200 Australian women aged 45-50. The study recruited the sample through the Australian Longitudinal Study of Women's Health. The study was nationwide and employed a stratified random sample with an oversampling of the women from rural and remote regions.

Weight range was defined in terms of highest and lowest adult weight and also examined in relation to current point within the range of weight. Factors influencing weight range were examined, including number of childbirths, dieting history and absolute weight. Weight range also was examined in relation to associated physical and mental health as measured by SF-36. Finally current weight variation (both intentional and unintentional) was examined in relation to physical and mental health.

The results indicate that there is significant weight variation over the course of adult life with the mean weight change being 19 kg. Weight variation is associated with poorer physical and mental health but this relationship is moderated by intent to lose weight. Physical health is poorest in women whose weight variation was associated with no intentional weight loss. Mental health was better amongst those whose weight variation is lowest and associated with intentional weight loss.

**Williams L, Young A & Brown W. How eating influences weight gain in mid-aged women. Tenth Annual Scientific Meeting of the Australasian Society for the Study of Obesity. Gold Coast, Queensland. 8-9 September 2001.**

The menopausal years have been identified as a time of weight gain in Australian women. The mid-aged cohort (45-50 years) of the Australian Longitudinal Study on Women's Health had a mean weight of 68.85 kg  $\pm$  14.75 kg in 1996 (N= 14,100). This mean increased to 70.01kg  $\pm$  15.02 kg (N= 12,328) in just two years, with 63% of the cohort experiencing weight gain.

A nested cohort study of women experiencing menopausal change between 1996 and 1998 was conducted to compare lifestyle factors in women who gained weight and those who avoided weight gain. A survey was designed to measure dietary intake, physical activity, dieting behaviour, emotional eating, and other factors with the potential to influence weight. The survey was mailed to 1144 women in September 1999.

875 women (77%) responded to the survey. 435 (50%) women reported weight gain over the previous three years, 416 (48%) reported weight loss or maintenance and 15 were unable to be categorised. Weight gainers scored significantly higher on the Emotional Eating Scale than non-weight gainers for the total score (48.24 v 42.24) and the three subscales (anger/frustration, depression and anxiety). Non-weight gainers were more likely to report having cut down intake of high energy density foods as compared with three years previously, than the weight gainers. However, the food frequency questionnaire results did not show a significant difference between the two groups for total energy or fat intakes.

Emotional eating (which may be additional to usual dietary intake) is a factor potentially contributing to weight gain in menopausal women.

**Young A, Lowe J, Patterson A & Byles J. The burden of diabetes: findings from the Australian Longitudinal Study On Women's Health. Australian Diabetes Society Australian Diabetes Educators Association (ADS-ADEA) Annual Scientific Meeting. Poster presentation. Gold Coast, Queensland. 12-14 September 2001.**

Introduction: The Australian Longitudinal Study on Women's Health is a study of the health and well being of a national random sample of more than 40,000 women.

Aims: To report on prevalence of diabetes, risk factors for diabetes, and the health and health service utilisation of women in the study with and without diabetes.

Methods: Longitudinal self-reported survey data were used to categorise women in the mid-age (45-50 years) and older (70-75 years) cohorts according to their diabetes status. 'Existing cases' reported having diabetes at Survey 1 in 1996 and 'new cases' developed diabetes by Survey 2 (1998/1999). Medicare data were linked to survey data for the 70% of women who consented.

Results: Among the 12,230 mid age women there were 236 existing cases and 141 new cases of diabetes. Women with diabetes were more likely to report at least seven visits to a general practitioner in the preceding year (existing cases 31%, new cases 26%, no diabetes 12%) and to be taking four or more prescribed medications (existing cases 32%, new cases 17%, no diabetes 6%). Medicare data enabled the use and costs of medical services to these women, particularly the use of diabetes-specific tests and best practice guidelines for care, to be studied (HbA1c in 1999: existing cases 51%, new cases 27%). Median BMI for women with diabetes was higher than for women without diabetes (existing cases 31.4kg/m<sup>2</sup>, new cases 30.2kg/m<sup>2</sup>, no diabetes 25.0kg/m<sup>2</sup>). Women with diabetes reported poorer health, and greater decline in health between surveys, than women without diabetes. Similar results were found for the older cohort.

Conclusions: Longitudinal survey data allow the risk factors for the development of diabetes to be studied. Record linkage of survey and Medicare data enables the personal and economic burden of diabetes and its complications to be examined.

**Guillemin M & Brown WJ. Understanding risk: mid-age women and heart disease. *Joint Conference of the International Epidemiological Association and the Society for Social Medicine*. Oxford, United Kingdom. 12-15 September, 2001.**

For mid-age women in urban and rural Australia with reported heart disease, what does it mean to them to be 'at risk' of heart disease? How do these women understand heart disease and its associated risk factors? Moreover, how does this relate to their use of strategies to prevent heart disease prior to, or since, their diagnosis of heart disease? This is a study undertaken in collaboration with the Australian Longitudinal Study on Women's Health (ALSWH), a longitudinal survey of more than 40,000 Australian women designed to follow the health of three age cohorts of women. The heart disease study focused on the mid age cohort of women (49-54 yrs). Using both qualitative and quantitative methods, the mid-age women and heart disease study found that 2.3% (319 of 14,011) of the ALSWH mid-age cohort reported that they had been told by a doctor that they had heart disease. However, very few of these mid-age women considered themselves as 'at risk' of heart disease. This is despite 35% of the women interviewed reporting to have two or more recognised risk factors for heart disease. Although these women were very knowledgeable about risk factors, prevention and heart disease, only few women reported actually having employed preventive strategies against heart disease either prior to, or since, diagnosis. Most women did not perceive these issues as being relevant to their lives at this time. In the interviews conducted with the mid-age women, it was clear that they considered heart disease to be a gendered disease and spoke of heart disease primarily as a "man's disease" in this age group. This research provides much-needed information about how women understand their risk of heart disease and their use of preventive strategies during mid-age.

**Guillemin M & Brown W. Mid-age women, heart disease and risk. *British Sociological Association, Medical Sociology Group*. York, UK. 21-23 September, 2001.**

What does heart disease and related risk mean to mid-age women in urban and rural Australia with reported heart disease? This is a collaborative study with the Australian Longitudinal Study on Women's Health (ALSWH), a longitudinal survey of over 40,000 Australian women which follows the health of three age cohorts. The heart disease study focused on the mid age cohort of 14,011 women aged 49-54 yrs, of which 2.3% (319) reported that they had been told by a doctor that they had heart disease. The study used both qualitative and quantitative methods to explore women's understanding of heart disease and related risk. This paper focuses primarily on the study's qualitative findings of 32 women who participated in interviews and image based methods. Women were asked to draw how they perceived their heart disease as a non-textual means of exploring their understanding of heart disease. Women's understanding of their heart disease and related risk was characterised by a blend of the biological and the social. The majority of the women were very knowledgeable about risk factors, prevention and heart disease. However, very few women considered themselves as 'at risk' of heart disease despite their diagnosis. Subsequently, only few women reported actually having employed preventive strategies against heart disease either prior to, or since, diagnosis. Furthermore, most women in this age group considered heart disease to be a gendered disease. This research points to the importance of sociological analyses to explore understanding of illness and its impact on practice.

**Byles J. Older women's use of sleeping medications. 2001 A Public Health Odyssey: Popular Culture, Science & Politics. 33rd Annual Public Health Association of Australia Conference. Sydney, New South Wales. 23-26 September 2001.**

Difficulty sleeping is common among older women and is associated with regular longterm use of sleeping medications and consequent poor health outcomes such as reduced quality of life, falls and excessive health care use. This paper describes a three year national longitudinal study of 10430 participants of the Australian Longitudinal Study on Women's Health, and a nested in-depth study of sleeping difficulty and sleeping medication use among a selected sub-sample of 1011 of these women. The women were aged 70-75 years at the start of the longitudinal study and 74-79 years at the time of the sub-study. The data from these studies provide insight into the nature of women's sleeping difficulty, the behaviours that women adopt to deal with this problem, and the associated health outcomes. Particularly they indicate clear differences in the help seeking behaviours, knowledge and attitudes of women who do and do not use sleeping medications, and provide a sound basis for health promotion messages and intervention strategies to reduce medication use among women in this age group.

**Young A & Powers JR. Using the Medicare enrolment file as a sampling frame: experiences of the Australian Longitudinal Study on Women's Health. Invited speaker for Workshop: Issues in Population Sampling. Australian Epidemiological Association. 10<sup>th</sup> Annual Scientific Meeting. Sydney, New South Wales. 27-28 September 2001.**

The Australian Longitudinal Study on Women's Health monitors the health and well being of a national random sample of almost 40,000 women. Following a brief introduction to the study, this presentation will concentrate on the experience of using the national Medicare enrolment file to select the sample for the longitudinal study. Other sampling frames that were considered and the reasons for the Medicare database being chosen will be discussed. Information about the accuracy of the Medicare enrolment file, legal and privacy issues and the process of liaising with the Health Insurance Commission will be presented. Disadvantages of using this sampling frame, such as the researchers not knowing the identity of women selected in the sample, the survey having to be mailed by the HIC on behalf of the study team, the inability of the researchers to encourage response by telephone and the potential implications of these factors on response rates will be discussed. Advantages of this sampling frame include the HIC being able to extract Medicare/DVA data for record linkage with survey data using the Medicare PIN (personal identification number) rather than the Medicare card number and the extensive coverage of the enrolment file which is more representative than the electoral roll or telephone listings. The ongoing ability of this study to assess the representativeness of the cohorts using aggregate Medicare/DVA health service utilisation and mortality data, will also be shown to be an advantage of the sampling frame.

**Powers J, Mishra G, Young A. Effects of mode of administration on self-rated health in the mid-age cohort of the Australian Longitudinal Study On Women's Health. Australian Epidemiological Association. 10<sup>th</sup> Annual Scientific Meeting. Poster presentation. Sydney, New South Wales. 27-28 September 2001.**

Although mixed mode surveys improve response rates, people may respond differently to health status measures in telephone and mail surveys. This study aims to investigate differences in SF-36 scores by mode of administration and uses multiple imputation to adjust for these differences.

The Australian Longitudinal Study on Women's Health was designed to explore factors relating to women's health and well-being. The 1996 survey was answered by mail. However in 1998, 706 and

11,595 women answered by telephone and mail respectively. Changes in all SF-36 dimensions, except role limitations due to physical difficulties (RP), were significantly different for telephone and mail respondents before and after adjusting for socio-demographic and health characteristics. Seven of the eight SF-36 dimensions improved for telephone respondents, whereas five deteriorated for mail respondents.

SF-36 dimensions for telephone respondents were imputed from SF-36 mail responses and telephone and mail responses to socio-demographic and health questions. After multiple imputation, two SF-36 dimensions decreased and six were unchanged between 1996 and 1998 for telephone respondents. None of the changes in SF-36 dimensions, except RP, was significantly different for telephone and mail respondents.

Hence multiple imputation may be used to make telephone SF-36 scores comparable to those given by mail.

**Young A, Lowe J, Patterson A, Byles J. Using record linkage in the Australian Longitudinal Study On Women's Health to study the impact of diabetes. *Australian Epidemiological Association. 10<sup>th</sup> Annual Scientific Meeting. Poster presentation. Sydney, New South Wales. 27-28 September 2001.***

The Australian Longitudinal Study on Women's Health monitors the health and well being of a national random sample of women. Among the mid-age cohort (n=12,230), 236 women reported having diabetes in 1996 and there were 141 new cases by 1998. Almost 70% of the women consented to linkage of survey and Medicare/Department of Veterans' Affairs data.

The linked datasets allow longitudinal analysis of health, risk factors, utilisation and costs of health services. Women with diabetes reported poorer health, and greater decline in health between surveys, than other women. Median BMI for women with diabetes (31kg/m<sup>2</sup>) was higher than for women without diabetes (25kg/m<sup>2</sup>). Women with diabetes were more likely to have at least eight visits to a general practitioner in 1998 (existing cases 38%, new cases 32%, no diabetes 19%) and to be taking four or more prescribed medications (existing cases 32%, new cases 17%, no diabetes 6%). Compliance with best practice guidelines for diabetes care, including monitoring HbA1c, lipids, microalbuminuria and retinal screening was examined.

Although health service use and mean cost under Medicare (outside hospital) were higher for women with diabetes (existing cases \$596, new cases \$547, no diabetes \$362), adherence to best practice guidelines was sub-optimal.

**Brown WJ, Trost SG & Miller YD. Life transitions and changing physical activity patterns in young women. Innovative approaches to understanding and influencing. physical activity. *Cooper Institute Scientific Conference. Dallas, USA. 4-6 October 2001.***

Context: The Australian Longitudinal Study on Women's Health (ALSWH) involves three nationally representative cohorts of women who were aged 18-22 ('young'), 45-50 ('mid-age') and 70-75 ('older') at baseline in 1996. The women are surveyed at 3-4 year intervals and the overall goal of the study is to clarify the relationships between women's health and a range of biological, psychological, social and lifestyle variables. At baseline, levels of physical activity (PA) were much higher in the young cohort than in the mid-age and older cohorts. These cross sectional data suggest a marked decline in PA in young adulthood.

**Objectives:** The objectives of this analysis of ALSWH data were to (1) explore the social and demographic factors associated with physical activity in the young women at baseline (1996), and (2) to ascertain whether changes in these factors were associated with changes in physical activity during the first four years of follow-up (2000). These four years cover a life-stage which is associated with major changes in women's lives, such as getting married, having children, leaving tertiary education and starting paid work.

**Methods:** 8,647 young women completed self-report surveys and answered questions about physical activity in both 1996 (age 18-22, 'Y1') and in 2000 (age 22-26, 'Y2'). Physical activity was categorised as 'active' (defined as 'sufficient for health benefit' or equivalent to moderate intensity PA on most days of the week) or 'inactive' (not meeting this criterion) at Y1 and Y2. Descriptive statistics and logistic regression were used to determine the social and demographic characteristics of 'inactive' and 'active' women and of those whose PA category changed during this four year period.

**Results:** At baseline in 1996, 56.7% of the young women were categorised as 'active'. Women who were married, had children, worked in full-time home duties, and those born in Asia and Europe, were least likely to be active. At follow-up the proportion of women categorised as 'active' was 55.1%. This figure gives the impression that there was little change in PA during this four year period. In fact, while 60.7% of the women maintained their activity status at Y1 and Y2 (inactive 24.5%, active 36.2%), 20.4% of the women changed from being active to inactive and 18.9% changed from being inactive to active. Factors significantly associated with inactivity at Y2 were birth of first child (OR = 2.21; 95%CI 1.96-2.50), birth of second child (2.11; 1.76-2.52), getting married (1.48; 1.30-1.70), and starting paid work (1.13; 1.02-1.26). These factors remained significant after adjustment for age, income, education and language spoken at home. Being a full-time student was 'protective' of inactivity (OR = 0.75; 0.62-0.91).

**Conclusions:** These results illustrate the value of longitudinal cohort studies in understanding the determinants of physical activity during specific transitional life stages. Better understanding of these social and demographic determinants of PA will help to inform the development of PA promotion strategies to target the declining levels of PA with age. The results suggest that it would be pertinent to develop PA promotion strategies which target women in the transition between tertiary education and establishment of 'family' relationships.

**Brown W. The road less travelled - exercise and public health research for women. Invited address for A Sports Medicine Odyssey - Challenges, Controversies & Change. Australian Conference of Science and Medicine in Sport. Perth, Western Australia. 24-27 October 2001.**

Much of the early work relating to the health benefits of physical activity was conducted in men. Notwithstanding this, there is now clear evidence to show the benefits of regular physical activity for women, in terms of all cause mortality, as well as for prevention of cardiovascular disease and some forms of cancer. While these health outcomes are now well documented, the proportion of Australian women who are deemed to be 'sufficiently active' for health benefit remains lower than the corresponding figure for men. This presentation will explore three possible explanations for this observation: the first is that women actually *are* less active than men (despite their expertise in 'juggling time'); the second is that the difference reflects the way physical activity is defined; and the third is that it reflects the way that physical activity is measured.

The second part of this paper will explore issues relating to the promotion of physical activity among women, illustrating the clear convergence of exercise science and public health, a road less travelled in the Sports Medicine community.

**Jonas H, Hamilton M & Brown W. Measuring variable drinking patterns in young Australian women. *Combined Australian Professional Society on Alcohol and Other Drugs and National Methadone Conference. Sydney, New South Wales. 28-31 October 2001.***

During late 1999, a comprehensive survey on young women's drinking was mailed to 2,400 Australian women (21-26 years) already enrolled in the population-based Women's Health Australia (WHA) longitudinal study. They had been randomly selected from the 14,700 young women enrolled in the 1996 WHA baseline study, after stratifying on the basis of their 1996 drinking patterns (weekly or more binge drinking, or "low risk" drinking).

In the 1999 survey, the women were asked whether they drank smaller amounts of alcohol on some days and larger amounts on other days ("light" and "heavier" drinking days). They were then asked quantity/frequency questions about each type of drinking day.

Of the 1996 binge drinkers, 86% reported having both "light" and "heavier" drinking days; 6% only had "heavier" drinking days, and the remainder (8%) did not drink, or only had "light" drinking days. The corresponding figures for the 1996 "low risk" drinkers were 61%, 3% and 36%. For all women who reported variable drinking patterns in 1999, the frequencies of the "light" drinking days were usually 2-3 times those of the "heavier" drinking days. However, the "heavier" drinking days generally accounted for >50% of the total alcohol consumed/week.

These results suggested that standard "usual" quantity/frequency alcohol questions, which do not allow for different drinking patterns, underestimate weekly drinking levels in young women.

Our predictions were confirmed when the above data were linked to data in the second WHA follow-up survey (conducted in early 2000), where only "usual" quantity/frequency alcohol questions were used.

**Bell S & Lee C. Development of the Perceived Stress Questionnaire for Young Women. *Women & Psychology Interest Group 2001 Annual Conference. Ashfield, New South Wales. 30 November - 2 December 2001.***

The Perceived Stress Questionnaire for Young women (PSQYW) was developed as a measure of the level and perceived sources of stress for young Australian women aged 18 to 23, when an appropriate measure for a population based survey could not be found. The Australian Longitudinal Study on Women's Health (ALSWH), also known as the Women's Health Australia (WHA) project, was designed to assess women's biological, psychological, environmental, social and economic factors, in line with a multidisciplinary social model of health, to determine their interactions and the determinants of physical and mental health. Stress has been identified as playing a primary role in the etiology of physical and emotional ill health and previous research has found that women report more psychological distress than men. A total of 14,779 women aged 18 to 23 completed the baseline survey for the young cohort. The 12-item PSQYW is based on a biopsychosocial model of stress. The PSQYW was shown to be internally reliable, unifactorial, and to have content validity. Convergent construct validity was demonstrated most strongly with measures of mental health, life events and symptoms, and more weakly with the health behaviours of smoking and alcohol bingeing. There was no relationship found with physical activity. Construct validity for the life domains represented in the PSQYW items indicated 5 factors relating to family of origin, relationships with others, own health, work/money and study. The PSQYW was proposed to be an adequate measure of overall perceived stress and to be able to indicate broad life domain perceived stress sources for young women. Until further research is undertaken with broader demographic groups, the PSQYW is proposed to be practically useful as an informative tool used

by clinical psychologists, counsellors and GP's for young Australian women. The PSQYW is a succinct method of determining an estimate of a young woman's overall stress, and to assess salient life domains the young woman attributes as causing this stress.

### **8.5.1 Other presentations**

Young A. The Australian Longitudinal Study on Women's Health: findings so far and challenges ahead. *Forefront Conference*, Faculty of Science and Mathematics, University of Newcastle. 13 June 2001.

Dobson A. Cancer screening behaviour in middle-aged women: mammography and Pap smears. *QIMR Seminar Series*. Westpac Auditorium, Brisbane. 1 August 2001.

Brown WJ. Valued Lives: women, family and community. What are the most important issues facing women in the 21<sup>st</sup> Century. Invited speaker at the *Australian Women Speak Conference (Commonwealth Office of the Status of Women)*. Canberra, Australian Capital Territory. 26-28 August 2001.

McNair R. Lesbian Health. *Lesbian Health Research Forum*. Sydney, New South Wales. 14 September 2001.

Brown, W & Lee, C. Promoting physical activity across the lifespan. *Public Health Symposium, SMA Australian Conference of Science and Medicine in Sport*. Perth, Western Australia. 24-27 October 2001.

Dobson A. Australian Longitudinal Study on Women's Health. *The Inaugural Queensland Health and Medical Scientific Meeting: Research for Better Health Outcomes*. Brisbane, Queensland. 4 December 2001.

## **8.6 BOOK SALES**

The edited book, "Women's Health Australia: What do we know? What do we need to know?", was published in February 2001 and was launched at the 4<sup>th</sup> Australian Women's Health Conference. The idea was to produce a single volume that summarized the first five years of the project. While aspects of the work of the project are disseminated through scientific papers, conference presentations and published conference proceedings, six monthly and annual reports, newsletters for participants, media releases, and the website, this provides an outline of the project and preliminary results in a single volume.

The book was published by Australian Academic Press, with all costs met by Women's Health Australia. All proceeds from sales are returned directly to project funds. Table 28 summarizes the current financial situation with regard to this book.

**Table 28 Costs and returns (as of 25 October 2001) for Women’s Health Australia: What do we know? What do we need to know?**

Expenditure	Income (ex GST)				
			Number	rate	Total
Typesetting and printing of 1000 copies	\$9,527.88	Sales – 15 November 2001	281	20	\$5,620
<b>TOTAL</b>	<b>\$9,527.88</b>				<b>\$5,620</b>
Balance					(\$3,907.88)

## **8.7 DISSEMINATION OF METHODOLOGICAL EXPERTISE**

The research team continue to be invited to provide advice on an ad hoc basis to government departments and other agencies that are considering projects with related methodologies. In the six months to December 2001, we have provided the following advice and services.

### **8.7.1 Department of Family and Community Services**

We have an ongoing relationship with staff at FACS who are involved in the management of the HILDA and LSAC longitudinal surveys. More specifically, Christina Lee served as an Expert Adviser to the Proposal Evaluation Committee that is selecting the successful tenderer for the Longitudinal Survey of Australian Children.

### **8.7.2 Australian Medical Workforce Advisory Council (AMWAC)**

The research team continues to provide advice in the planning of AMWAC’s longitudinal survey on Career Choice and Workforce Participation among medical graduates. Anne Young will attend their next committee meeting on 3 December 2001.

### **8.7.3 International Diabetes Institute, Melbourne**

Anne Young has been providing advice on methodology, with particular regard to tracking of participants, to research staff at the International Diabetes Institute who are planning a longitudinal survey of Australian diabetics.

## **8.8 MEDIA**

- 16/7/01 Article in Sun Herald Supplement “Tempo”, “Putting yourself first” – Christina Lee.
- 16/7/01 Article in Brisbane Courier Mail, “Rural Gals happy with their lot” – Anne Young
- 16/7/01 Article in Adelaide Advertiser, “Rural Women” – Anne Young
- 16/7/01 Article in Daily Telegraph (Sydney), “Women happier in the Bush – Anne Young

- 16/7/01 Article in Herald Sun (Melbourne), “Rural women less stressed”– Anne Young
- 16/7/01 3AK Melbourne, Derryn Hinch, “Rural Women” – Anne Young
- 16/7/01 ABC Canberra, Rural Radio, Countrywide, “Rural Women” – Anne Young
- 16/7/01 ABC Sydney Stateside, Madeline Randall, “Rural Women” – Anne Young
- 16/7/01 ABC Brisbane, Afternoon Talkshow, Spencer Howson, “Rural Women” – Anne Young
- 16/7/01 ABC Adelaide, Kevin Norton & David Bland, “Rural women” – Anne Young
- 16/7/01 ABC Canberra, Drivetime, Louise Maher, “Rural women” –Christian Lee
- 16/7/01 ABC Sydney, Statewide, James O’Loughlin, Rural Women” – Christina Lee
- 16/7/01 ABC National Radio Early Morning, Trevor Chappell, “Rural Women”-Christina Lee
- 16/7/01 2UE Rural Roundup, Susie Brady, “Rural women” – Christina Lee
- 17/7/01 ABC Rural Riverland, Griffiths, “Rural women” – Anne Young.
- 18/7/01 ABC Radio National, Helen Brown, “Rural women” – Christina Lee
- 26/9/01 ABC Radio National, “Sleep & Medication in the Elderly Cohort” – Julie Byles
- 26/9/01 Article in Melbourne Age, “Medication and sleep in the Elderly” – Julie Byles
- 30/9/01 ABC Queensland Sunday, “Sleep & Medication in the Elderly Cohort” – Julie Byles

## **9 ARCHIVING**

Data from Survey 1 of all cohorts were originally archived with the Social Sciences Data Archive in December 1999. Updated versions of Survey 1, including imputed values for some missing data (as outlined in Report 15), and data from Survey 2 of the mid-age and older cohorts, were archived in January 2001. Data from Survey 2 of the younger cohort will be archived in December 2001.

## **10 FINANCIAL STATEMENT**

Total estimated expenditure for 2001 is \$18,702 less than income from grant and all other sources during this period. We had predicted a deficit for this year of approximately \$40,000 but have made cost savings on several fronts. These include the saving resulting from the resignation of our Postdoctoral Fellow Dr Amanda Patterson in mid-year, and a lower than expected cost for printing of newsletters and for access to updated Electoral Roll data. The costs of the much-needed replacement of the project’s scanner, and the purchase of new software to enable DPID coding on mailouts (another cost-saving measure) were also somewhat less than had been expected. It must be pointed out, though, that this small positive margin has been made possible only by including the entire Research Quantum earnings in this year’s expenditure. This is not the purpose of the Research Quantum funding, which are provided for postgraduate student training and for development, rather than for the base costs of the project. There have also been significant

contributions to the project this year from the University of Queensland, which has paid the salary of the full-time statistician based there. This contribution represents start-up funding for Professor Dobson and will not be continued into 2002. It is important to recognize that the project continues to be significantly under-funded and that significant cost-cutting measures continue to be implemented. It is also worth repeating that the Investigators (other than the Project Manager and Project Statistician) are not paid for their contributions, and that the majority of their travel and research expenses is met by their own Universities and not by the Project.

**Table 29 Financial statement**

Expenditure January- December 2001

DHAC income July 2000 – June 2001

Based on University of Newcastle Finance One System 22/10/01

Accounts 593-1029 and 593-1023

INCOME			EXPENDITURE						
Source	Details	Income	Items	Actual Expenditure 1/1/01 – 30/6/01	Actual Expenditure 1/7/01 – 22/10/01	Forward Estimate 23/10/01- 31/12/01			
DHAC	Contract	828,000	Shared research (UQ)	45,000	45,000	0			
			Surveys & data entry	38,700	33,463	8,542 <sup>a</sup>			
			Newsletter printing	0	18,280	0			
			Data linkage (AEC, HIC)	4,770	0	1,589 <sup>a</sup>			
			Computer h'ware, s'ware	10,921	150	2,282 <sup>a</sup>			
			Equipment & maintenance	605	523	700 <sup>b</sup>			
			Postage & freight	9,827	35,626	6,000 <sup>b</sup>			
			Telephone	2,066	3,243	2,500 <sup>b</sup>			
			Printing, stationery, office supplies	2,040	1,347	1,000 <sup>b</sup>			
			General consumables/ Repairs	672	597	500 <sup>b</sup>			
			Travel/Hospitality	9,670	8,205	3,500 <sup>b</sup>			
			Salaries	185,529	127,175	78,354 <sup>a</sup>			
			On-costs	41,307	32,115	23,506 <sup>a</sup>			
			Annual Report	0	0	6,000 <sup>b</sup>			
			University O'head charge	55,350	65,430	0			
			U of N	Research Contribution	50,000	Postgraduate scholarships/ fees	20,512	10,652	7,000 <sup>a</sup>
						Research Quantum	126,000	Postdoctoral Fellowship	7,434
On costs	1,291	0						0	
						Shared research (Principal Investigators)	7,421	1,293	5,707 <sup>a</sup>
Research Infrastructure Grant	2,783	Student research costs				10,841	3,246	3,000 <sup>b</sup>	
Conference Travel Grants	2,400								
<b>TOTALS</b>		<b>\$1,009,183</b>		<b>\$453,956</b>	<b>\$386,345</b>	<b>\$150,180</b>			
						<b>\$18,702</b>			

<sup>a</sup> firm commitment<sup>b</sup> figures are estimates

## **11 PROJECT STAFF JULY-DECEMBER 2001**

*Summary.* Staffing has been stable over the period of this report, with some turnover among research assistants and students but the situation remaining essentially unchanged throughout 2000. Our Postdoctoral Fellow Dr Amanda Patterson has left us to work in the UK.

### **11.1 FULL-TIME STAFF LOCATED AT RESEARCH CENTRE FOR GENDER AND HEALTH AT THE UNIVERSITY OF NEWCASTLE**

Project Manager: Professor Christina Lee  
Data Manager: Mrs Jean Ball  
Statistician: Dr Anne Young  
Statistician: Ms Jenny Powers  
Research Assistants: Mrs Lyn Adamson  
Mrs Joy Goldsworthy  
Secretary: Ms Emma Threlfo/Mrs Penny Knight (shared position)

### **11.2 STAFF AT THE UNIVERSITY OF QUEENSLAND**

Ms Anne Russell, Senior Project Officer, School of Population Health, University of Queensland

### **11.3 INVESTIGATORS**

Professor Annette Dobson, School of Population Health, University of Queensland, Study Director  
Professor Wendy Brown, School of Human Movement Studies, University of Queensland  
Emeritus Professor Lois Bryson, Research Centre for Gender and Health, University of Newcastle, and RMIT University  
Associate Professor Julie Byles, Centre for Clinical Epidemiology and Biostatistics, University of Newcastle  
Associate Professor Justin Kenardy, School of Psychology, University of Queensland  
Professor Christina Lee, Research Centre for Gender and Health, University of Newcastle  
Dr Gita Mishra, Medical Research Council Human Nutrition Research Unit, Cambridge, UK  
Associate Professor Margot Schofield, School of Health, University of New England  
Dr Penny Warner Smith, Department of Leisure and Tourism, University of Newcastle  
Dr Anne Young, Research Centre for Gender and Health, University of Newcastle

### **11.4 ASSOCIATE INVESTIGATORS CURRENTLY WORKING WITH THE MAIN COHORTS**

Dr Surinder Baines, Discipline of Nutrition and Dietetics, University of Newcastle  
Dr Kylie Ball, School of Health Sciences, Deakin University  
Associate Professor Peter Brown, Department of Leisure and Tourism, University of Newcastle  
Dr Pauline Chiarelli, Discipline of Physiotherapy, University of Newcastle  
Ms Susan Donath, Key Centre for Women's Health in Society, University of Melbourne  
Ms Susan Feldman, Alma Unit on Women and Ageing, Victoria University, Melbourne  
Dr John Germov, Department of Sociology and Anthropology, University of Newcastle  
Dr Marilys Guillemain, Centre for the Study of Health & Society, University of Melbourne  
Dr Rafat Hussain, School of Health, University of New England

Dr Helen Jonas, School of Health and Environment, La Trobe University, Bendigo  
Dr Helen Keleher, School of Health and Environment, La Trobe University, Bendigo  
Dr Ann Larson, Combined Universities Centre for Rural Health, Geraldton  
Dr Julia Lowe, Discipline of Endocrinology, University of Newcastle  
Dr Ruth McNair, Department of General Practice, University of Melbourne  
Ms Sue Outram, Faculty of Medicine and Health Sciences, University of Newcastle  
Dr Nancy Pachana, School of Psychology, University of Queensland  
Dr Amanda Patterson, Research Centre for Gender and Health, University of Newcastle  
Dr Barbara Pocock, Discipline of Social Inquiry, University of Adelaide  
Dr Angela Taft, Centre for the Study of Mothers' and Children's Health, La Trobe University  
Dr Stewart Trost, School of Human Movement Studies, University of Queensland  
Ms Lauren Williams, Discipline of Nutrition and Dietetics, University of Newcastle  
Dr Deirdre Wicks, Department of Sociology, National University of Ireland, Galway

## **11.5 STUDENTS**

### **PhD**

Mrs Sandra Bell, Research Centre for Gender and Health, University of Newcastle  
Ms Melissa Graham, School of Health and Environment, La Trobe University, Bendigo  
Ms Julie Hodges, Department of Leisure and Tourism, University of Newcastle  
Ms Deborah Loxton, School of Health, University of New England  
Ms Beverley Lloyd, Department of Public Health & Community Medicine, University of Sydney  
Ms Lisa Milne, Department of Sociology and Anthropology, University of Newcastle  
Ms Heather McKay, Key Centre for Women's Health in Society, University of Melbourne  
Ms Lauren Miller-Lewis, School of Psychology, Flinders University of South Australia  
Ms Sue Outram, Faculty of Medicine and Health Sciences, The University of Newcastle  
Ms Glennys Parker, Research Centre for Gender and Health, University of Newcastle  
Ms Gabrielle Rose, School of Population Health, University of Queensland  
Ms Allison Schmidt, Research Centre for Gender and Health, University of Newcastle  
Ms Nadine Smith, School of Population Health, University of Queensland  
Mr Esben Strodl, School of Psychology, University of Queensland  
Ms Lauren Williams, Discipline of Nutrition and Dietetics, University of Newcastle

## **11.6 PART-TIME AND CASUAL STAFF AT RESEARCH CENTRE FOR GENDER AND HEALTH**

Ms Jane a'Beckett  
Mrs Sandra Bell  
Ms Eliza Fraser  
Ms Alicia Frost  
Ms Renay Greig  
Ms Jennifer Helman  
Mr Marcus Howlett  
Ms Catherine Ireland  
Mrs Claire Johnson  
Ms Natasha Matthews  
Ms Cristina Mears  
Ms Lisa Scobie  
Ms Zoe Turner

# **Appendix 1**

## **Collaborative research activities**

## **Appendix 1.1**

### **Minutes of formal teleconferences held among main study Investigators**

**1 August 2001**

**Present:** Annette Dobson, Nancy Pachana, Cathy Turner, Zandy Clavarino,  
Liane McDermott, Nadine Smith  
**Apologies:** Wendy Brown, Justin Kenardy  
**Minutes:** Anne Russell

The meeting discussed opportunities for papers based on WHA survey data.

**1 Life events**

Nadine Smith, Nancy Pachana and Annette Dobson

There have been previous attempts to develop a manuscript based on using the total number of self-report life events as a 'scale'.

Women have problems recalling with accuracy when these events occurred.

3 possible papers - methodology, changes in SF36 and recall bias

**2 PAP Smears and Mammograms Screening Behaviour**

ZANDY CLAVARINO, ANNE RUSSELL AND ANNETTE DOBSON

Annette has presented some of these data for the Mid-age cohort. There has been comment that the screening profile of WHA participants may not be representative.

Plan to expand the analyses to look at Pap smear behaviour in the Young cohort at phases 1 and 2.

**Action**

AR to provide ZC with Y1, Y2 frequencies

**3 Smoking and Young Women**

LIANNE MCDERMOTT, ANNETTE DOBSON AND ANNE RUSSELL

This work is a commissioned report for DHAC, which is an Australian version of the US Surgeon General's report covering issues such as deaths due to smoking, smoking trends, smoking and pregnancy.

**4 Illicit Drug Use in Young Women**

Cathy Turner and Anne Russell

Interest is to examine clustering of risk behaviours, including illicit drug use. May already be spoken for within the WHA project.

*Action*

AR to ask with Chris Lee whether this area of research is already reserved by WHA investigators/collaborators.

CT to prepare a paragraph describing the proposed research to for comment by WHA investigators

**Next Meeting:** 3pm, Wednesday, 5 September 2001  
228 - The Clinic

McElwain Psychology Building, St Lucia (24A on maps)

**WHA-UQ MEETING  
5 September 2001**

**Present:** Annette Dobson, Nancy Pachana, Cathy Turner, Zandy Clavarino, Liane McDermott, Heather Eastwood, Wendy Brown

**Apologies:** Nadine Smith, Justin Kenardy, Gail Williams

**Minutes:** Anne Russell

**1 Life events**

Nadine Smith, Nancy Pachana and Annette Dobson

Nancy has received the draft paper and other documents from Nadine. She would find the reviewers' comments useful in establishing how to proceed.

**Action**

Anne R to ask Joy Goldsworthy to fax comments to Nancy. Nancy to review

**2 PAP Smears and Mammograms Screening Behaviour**

Zandy Clavarino, Anne Russell and Annette Dobson

Zandy will report on progress at the next meeting.

**3 Smoking and Young Women**

Liane McDermott, Annette Dobson and Anne Russell

a) Report for DHAC. Liane has prepared an outline - to be discussed with Annette next week.

b) Manuscript

This will focus of changes in smoking behaviour in relation to lifestyle changes of marriage and pregnancy. Anne R has been working on classification of the time of first pregnancy (before survey1, between surveys, never).

*Action*

Anne R to document coding decisions for time of first pregnancy, including the accompanying SAS code, and forward to Jean Ball

**4 Illicit Drug Use in Young Women**

Cathy Turner and Anne Russell

Proposal for analysis forwarded to Chris Lee on 4 September 2001. Chris is away for a few weeks.

**Action**

Anne R to forward to Anne Y and ask her to circulate to PI's in Chris's absence

**5 CESD-10 Non-response**

Jenny Powers has circulated a late draft of this paper which Chris Lee has suggested needs tightening up. Jenny is working on this and should circulate it again soon.

**7 Complimentary Medicine**  
Heather Eastwood flagged her interest in looking at the use of non-prescription drugs in the WHA cohorts.

**8 Contraceptive Use in the Young Cohort**  
Annette has an MPH Student (Samantha Hollingworth) who is interested in a sub-study on this topic for her dissertation.

*Action*

Anne R to obtain the WHA office copy of Stefani Strazzari's Honours thesis

**9 Incontinence Sub-study**  
Wendy Brown, Yvette Miller, Pauline Chiarelli and Anne Russell

2 papers from this study have been re-submitted after review.

**10 Change in Physical Activity (PA) in the Young Cohort**  
Wendy Brown and Stewart Trost

Focus is on reduction in PA with life-stage changes associated with getting married and having children. Will be presented at an exercise conference in Dallas later this year.

**11 Increased Weight After 1st Baby**  
Yvette Miller and Stewart Trost

In progress.

*Action*

Documentation of coding decisions for timing of first baby, including the associated SAS code, to be forwarded to Jean Ball.

**12 Intervention Study of PA among Women with Young Children**  
Wendy Brown and Yvette Miller

Not a WHA project but run from the WHA office. Dallas conference organisers have chosen Yvette's project as one of the five best PA intervention studies in the world.

**13 Medicare Consent**  
Anne Young, Annette Dobson and Julie Byles

To be published in ANZJPH. The editorial for this issue will be on consent and data linkage.

**Next Meeting:** Wednesday, 10 October 2001  
Room 234, Public Health Building, Herston

**WHA-UQ MEETING**  
**10 October 2001**

**Present:** Annette Dobson, Nadine Smith, Cathy Turner, Liane McDermott  
**Apologies:** Nancy Pachana, Gail Williams, Zandy Clavarino, Heather Eastwood, Wendy Brown  
**Minutes:** Anne Russell

**1 SCHOLARSHIP**

Congratulations to Nadine Smith who was just been awarded a UQ scholarship for her PhD research.

**2 PHERP INNOVATIONS PROPOSAL**

Lenore Manderson (University of Melbourne) recently submitted a proposal for a PHERP Innovations Grant to train postgraduates using WHA data. This had not been discussed with WHA and ignored resource implications. The application has now been withdrawn.

**3 INDIGENOUS COHORTS**

This section of the project is now to be known as the Indigenous Communities Study. A meeting held in Brisbane in late September discussed the revision of the study's contract with DHAC.

Draft contracts are now being prepared, replacing the single contract between UN and DHAC and the sub-contract between UN and UQ with 2 contracts, between DHAC and UN (main cohorts) and DHAC and UQ (indigenous communities). For the UN contract there is a requirement to investigate supplementing the main cohorts with indigenous women.

**4 LIFE EVENTS**

Nadine Smith, Nancy Pachana and Annette Dobson

Nancy is working on this - nothing to report.

**5 PAP SMEARS AND MAMMOGRAMS SCREENING BEHAVIOUR**

Zandy Clavarino, Anne Russell and Annette Dobson

Nothing to report.

**7 SMOKING AND YOUNG WOMEN**

Liane McDermott, Annette Dobson and Anne Russell

- a) Report for DHAC - Progressing.
- b) Manuscript - Annette is to work on this.

**8 ILLICIT DRUG USE IN YOUNG WOMEN**

Cathy Turner, Anne Russell

The proposal has accepted by WHA and an MOU signed. Cathy has followed up on comments by project investigators. Wendy Brown is interested in associations with physical activity. This will be included in the analysis and Wendy will be involved with discussions of the analysis. Sandra

Hickling-Bell is doing work on multiple risk factors, but Cathy's discussion with her has established that there will be no overlap between her work and the illicit drug analysis. Jake Najman (QADREC, UQ) has agreed to be involved once the preliminary data work has been completed. Basic data cleaning of the illicit drugs questions is proceeding in consultation with Jean Ball (WHA Data Manager).

**9 CESD-10 NON-RESPONSE**

Jenny Powers, Anne Young, Anne Russell & Nancy Pachana

Jenny has circulated a final draft to authors. The manuscript should be submitted soon.

**10 COMPLIMENTARY MEDICINE**

Nothing to report.

**11 CONTRACEPTIVE USE IN THE YOUNG COHORT**

Samantha Hollingworth's proposal included both analysis of existing data and further data collection by Samantha. However it is almost impossible for students enrolling to complete the dissertation in 1 semester to collect their own data and conform to the procedural time frame. Samantha is re-considering her options.

**Next Meeting:** 3pm, Wednesday 7 November  
Room 234, Public Health Building, Herston

# **Appendix 2**

## **Conduct of surveys**

## **Appendix 2.1**

### **Materials for the renewal of ethics approval for main study**

## **Appendix 2.2**

### **Pilot materials for Older Survey 3**

# **Appendix 5**

## **Consents to access Medicare and DVA**

## **Appendix 5.1**

### **Materials used for Medicare/DVA Access**

# **Appendix 6**

## **Data analysis**

## **Appendix 6.1**

### **Privacy protocol**

# **Appendix 8**

## **Dissemination of study findings**

## **Appendix 8.1**

### **Fact sheet for sub-study by Barbara Reen**