report 19

women's health australia

The Australian Longitudinal Study on Women's Health

10 December 2002

The University of Newcastle Australia

in association with

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REPORT 19

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EXECUTIVE SUMMARY

1. The main survey activity for this year has been Survey 3 of the older cohort, now aged between 76 and 81. The usual mailouts, postal reminders and telephone follow-ups have been supplemented with contacts with staff in aged care institutions where appropriate, who in many cases are able to assist older women to participate. The final response rate for this survey is 82%; inevitably, the rates of withdrawal and inability to participate are increasing in this age group, but as much as possible details are obtained on reasons for withdrawal. Survey 3 of the younger cohort will be carried out during 2003, when the women are aged 25 to 30. The survey has been piloted and a small number of minor changes have been made on the basis of pilot responses. The younger cohort still appear highly mobile and a considerable amount of tracking is needed to locate these women.

2. Substudies under way or completed during the reporting period include a survey of younger women's use of contraceptives, and another which surveys younger women on two topics, weight change and maintenance, and the timing of important life transitions. A survey of mid-age women who have never had a child is in progress. Telephone interviews with younger women who combine work, motherhood and a permanent relationship, with younger women regarding decisions about smoking, and with mid-age women regarding body image, are in the final stages of completion. Response rates to the substudies are generally high, suggesting a high level of willingness to participate in projects which are seen as relevant and important to participants.

3. Other research activities during the reporting period have been as varied as ever. Analyses have been conducted on diverse topics. Among the older women, work on psychosocial predictors of coronary heart disease is nearing completion. Among the mid-age women, analyses have included examinations of experiences of abuse and coping, the correlates of cosmetic surgery, the health and health service use of non-heterosexual women, factors associated with weight gain during menopause, and the life choices of childless women. Among the younger women, analyses have addressed the relationships among partner abuse and reproductive health; effective and ineffective use of contraceptives; aspirations for and experiences of work and motherhood; and correlates of smoking, physical activity and weight change. Many of these projects involve research students. One student has completed a thesis in the Masters of Public Health in this period, but of the thirteen current PhD students there are four in the final stages of writing up, who expect to finish their theses over the next few months.

4. A total of nine papers have been published in peer-reviewed academic journals in this six-month period. An additional nine papers have been accepted for publication, and 20 papers have been presented at national and international academic conferences. The published papers reflect the diversity of research work that underlies this multidisciplinary and multi-faceted project. Topics include symptoms and well-being during menopause; weight change and maintenance among young women; contraception; urinary incontinence; sleeping difficulties; leisure and well-being; ethnicity and aspects of self-reported health; relationships between abuse, violence and health; methodological and validity issues; and longitudinal research methods.

5. Methodological work with the survey data is continuing. In the reporting period, analysis of responses to questions about illicit drug use by the younger cohort has continued; this work shows that the majority of young women have tried at least one illicit drug at some time, and that marijuana is by the far the most widely used illicit drug within the sample. Work on the validity and reliability of measures has continued, with analysis of the CESD depression scale and of the Reduced Inventory of Psychosocial Balance. Increasing emphasis on longitudinal

analysis has identified statistical needs which are now being addressed, such as work clarifying the inconsistent reporting of medical history by a proportion of participants.

6. Medicare unit records, for women who have consented to access, for 2000 and 2001 have been received from the Health Insurance Commission. Some progress has been made by HIC staff on the archiving and documentation of their files that are central to the integrity of the project. Meanwhile, data checking and cleaning is being carried out and data books are being prepared by the research team.

7. The Newcastle project office has moved across town, with inevitable disruptions to work schedules, but the new and larger office space is now working well.

1 COLLABORATIVE RESEARCH ACTIVITIES

1.1 SCIENTIFIC MEETINGS AND TELECONFERENCES AMONG RESEARCH TEAM

As the research team has grown and Investigators are increasingly spread over a number of sites, the research team has elected a Steering Committee who participate in teleconferences and other planning activities, and report to the broader group of Investigators. The Steering Committee consists of a core group of Investigators who are able, at the time, to commit considerable effort to the project. Membership is flexible and decided on an annual basis, so that a group of about six people are involved at this level at any one time. Other Investigators receive copies of notes, agendas, minutes and reports, comment on these as they see fit, and participate in teleconferences if the topics raised are of particular relevance to them, but have less of an obligation to be involved in all aspects of the day-to-day management of the Project. The Steering Committee's role is to ensure that all voices are heard. Current Steering Committee members are: Annette Dobson (Chair); Wendy Brown; Julie Byles; Christina Lee; Penny Warner Smith; and Anne Young.

Appendix 1.1 includes minutes for Steering Committee teleconferences held on 1 July, 5 August, 17 September, 21 October and 11 November.

Other meetings held during the reporting period include a planning session for the design of Survey 3 of the Younger Cohort, held in Newcastle on 14 June and attended by Investigators, Associates, staff and research students; a face-to-face meeting of the Data Management group, held in Brisbane on 15 August; and a strategic planning session, held in Newcastle on 28 November and attended by Investigators and staff.

1.2 SUMMARY OF COLLABORATIVE RESEARCH ACTIVITIES

1.2.1 Projects in progress by WHA investigators and collaborators

Project: An exploration of the link between intimate partner violence, self esteem, body image and use of cosmetic surgery.
WHA Collaborator: Associate Professor Margot Schofield
Collaborator: Dr Rafat Hussain (School of Health, University of New England)

The project is designed as a sub-study of the WHA mid-aged cohort and aims to explore women's perceptions about their body image and self esteem, and to link it with history of cosmetic surgery use. A component of the project looks at the link between history of violence and women's opinion of themselves and their bodies, and whether they use cosmetic surgery as a tool to deal with these issues. Data collection is underway with in-depth phone interviews and transcription of phone interview data. We anticipate data collection to be completed by the end of November.

Project: Young women, reproductive health and intimate partner abuse
WHA Collaborator: Professor Christina Lee
Collaborator: Dr Angela Taft (Centre for the Study of Mothers' and Children's Health, La Trobe University)

This project has been funded by the Office for the Status of Women and is using the data from the two completed rounds of the young cohort. The project is due to report first in February next year and will report finally in July 2003.

The project will provide the following information from cross-sectional and linked analyses of the data:

1. An analysis of Survey 1 (1996) data outlining the proportions and characteristics of those who are abused compared with those who are abuse-free, including their reproductive and other health, social support, workforce and parenting status
2. An analysis of Survey 2 (2000) data outlining further the proportions and characteristics of those who are abused in 2000 compared with those who are abuse-free, including their health, social support, workforce and parenting status
3. A report on the linked survey data, which outlines how many women have freed themselves from abuse, how many remain abused and how many women have become subject to abuse. What has changed for these women in any of the previous key indicators?
4. A summary including recommendations for action, for further research, and for the use of later ALSWH surveys to advance understanding in this area.

To date, the analysis of survey 1 continues, with the lifetime and 12 month composite and separate abuse variables developed. These have been compared with all other relevant variables and the comparisons stratified and examined for preparation for more detailed analyses. Odds ratios and confidence intervals will be calculated and a report prepared by the end of the year.

Project:	Comparison of non-heterosexual and heterosexual women in Young Survey 2
WHA Collaborator:	Professor Christina Lee
Collaborators:	Dr Ruth McNair (University of Melbourne), Professor Marian Pitts, Dr Lynne Hillier, Dr Anne Kavanagh, Mr Richard de Visser, Ms Philomena Horsley, Ms Anne Mitchell & Ms Bin Tong (Australian Research Centre in Sex, Health and Society, La Trobe University)
Funding Source:	Women's Health Victoria & Department of Human Services, Tasmania

Project aims and methods

To compare and contrast the health status, risk factors and health service use of non-heterosexual young women with heterosexual.

The initial focus has been in 3 areas: drug use; mental health; and health service use.

We use data from the second survey of 9,683 young women, who were aged 22-27 when contacted in 2000. Our focus is on the 9,260 women who provided information about their sexual identity. Overall, 91.4% were exclusively heterosexual, and 8.6% were not exclusively heterosexual (1.0% were predominantly or exclusively homosexual.) This distribution is similar to other surveys of representative samples.

Data were weighted to correct for over-sampling in non-metropolitan areas. Analyses which distinguished between heterosexual, bisexual, and lesbian women revealed minimal differences between bisexual and lesbian women, so these groups have been combined for the main analyses. Odds ratios were adjusted for three confounding variables: age, father's occupation, and region of residence.

Outcomes
Significant differences have been found between the two groups of women on all outcome measures.

1. ***Drug use***
   Lifetime and last-year measures of the use of licit and illicit drugs were significantly higher in bisexual/lesbian women. Bisexual/lesbian women were also more likely to have injected drugs.

2. ***Mental health***
   Bisexual/lesbian women had poorer mental health, significantly higher levels of depression, anxiety disorder and self-harm/suicidal behaviour. Potential confounders were social support, stress levels and experiences of all forms of abuse.

   Bisexual and lesbian women were more likely to report abuse and had lower levels of social support than exclusively heterosexual women. However, even after adjusting for abuse and social support bisexual/lesbian women remain at higher risk of depression, anxiety and self-reported harm.

3. ***Health service usage***
   Bisexual/lesbian women use more health services. Further detail will follow in the next report.

Project: The role of life transition events in smoking behaviour among young Australian women: a sub-study of the Australian Longitudinal Study on Women's Health
WHA Collaborators: Professor Annette Dobson & Professor Christina Lee
Collaborator: Ms Liane McDermott (School of Population Health, University of Queensland)

Aims
This study, which will form the basis for a PhD by Liane McDermott, aims to examine the influence of life transition events on smoking behaviour among young Australian women. The study investigates factors and contexts surrounding the influences on women never smoking, taking up smoking in their early twenties, and maintaining or ceasing smoking. It uses Greene et al's (1992) framework which identifies four major life stages: 1) leaving home; 2) occupying an instrumental role (such as employment, college or university); 3) marriage; and 4) parenthood. A qualitative sub-study is being conducted using standardised open-ended telephone interviews.

Methods
From the results of Survey 1 of the young cohort in 1996 and Survey 2 in 2000, 80 women (aged between 24 and 29 years) have been selected from four smoking behaviour categories (20 per group):

1) never smoked (non-smoker at Surveys 1 and 2);
2) new adopter (non-smoker at Survey 1, smoker at Survey 2);
3) continuing smoker (smoker at Surveys 1 and 2); and
4) quitter (smoker at Survey 1, non-smoker at Survey 2).

Women in each of these four categories are sent a letter inviting them to participate in a telephone interview to explore how different stages of life may influence cigarette smoking and why some women become smokers while others do not. The women are contacted by phone within two weeks of receiving the letter, provided with further information, and invited to

participate. If the respondent agrees to participate, an appointment is made to conduct an audio-taped telephone interview, of approximately 20 to 30 minutes in length. The interviews are being conducted by trained research assistants at the WHA office in Newcastle.

The interview protocol enables exploration of the influence of personal, social and cultural factors associated with each major life stage experienced by the participant on smoking behaviour. The key areas for discussion were developed from a review of the literature on women and smoking. The interview outline was pilot tested with a focus group of approximately 6-8 young women in Brisbane, who were not members of the WHA cohort. The interview schedule was then pilot tested with women from the WHA cohort by telephone.

The telephone interviews will be audio-taped and will be transcribed (verbatim, where possible), checked for accuracy and placed in the computer program QSR NUD*IST. Qualitative data analysis will then proceed by identifying recurrent patterns and themes present in the data, formulating concepts and examining the meanings and relationships between concepts.

Outcomes so far
Pilot testing of the interview schedule has been completed, women have been selected for participation in the main study and letters of invitation are being sent.

Project:	Weight maintenance in young women (substudy)
WHA Investigator:	Dr Kylie Ball
Collaborator:	Associate Professor David Crawford (School of Health Sciences, Deakin University)
Funding Source:	NHMRC Fellowship and internal Deakin University funds

Aims
To investigate psychological, behavioural, social and environmental factors associated with weight maintenance as opposed to weight gain among young women.

Methods
A subsample of 600 weight maintainers (defined as women who had maintained their BMI within 5% between WHA Surveys 1 and 2) and 600 weight gainers (women who had gained more than 5% of baseline BMI between these surveys) were randomly selected from the young cohort. A self-report questionnaire assessing psychological, behavioural, social and environmental factors relating to diet, physical activity, and weight management behaviours was posted to the women.

Outcomes so far
A response rate of just over 70% has been achieved. Data are currently being coded and prepared for data entry.

Project: What are mid-aged Australian women eating? An investigation of food and nutrient intakes in the Australian Longitudinal Study on Women's Health
WHA Investigators: Dr Gita Mishra, Dr Kylie Ball & Dr Amanda Patterson

Aims
To investigate food and nutrient intakes of mid-aged Australian women by socio-demographic status.

Outcomes so far
Preliminary analysis is completed and the researchers are discussing the most appropriate way of interpreting and presenting the results. Draft paper circulated to potential co-authors. Expected completion Dec 2002.

1.2.2 Completed postgraduate theses (since June 2002)

Project: The contraceptive behaviour of young women in Australia
Degree: Master of Public Health
Candidate: Dr Samantha Hollingworth (School of Population Health, University of Queensland)
Supervisors: Professor Annette Dobson & Ms Anne Russell

Aim
To determine the socio-demographic factors and health related behaviours associated with two aspects of contraceptive behaviour: contraceptive use and contraceptive type used among young women in Australia.

Methods
The study sample comprised 14,779 women aged 18 to 23 years who participated in the 1996 baseline survey of the Women's Health Australia project. Of these, 9,683 women completed the second survey in 2000 when they were aged 22 to 27 years. All data were obtained by self-completed mailed questionnaires. Measures of contraceptive use and contraceptive type were derived from a number of questions on contraception. Associations between contraceptive behaviour and socio-demographic factors and health-related behaviours were examined by multinomial logistic regression.

Results
72% of young women reported using contraception in 1996 and 77% in 2000. The oral contraceptive pill was the preferred method with 70% in 1996 and 73% in 2000, including almost one fifth of all women who used the pill in combination with other methods, including the condom. Between one in four (1996) and one in five (2000) women used condoms with or without other methods (but not the pill). Women who used methods other than the pill or condoms accounted for only about 5% of the sample.

Compared with women who only used the pill, women who used the pill in combination with condoms and other methods (not specified) were more likely to be: never married; older; drinkers; smokers; and to have had a termination or miscarriage. Women who used condoms in combination with other methods (but not the pill) were more likely than women who only used the pill for contraception to be: never married; younger; born in countries of non-English speaking background; women who state their work status as 'home duties'; drinkers; smokers; past users of illicit drugs; obese; and to have had a termination or miscarriage. Women who used other methods for contraception were more likely to be: older; living with children; born in non-English speaking

countries; in an unskilled occupation; non-drinkers; smokers; and to have had a termination or miscarriage compared to women who used the pill alone.

Women born in countries of non-English speaking background were more likely to report not needing contraception or to be pregnant than women who used contraception. Women who were pregnant or trying to become pregnant were more likely to be married or in de facto relationships than women who used contraception. At the time of the second survey one in five women had given birth to at least one child and one in ten women had had a termination.

Conclusion
Most young Australian women use contraception. The pill is the preferred method with considerable use of dual methods (i.e. pill and other methods). Despite the widespread use of contraception, about 10% of women have experienced a termination which indicates a large number of unplanned pregnancies. Strategies to improve contraceptive protection could include: more choice of effective methods; education and provision of emergency contraception; and efforts by health professionals to improve compliance with currently used methods.

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:	December 2002

This study addresses the question of why women tend to 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. The analysis of the mid WHA cohort showed that women who progressed through menopause (pre to post) in a two year period experienced higher mean weight gain (1.5kg) than those who remained pre-menopausal (0.9kg). Although this was the mean result, it is important to note that not all women experienced weight gain with the menopause transition. The nested cohort study aimed to investigate why some women in the menopause transition gained weight, while others avoided weight gain. Of the 875 women surveyed, 326 women gained clinically significant amounts of weight (≥ 2.25kg) over a two year period, while 483 lost weight or remained the same (66 were unable to be categorised). There were no significant differences in the weight of these women at birth, age 18 or age 25. Weight-gainers and non-gainers both commenced adulthood at a mean of 54kg and gained a mean of 12kg by Survey 1 in 1996 (age 45-50). By the nested cohort survey in 1999 the weight-gainers were another seven kilos heavier while the non-gainers were one kilo lighter. Weight-gainers were thus 20 kilograms heavier by mid-age than they had been in early adulthood. The measure of waist circumference was significantly higher for weight-gainers (95 ±13.3 cm) than non-gainers (90 ± 13.2 cm), suggesting that weight differences affected abdominal adiposity.

Despite being at similar stages of the menopause transition, the weight-gainers reported experiencing the vasodilatory symptoms of hot flushes and night sweats more frequently than non-gainers. Previous reports on the nested cohort survey have noted that there were no statistically significant differences between weight-gainers and non-gainers for energy intake or physical activity. However, the weight-gainers scored significantly more highly on measures of emotional eating. In terms of attitudes, weight-gainers more often reported that tiredness and lack of interest had caused a decrease in physical activity, and that emotional eating, craving sweet foods, and

drinking alcohol had increased their energy intake. These and other findings from the sub-study have the potential to inform programs for preventing weight gain in mid-life.

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: February 2003

All data have been collected for the three studies. Study 1 involves 200 patients with unstable angina (not WHA participants) who were assessed at time 1 (in hospital), time 2 (3 month follow-up) and time 3 (12 month follow-up). Study 2 involved 30 patients with stable angina living in the community, and Study 3 involved an analysis of WHA data for older women 1996 and 1999. The data from all three studies have been analysed. The thesis is currently being written and it is anticipated that it will be submitted in February 2003.

Project: Women's experiences of domestic abuse in rural and remote Australia
PhD candidate: Ms Deborah Loxton (School of Health, University of New England)
Supervisor: Dr Rafat Hussain
WHA collaborators: Associate Professor Margot Schofield & Professor Christina Lee
Funding Source: APA Postgraduate Award, qualitative interviews partially funded by Keith and Dorothy McKay Travelling Scholarship
Expected Completion: February 2003

Aim
To report on the experiences of women who lived in an abusive relationship in rural and remote regions, their experiences of help seeking, their fears around confidentiality, and their experiences of leaving an abusive relationship.

Method
The transcripts of qualitative interviews conducted with a subsample of the mid-aged cohort during 2001 were examined for themes and issues relevant to women who had experienced domestic abuse while living in a rural or remote region.

Outcomes
Women from rural and remote areas who experienced domestic abuse tended to be isolated, and faced an increased risk of being threatened with a firearm, compared with urban women. Help seeking was inhibited by isolation, distance, fears about confidentiality, social relationships between the perpetrator and help providers, poor rapport with doctors, previous adverse responses, and a fear of not being believed. Help seeking was enhanced when help providers could engender trust, which included assurances of confidentiality, a non-judgmental attitude, and being a 'stranger' to the area. In the short term, leaving an abusive relationship was found to involve moving house, leaving the local community, finding work, replacing possessions that were left behind, financial hardship, and loss of friendships.

Two papers concerning domestic violence and health service use, and domestic violence and physical health are in the final stages of preparation. Three further papers concerning domestic violence and gynaecological/breast health; domestic violence and psychological health; and mediating factors in the relationship between domestic violence and health are currently in progress.

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: June 2003

The theme of this PhD thesis continues to be the evaluation of Australian women's efforts to cope with their experiences of abuse. Analyses to date have included general descriptive data, predictors of poor physical and emotional health, evaluation of health and socio-economic status, and qualitative assessment of respondents' insights and observations from the 1999 substudy. A review of qualitative responses to the November 2000 substudy on coping with abuse has been completed, and preliminary analysis of objective measures in the same survey has commenced. The next stage of this ongoing research will be completion of the statistical analyses, and integration of findings from the qualitative and quantitative data. It is anticipated that these investigations will increase understanding of coping efficacy, and elucidate factors that underlie individual differences concerning positive outcomes in emotional health.

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, 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

This project aims to investigate childlessness amongst Australian women. While we know little about this phenomenon, it is a matter of significant public interest because Australia's fertility rate has been declining since the early 1970s both because of women having fewer children and more women remaining childless. This research therefore seeks to increase our understanding of the reasons why childless women may not have given birth to a child, the role of choice in this reproductive outcome, and their feelings about being childless. To complement data already collected by Women's Health Australia, a substudy has been designed to investigate these issues. Women in the mid-age group of Women's Health Australia who have already indicated they have never given birth to a child have been invited to participate.

After receiving ethics approval from both the University of Melbourne and the University of Newcastle pre-piloting and piloting phases of the project have been successfully completed. The survey was mailed to participants in the mid-age group of Women's Health Australia who were eligible to participate in October 2002.

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
WHA Collaborator Associate Professor Julie Byles
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, is available to treat menstrual symptoms. Factors such as socio-economic status, social support, geographical location, education, menopause, emotional and sexual consequences, may also influence a woman's satisfaction with the outcomes of hysterectomy. To investigate these issues, two studies have been conducted.

The first is a prospective cohort study which aimed to determine women's satisfaction with the outcomes of hysterectomy compared to alternative treatments. Women participating in the mid-age cohort of WHA who had experienced menstrual symptoms were invited to participate. Baseline and follow-up data for the prospective study have been collected and data entry is complete. Data analysis for the prospective study is currently being conducted.

The second study is a cross-sectional study and aims to determine the characteristics of WHA participants who have had a hysterectomy as a treatment for menstrual symptoms and to identify relationships and pathways from menstrual symptoms to hysterectomy. The cross-sectional study data collection, data entry and analysis have been completed. The preliminary results indicate that the women are satisfied with their hysterectomy. However, very few of the women had tried other treatments for their menstrual symptoms prior to hysterectomy.

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 & Dr Pam Nilan
Funding Source: Departmental Grant, Department of Sociology and Anthropology, University of Newcastle
Expected Completion: November 2003

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.

In the last six months the data collected in a substudy involving WHA participants have been entered and coded and the analysis will shortly be complete for the statistical element of the PhD research. Early December is the expected completion date. Data are currently being graphed.

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: Research Centre for Gender and Health Scholarship, University of Newcastle
Expected Completion: December 2003

The four key life domains being studied are living arrangements, employment, relationships and motherhood. These have been defined, and women at different stages of the transition to adulthood in each of these domains have been compared on health (PCS, MCS), health behaviours (smoking, alcohol bingeing, and physical activity), life satisfaction and stress cross-sectionally for Survey 1 and Survey 2. A combined variable of all four life domains has also been defined and the analysis with the same variables is underway. The next step in this section of the project is to define the transitions within these life domains from Survey 1 to Survey 2, and relate transitions to women's Survey 2 levels of health outcomes (whilst controlling for their Survey 1 levels).

The other section of this project involves a substudy. So far data have been gathered from 850 participants (out of 1,200 targeted) in the young cohort. Questions about when the participants first moved out of home; first stopped full time education; first started full time work; first became financially independent; first had a live in relationship; first married; and gave birth to their first child were asked along with questions on life satisfaction and stress. Responses to these questions will allow the exploration of the timing, spacing and sequencing of the transitions in the four key life domains, and their impact on health outcomes.

Project: Psychosocial risk factors for pregnancy, childbirth, and pregnancy risk-taking in late-adolescent females: evidence from Women's Health Australia.
PhD Candidate: Ms Lauren Miller-Lewis (School of Psychology, Flinders University of South Australia)
Supervisor: Dr Tracey Wade
WHA collaborator: Professor Christina Lee
Funding Source: Australian Postgraduate Award, Flinders University of South Australia Research Budget Grant
Expected Completion: May 2004

Aims, methods and outcomes
This research aims to identify psychosocial risk factors of late-adolescent pregnancy, childbirth and pregnancy risk taking. Two stages to this project will be combined in order to achieve this aim.

***Study 1*:** Existing WHA data from Surveys 1 and 2 of the young cohort (conducted in 1996 and 2000) were analysed. The relationship between reproductive behaviour and socio-demographic, psychosocial well-being, and aspirational factors was assessed in a sample of 1,647 late-adolescent females selected from the young cohort. Cross-sectional findings indicated that lower psychosocial maturity correlated with both late-adolescent pregnancy and birth, and behavioural risk factors such as smoking and binge drinking correlated with late-adolescent pregnancy. Low educational involvement combined with low status employment was also correlated with late-adolescent childbirth. Longitudinally, poorer psychosocial well-being and aspirations for a large family combined with low job aspirations were associated with both late-adolescent pregnancy and childbirth. Stress and alcohol use were additional risk factors for pregnancy, and unemployment combined with lower income another risk factor for childbirth. These findings provided some

support for the Eriksonian developmental model of adolescent pregnancy and childbirth, in that psychosocial well-being partially mediated the relationship between unemployment/income and subsequent late-adolescent childbirth. It was concluded that psychosocial factors play an important role in the understanding of late-adolescent pregnancy and childbirth.

Study 2: This study aims to identify psychosocial risk factors of late-adolescent pregnancy risk-taking. A contraceptive use questionnaire measuring pregnancy risk-taking (defined as inconsistent and non-optimal use of contraception), was designed and pilot tested with the WHA pilot group. Following this, the questionnaire was sent to 120 of the youngest late-adolescent women from the WHA young cohort. Currently 87 (72.5%) have been returned. Pre-existing information on their psychosocial status will be used to identify possible risk and protective factors for pregnancy risk-taking in these young women.

The findings from these studies will be used to inform future Australian research and to provide recommendations for efforts to prevent adolescent pregnancy.

Project:	Young women, multiple roles and mental health: epidemiological and lay perspectives
PhD Candidate:	Bev Lloyd, School of Public Health, University of Sydney
Supervisors:	Associate Professor Susan Quine (School of Public Health, University of Sydney) & Professor Christina Lee (Women's Health Australia)
Expected completion:	December 2004
Funding Source:	NHMRC Public Health Scholarship

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 of 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 is using quantitative (aims 1 and 2) and qualitative (aim 3) methods. In 2002 the student has obtained ethics approval for the study, undertaken an extensive literature review that will form the basis of a review article on social roles and mental health, and collected qualitative data by research interview with 20 young women.

Project:	Methodological issues in the analysis of the Australian Longitudinal Study on Women's Health data: an examination of mood in older Australian women
PhD Candidate:	Ms Nadine Smith (School of Population Health, University of Queensland)
Supervisors:	Professor Annette Dobson & Dr Nancy Pachana
Funding Source:	NHMRC Public Health Postgraduate Research Scholarship & School of Population Health, University of Queensland
Expected Completion:	January 2005

Aim

The main aim of this PhD thesis is to undertake methodological research to ensure that the complex relationships between mood, psychosocial characteristics, life events, environmental factors and demographics amongst the women in the Australian Longitudinal Study on Women's Health (ALSWH) are rigorously examined. This is important because failure to consider the complexity of these relationships may lead to spurious effects being incorrectly identified.

Methodological issues in the measurement of mood and related psychosocial factors that will be addressed in this thesis include:

- issues related to scales,
- problems with the factor analysis of scales with both positively and negatively phrased items,
- determining the effects of telescoping and depression on responses to life event items,
- examination of psychosocial variates related to mood,
- determining whether mood is affected by social support or elder abuse or visa versa, and
- assessing change in mood, in particular adjusting for regression to the mean.

So far two areas have been addressed. These are the problems with the factor analysis of scales with positively and negatively phrased items, and determining the effects of telescoping and depression on responses to life event items.

Method

The study sample will predominantly be based on women in the older cohort but will be extended to include women in the young and mid-age cohorts for the analysis of life events. Data simulations will be conducted to address statistical issues in the ALSWH data set related to the investigation of factor analysis of scales that have both positively and negatively phrased items.

Problems with the factor analysis of scales with positively and negatively phrased items

Research Question

What item response conditions lead to data that in theory should have only one factor, forming two factors reflecting the direction of item wording? For example, a scale that should have one factor may appear to have one factor containing only the positive items and another factor containing the negative items.

Outcomes so far

Data simulations were conducted and it was found that items with a very skewed response distribution can lead to identification of spurious factors based on the direction of item wording. Analysis is still being conducted.

Determining the effects of telescoping and depression on responses to life event items

Research Questions

- Can telescoping be identified in responses to life event items?
- Does mood affect responses to life event items?

Outcomes so far

The phenomenon of telescoping occurs when the time of past events is remembered incorrectly. Participants tend to estimate the time of remote events too recently. The reported incidence of all life events in the 12 months before Survey 1 was higher than the reported incidence in the 12 months before Survey 2 for both the mid and young cohorts. While some of the differences in incidence may relate to the life stage of the women (e.g., going through menopause), for most events changes in 12-month incidence would not have been expected. Women who were depressed (i.e., had low mental health scores) reported a higher incidence of almost all life events indicating that mood has an impact of reported life events.

Project:	Women's experiences in overcoming depressive symptoms
PhD Candidate:	Ms Kate France (Research Centre for Gender and Health, University of Newcastle)
Supervisors:	Professor Christina Lee
Funding Source:	Australian Postgraduate Award, University of Newcastle
Expected Completion:	November 2005

This research will involve examining the attitudes and psychological wellbeing of a cohort of young women who presented at Survey 2 in 2000 as having depressive symptoms and who no longer have the same presentation at Survey 3 in 2003. The substudy will comprise a telephone questionnaire with questions around the issue: "What do you think makes the difference?"

Demographic and health-related data from Survey 2 have been analysed to explore differences between young women who scored 10 or more on the Centre for Epidemiological Studies Depression Scale versus those who scored less on this scale. An article with these results is currently being drafted.

2 CONDUCT OF SURVEYS

2.1 MAIN COHORTS

2.1.1 Older Survey 3 (final stages)

The development of Survey 3 of the older cohort has already been described in some detail. Report 16 (June 2001) described pre-pilot testing and the initial development of the draft survey; Report 17 (December 2001) described the pilot testing process and the changes to the survey that resulted from piloting; and Report 18 (June 2002) described the initial mailout, timeline and progress in the first half of this year. 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 12 October 2002.

Table 1 Response rates for Older Survey 3 (at 12 October 2002)

	N	%
Completed Surveys	8,468	81.7%
Deceased	89	0.8%
Withdrawn	572	5.5%
Not this time	446	4.3%
"Will do"	374	3.6%
No contact to date	241	2.3%
Lost to follow-up	30	0.3%
TOTAL	10,220	

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 18 April, 3 June and 10 July 2002 to a total of 580 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. Where appropriate, nursing staff at aged care institutions have been asked to assist in survey completion. The "lost to follow-up" category generally consists of women whose telephones have been disconnected or the numbers have been reassigned; who are not listed in the electronic White Pages; who do not appear on the Electoral Roll; whose secondary contacts are unavailable or unable/unwilling to provide contact details; and who are not listed in the National Death Index. Attempts to track these women are continuing.

2.1.2 Younger Survey 3 (pilot phase)

Preparation for the third survey of the younger cohort, to be administered in 2003, began in the first half of 2002. Based on review of Survey 2, and discussion of principles and proposals for continuity and for modification of items, a meeting of the research team took place on 14 June 2002 at the University of Newcastle. Principles underlying the discussion were that consistency was important for the longitudinal design; and that a survey that was any longer than Younger Survey 2 (32 A4 pages, over 500 separate items) might be unacceptable to many participants, and would also have practical implications such as postage and printing costs. Within these constraints, items were considered for deletion if they were unlikely to change (eg birth weight) or were of peripheral interest, for modification if there was a need to reflect changes in the respondents' lives (eg contraception items), and for addition if they might enhance the projects' ability to answer questions of relevance to the key areas of interest.

Main additions included:

The Cancer Council of Victoria's Food Frequency Questionnaire, already used in Survey 3 of the mid-age women, which provides data on macro- and micro-nutrients and energy intake as well as descriptive information on food intake.

The Anxiety Scale of the Goldberg Anxiety and Depression Scale, to provide a validated measure of anxiety that complements existing measures of depression and allows the relationships between mental health, social circumstances, health service use, and physical health to be explored more thoroughly.

Other psychological measures, including the Attitudes Towards Self Scale and the BIS/BAS, were considered but eventually rejected because of the lack of evidence of relationship with health behaviours, health outcomes, or health service use, and because of the need to avoid lengthening the survey.

Modifications were made to numerous other items to improve clarity, to reflect changes in services and products available to Australian women, and to maintain relevance to the participants as they move through their 20s. The final content of the pilot survey, and the relationship of each item to items in Younger Survey 2 (2000), is outlined in Table 2.

Table 2 Young Survey 2 items and changes included in pilot Young Survey 3

Y2 No.	Y3 no.	Question description	Source	Changes in Young 3 Pilot
Health Service Use				
1 a-b	1 a-b	No. of times consulted a family doctor or a GP	WHA	NONE
2 a-b	2 a-b	No. of times consulted a specialist doctor	WHA	
3 a-f	3 a-f	No. of times consulted health care professionals	Modified from ABS. 1989-1990 National Health Survey. Summary of results, Australia. Canberra: ABS, 1991; Catalogue No. 4364.0.	Change "people" to "services" in stem. Delete sexual health service and family planning service (both very rarely used). Add "A community nurse, practice nurse or nurse practitioner" and "Health information on the internet"
4	4	Admitted to hospital	WHA	NONE
5 a-b	5 a-b	Consistency of GP visit	WHA Health Services Substudy (HSS)	
6 a-j	6 a-j	GP satisfaction	Modified from Davies AR & Ware JE. *GHAA's Consumer satisfaction survey and user's manual*, Second edition. Washington, DC: The Group Health Association of America (GHAA), 1991. Then revised according to data from AUHS.	
7	7	GP gender preference	WHA	
8 a-k	8 a-k	Access to health care	WHA - HSS	
9	9	Health care card	WHA	
10	10	Health insurance for hospital cover	WHA - HSS	
11	11	Health insurance for ancillary services	WHA - HSS	
12 a-v	12 a-r	Medical History	Modified from ABS 1989-1990 NHS	Change instruction from "Have you ever been told by a doctor that you have…" to "In the past three years have you been diagnosed or treated for…" (same as Mid 3) Change 2 columns to one – YES in the past 3 years Delete R HIV or AIDS (rare) Combine o, p and q as STIs - uncommon delete n (chronic fatigue) – very uncommon

Y2 No.	Y3 no.	Question description	Source	Changes in Pilot
Coping with common problems				
13 a/b/c a-t	13 a/b/c a-v	Symptoms and help seeking	WHA (Survey 1) with revisions	Wording in Column B changed: from "for the problems you had, did you seek help?" to "if yes, did you seek help for this problem?" NEVER option added (parallel with Y1 and with Mid 3 and Old 3) Add: Stiff or painful joints Problems with one or both feet (parallel with Old 3) Delete "I have had none of these problems" (not needed with NEVER option)
How you are feeling				
14 - 24	14-24	SF-36	Ware JE & Sherbourne CD. The MOS 36-Item Short-Form Health Survey (SF-36): I. Conceptual framework and item selection. *Medical Care*, 1992; 30: 473-483.	NONE
25 a-b	25 a-b	Serious illness/condition/ Disability	WHA	
26	26	Need for care	Modified from ABS. *Disability, Ageing & Carers, Australia: Summary of Findings*. Canberra: ABS, 1993; Catalogue No. 4430.0.	
Sexual and reproductive health				
27 a-c	27	Age of first period, sexual intercourse, baby	WHA	Change to "at what age did you first have sexual intercourse?" Delete age of 1st period – no change – and age at first baby now included in Q36
28		Help with first baby	WHA	Delete
29		Freq. of period in past 3 months	WHA	
30	28	Sexual orientation	WHA	NONE
31 a-b	29 a-b	No. of sexual partners	WHA	

Y2 No.	Y3 no.	Question description	Source	Changes in Pilot
32 a-g	30, 31, 32	Contraception	WHA	Modified extensively on the basis of work with Young 2 data, now three separate questions
33	33	Years taken OCP	WHA	Responses re-categorised at upper end
34	34	Currently pregnant	WHA	NONE
35 a-e	35 a-e	Reproductive history	WHA	Include "none" option on each line
NEW	36	Children's birthdates	WHA	Dates of children's births – as used for widowhood in Old 3
36	37	Pap test	Modified from ABS 1989-1990 NHS	NONE
37	38	Abnormal pap test	WHA	
38	39	Infertility problems	WHA	Add "No" to first two options for clarity
Health habits				
39	40	Height	WHA	NONE
40	41	Weight	WHA	
41		Birth weight	WHA - substudy on weight gain at mid life	DELETE
42	42	Weight preference	WHA	NONE
43	43	Dieting in last year	French SA, Story M, Downes B, Resnick MD & Blum RW. Frequent dieting among adolescents: psychosocial and health behaviour correlates. *American Journal of Public Health*, 1995; 85(5): 695-701.	
44 a-c		Lost/gained 5 kg	WHA	DELETE
45 a-b	44 a-b	Dissatisfaction with weight or shape	WHA	NONE
46		Binge eating	Fairburn CG & Beglin SJ. Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, 1994; 16: 363-370.	DELETE
47		Loss of control over eating	Modified from Fairburn & Beglin (1994).	
48		No. of times of loss of control	WHA	
49		How long…loss of control	WHA	
50 a/b a-j		Methods of losing weight	Modified from Fairburn & Beglin (1994) and French et al. (1995).	
51a/b a-e		Exclusion of foods from diet	WHA	

Y2 No.	Y3 no.	Question description	Source	Changes in Pilot
52 a-f	45 a-f	Medications	WHA	Use Yes/No in place of how many Examples changed to reflect common prescribing patterns for young women (on advice of Dr David Smith)
53-58	46-51	Smoking questions	Australian Institute of Health & Welfare. Standard questions on the use of tobacco among adults. (1998)	NONE
59-61	52-54	Alcohol questions	Modified from National Heart Foundation of Australia. *Risk factor Prevalence Study No. 1* (1980). Woden: NHF, 1981.	
62-64	55-57	Drugs for non-medicinal purposes	The Drug Offensive: A federal and state initiative. National Drug Strategy Household Survey 1995.	Delete steroids and analgesics from 62 – on basis of analysis of Young 2 data Add "b to j" to 57b to avoid misinterpretation of marijuana combination item
65-66 a-d	58-59	Exercise questions	WHA	NONE
67	60	Hours spent sitting down	WHA - Substudy on weight gain at mid life	Delete minutes boxes – confusing and unnecessary level of detail
	61-78	Food Frequency Questionnaire	Cancer Council of Victoria Ireland P, Jolley D, Giles G, O'Dea K et al. Development of the Melbourne FFQ: a food frequency questionnaire for use in an Australian prospective study involving an ethnically diverse cohort. *Asia Pacific Journal of Clinical Nutrition* 1994;3:19-31.	
How you feel about yourself				
68 a-p		Erikson's stages of development	Domingo G & Affonso DD. A personality measure of Erikson's life stages: the Inventory of Psychosocial Balance. *Journal of Personality Assessmen*t, 1990; 54(3&4): 574-580.	DELETE
69 a-f	79 a-f	Optimism – approach to life	Modified from Scheier MF, Carver CS, Bridges MW. Distinguishing optimism from neuroticism (and trait anxiety, self-mastery and self-esteem): a reevaluation of the Life Orientation Test. *Journal of Personality & Social Psychology*, 1994; 67(6): 1063-1078.	NONE

Y2 No.	Y3 no.	Question description	Source	Changes in Pilot
71 a-j	80 a-k	Sources of stress	WHA	Additional source of stress included – "Motherhood/children"
	81 a-e	Life changes	Sandra Bell substudy	
70 a-ll	82 a-jj	Life events	Modified from Norbeck JS. Modification of life event questionnaire for use with female respondents. *Researching in Nursing & Health*, 1984; 7: 61-71.	Remove 2 of 37 items - x. Change at work bb. Parent losing job Change order on page
NEW	83 a-i	Anxiety	Anxiety items from Goldberg Anxiety & Depression Scale (Goldberg D et al., Detecting anxiety and depression in general medical settings. BMJ, 1988, 297: 897-9.)	
72 a-k	84 a-k	Depression - CESD	Andresen EM, Carter WB, Malmgren JA & Patrick DL. Screening for depression in well older adults: evaluation of a short form of the CES-D. *American Journal of Preventive Medicine*, 1994; 10: 77-84.	NONE
73, 74	85, 86	Not worth living, Self-harm	Modified from Beck A, Schuyler D & Herman I. Development of the Suicide Intent Scale. In Beck AT, Resnick HLP & Lettieri D. *The prediction of suicide*. Bowie PA: Charles Press, 1974.	NONE
Juggling time				
75 a-i.	87 a-g	Time use	WHA, items modified from ABS (1992) Time use survey.	Combine a, b and c as "paid work" Change examples for active and passive leisure to match 1997 ABS time use survey
76a-e	88a-g	Types of work	WHA	Change "run own business" to "self-employed". Add "paid work in two or more jobs" and "casual paid work" with definition
NEW	89	Job security	Saunders et al. Just Policy 2001	NEW
77	90	Satisfaction with hours in paid work	Modified from ABS (1992) Time use survey. Canberra: ABS, 1993.	Delete GO TOs
78		Reason for wanting fewer hours of work	WHA	DELETE
79		Reason for not doing more hours of work	WHA	
80	91	Care for others	Modified from ABS (1993) Disability, Ageing and Carers Australia	NONE

Y2 No.	Y3 no.	Question description	Source	Changes in Pilot
NEW	92a-d	Happy with share of tasks	WHA Young 1 item 65a-d	
81 a-b	93 a-b	Rushed/pressured	Modified from Statistics Canada (1985)	
87	94	Living arrangements	ABS Census dictionary. 1996 Catalogue No. 2901.0	Replace with question on marital status instead (census question with "de facto" added).
88		Marital status	ABS Census dictionary. 1996 Catalogue No. 2901.0	
Family and friends				
84 a-k	95	Who lives with you	Modified from ABS (1994) Social, Labour and Demographic Statistics	Change to "which of the following best describes the household you live in" – categories from Sandra Bell's work on living arrangements from Y2 data
85 a-d	96a-d	No. of children at home	WHA	Change "your own or your partner's" to "your own, your partner's, fostered, etc"
82	97	Satisfaction with child care arrangements	WHA	Shifted from previous section to fit on page
83	98	Use of child care	WHA	
89a-f	99a-f	Social support available - MOS SSS	Sherbourne CD & Stewart AL. The MOS Social Support Survey. *Social Science & Medicine*, 1991; 32(6): 705-714.	NONE Shifted position to fit on page
90		Violence	WHA - Violence substudy	DELETE
91 a-e	100 a-e	Type of violence	WHA - Violence substudy	Change stem to "in the past 3 years" Shifted position to fit on page
86 a-i	101 a-i	Getting on with other people	Modified from Neale AV, Hwalek MA, Scott RO & Stahl C. Validation of the Hwalek-Sengstock elder abuse screening test *Journal of Applied Gerontology*, 1991; 10(4): 406-418.	NONE Shifted position to fit on page
You and your life				
92		Number of moves in past 3 years	WHA	DELETE
100	102	Date of birth		
94	103	Highest qualification	Modified from ABS Census. 1996.	NONE
95	104	Main occupation	ABS. Australian Standard Classification of Occupations Second Edition. 1997. Catalogue No. 1220.0. From the Web page.	Delete occupation of parents Ask for actual occupation, not future (delete instruction to students)
96		Education level of parents	WHA	DELETE

Y2 No.	Y3 no.	Question description	Source	Changes in Pilot
97	105	Unemployed	WHA	Changed to “are you currently unemployed and actively seeking work?”
93	106a-b	Postcode	WHA	Residential and postal, as for Mid 3
98	107	Income	WHA	NONE
99	108	Number dependent on this income	WHA	
	109	Manage on income	As in Old 3 and Mid 3	
You and your future				
101	110	Employment at 35	Modified from Hakim C. Grateful slaves and self made women: fact and fantasy in women's work orientations. *European Sociological Review*, 1991; 7(2): 101-121.	NONE
102		Job at 35	Modified from Hakim (1991)	DELETE
103	111	Relationship at 35	Modified from Hakim (1991)	NONE
104	112	Children at 35	Modified from Hakim (1991)	
105	113	Qualifications at 35	WHA	
106 a-h	114 a-h	Satisfaction with life	WHA	

Survey 3 was piloted during August to October 2002. Approval for pilot testing was obtained from the University of Newcastle Human Research Ethics Committee, and the pilot survey was mailed to 333 women in the Bathurst and Illawarra areas, who had also served as pilot test participants for Younger Surveys 1 and 2 (an additional survey was sent to a woman who was found to be ineligible). Participants were mailed a package containing the survey, a covering letter, and a change-of-contact-details form (see Appendix 2.1. for copies of all materials).

Tables 3 and 4 summarize the pilot procedure and response rates. The pilot procedures were conducted by Joy Goldsworthy. As well as the standard procedures outlined below, a total of 26 packages were returned to sender. Of these, 19 women were traced to new addresses and replacement packages were sent.

Table 3 Piloting Young Survey 3: Response rates at each contact stage

	Date	Number sent/phoned	Response rate up to each stage (%)*	Cumulative response rate (%)*
Package	27 August 2002	334		
Thank you reminder	9 September 2002	320	70 (21.0%)	70 (21.0%)
Reminder 2	1 October 2002	169	72 (21.6%)	142 (42.6%)
Phone reminder	15 October 2002	164	16 (4.8%)	158 (47.4%)
Response rate to date	21 November 2002		54 (16.2%)	213 (64.1%)

** Ineligible taken out of denominator*

Table 4 Piloting Younger Survey 3: Summary of response rates (as at 21 November 2002)

Status	Number	%
Packages sent	334	
Completed	213	63.8
Not this time	9	2.7
Overseas	9	2.7
Ineligible	1	0.3
Lost to follow-up	15	4.5
Withdrawal	6	1.8
RTS	3	0.9

Pilot survey data were collated, summary statistics were prepared, and respondent comments collated. On the basis of response rates, missing data, comments written on the survey, and responses to the evaluation sheet, minor modifications to the pilot questionnaire were made. The first was the correction of an error to Item 13a (symptoms) - the instruction to "mark all that apply" was replaced with the instruction to "mark one on each line". In Item 13a, the option “never” was replaced with “no”. A further option was added to Item 88 "Do you normally do any of the following kinds of paid work?" because piloted question did not provide an option for women who had paid work under "normal" conditions. It had been intended that this status could be inferred from surrounding questions about time use, but approximately one third of pilot respondents indicated that they wanted to be able to indicate their work status at Item 88. Thus an additional alternative, "Paid work involving none of the above" was included. An additional item on indigenous status, from the 2001 Australian Census, was included.

88 Do you normally do any of the following kinds of paid work?
(Circle <u>all that apply</u>)

a	Paid shift work	1
b	Paid work at night	1
c	Paid work from home	1
d	Self employment	1
e	Paid work in more than one job	1
f	Casual paid work (work in a job which doesn't provide holiday pay or sick leave)	1
g	Paid work involving none of the above	1
h	I don't do any paid work	1 → go to Q90

2.2 SUBSTUDIES

Conduct of substudies by Investigators and research students is an important aspect of the Study that permits a more detailed analysis of specific topics than is possible in the three-yearly main surveys. Individual reports on substudies completed and in progress appear in Section 1 of this report, while this section summarizes their number, range and type to provide an indication of the participant contact activities that have been carried out over the current reporting period. Table 5 provides details of substudies.

Table 5 Details of substudies and other participant contact activities

Topic	Student/Collaborator	Funding source	Research method	Participant numbers	Progress to date (24/10/02)
Maintenance of healthy weight	Dr Kylie Ball, Deakin University	NHMRC	Mailed surveys	30 pilot +1200 main younger women - 50% had maintained weight from Survey 1 to Survey 2, 50% had gained weight - one survey included items for both substudies in order to reduce costs and participant load	Completed, with 70% response rate.
Life transitions	Ms Sandra Bell, PhD student, Research Centre for Gender & Health, University of Newcastle	WHA			
Contraceptive use	Lauren Miller, PhD student, Department of Psychology, Flinders University	Dept of Psychology, Flinders	Mailed surveys	20 pilot + 140 main younger women	Completed, with 75% response rate.
Childlessness	Heather McKay, PhD student, Key Centre for Women's Health, University of Melbourne	University of Melbourne	Mailed surveys	15 pilot + 560 main mid-age women who have never had a child	Pilot completed with 93% response rate (14/15). Main survey in progress.
Violence and cosmetic surgery	Assoc Prof Margot Schofield, University of New England (UNE)	UNE small ARC grant	Phone interviews	27 mid-age women	In progress. 22 interviews conducted to date.
Multiple roles	Ms Bev Lloyd, PhD student, School of Public Health, University of Sydney	University of Sydney	Phone interviews	10 pilot + 100 main young women with partners, children and paid work	In progress. 21 interviews conducted to date.
Retirement plans	Dr Christine Everingham, School of Social Sciences, University of Newcastle	University Newcastle small ARC grant	Focus group	8-12 mid-age women from Newcastle area	Focus group being arranged.
Cigarette smoking	Ms Liane McDermott, PhD student, School of Population Health, University of Queensland	School of Population Health, University of Queensland	Phone interviews	80 young women smoking adopters, quitters, never-smokers, and always-smokers (on basis of Surveys 1 and 2)	Pilot interviews complete, main interviews in progress.

2.3 REPORT ON THE SUGGESTED EXPANSION OF THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH TO INCLUDE ADDITIONAL INDIGENOUS WOMEN LIVING IN URBAN AREAS

As one approach to studying the particular health needs of Indigenous Australian women, the research team was requested to prepare a report on the feasibility of expanding the main cohorts by adding Indigenous women. This Report was prepared by Natalie Grove under the supervision of Annette Dobson, and with input from key stakeholders throughout Australia. A complete report has been provided to the Commonwealth Department of Health and Ageing, and the summary below has been abstracted from that.

2.3.1 Summary of report

This report was commissioned by the Commonwealth Department of Health and Ageing to examine the feasibility of expanding the Australian Longitudinal Study on Women's Health (ALSWH) by recruiting additional urban Aboriginal women and Torres Strait Islander women. The purpose of such an expansion would be to provide adequate data for health service policy makers, planners and providers and for public health research into matters relating to the health of Indigenous women.

There are two main sections to the report. One discusses ethical issues and the principles of Indigenous research. The other examines a range of methodological issues specific to expanding the ALSWH and increasing its capability to provide valid and reliable information relating to the health of Indigenous women.

Established and emerging principles of ethical research involving Indigenous people go beyond the current NHMRC Guidelines on Ethical Matters in Aboriginal and Torres Strait Islander Health Research (1991). Consultation is a foundation stone. A national study would require particularly complex consultations with numerous communities and organisations, not only at the design stage but throughout the life of the project. The principle of benefit to Indigenous peoples from research includes interventions to improve health as well as enhancing research skills in the community and sharing the rewards of research. Community involvement includes acceptance of Indigenous ways of knowing, culturally appropriate methodology, ownership of data, and authority regarding the dissemination of findings.

There are considerable methodological challenges in conducting longitudinal studies involving Indigenous people. These were recognised in the initial submissions for the ALSWH. Subsequent experience, including separation of the main ALSWH and the Indigenous component, the Aboriginal and Torres Strait Islander Women's Health Project, has elucidated the issues. Indigenous women die younger and their life stages are compressed relative to other Australian women. A life course perspective therefore requires a different time frame as well as needing to take account of Indigenous issues of identity, community, land and self-determination. It is frequently argued that for Indigenous research, the community rather than the individual should be the unit of analysis. At an individual level, the notion of continual participation in a project over time with following and keeping track of people is likely to be treated with suspicion and this can result in poor recruitment and retention rates. Nevertheless, despite these limitations several longitudinal research projects involving Indigenous people have been (or are being) conducted. The lessons that can be learnt from them include the crucial role of consultation and on-going communication, the need for long and flexible time frames, and demonstration of clear benefit to the communities involved.

Lack of good quality Indigenous identifiers in major national databases (including Medicare and electoral rolls) means that it is difficult to obtain a sampling frame of a study of Indigenous health from a population perspective. Additionally some features of the ALSWH, such as the use of mailed, written questionnaires, are likely to be particularly problematic. Also, the validity of some of the scales may be sensitive to cultural differences.

As the ALSWH is already established and the main methodology has been in operation since 1996, the fundamental consultation needed before the commencement of any study of Indigenous health is not possible. For this reason alone we strongly recommend against trying to recruit additional Indigenous women from urban areas to the study. Furthermore many of the methods used in the ALSWH are inappropriate for examining Indigenous health and any findings will be of dubious value.

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

3.1 VALIDATION OF THE CENTER FOR EPIDEMIOLOGICAL STUDIES DEPRESSION SCALE AMONG THE MID-AGE COHORT

This report, prepared by Jenny Powers, examines the reliability and validity of the Center for Epidemiological Studies Depression Scale (CESD) with the mid-age sample. The CESD has been used in all surveys since Mid Survey 2 (1998). A report on levels of missing data in the different age groups was included in Report 16 (June 2001).

3.1.1 Overview

The reliability and validity of the 10-item version of the Center for Epidemiological Studies Depression Scale (CESD) was examined with the mid-age cohort of the Women's Health Australia study. The CESD is a self-report screening measure for depression that has been widely validated. Construct validity of the 10-item measure was assessed by using factor analysis to confirm the existence of a single factor. Reliability of the factor structure was assessed using inter-item correlations and Cronbach's alpha to assess internal consistency, communalities, amount of variance explained by the factors, and sampling adequacy (MSA). Concurrent validity was assessed through correlations with the SF-36 MCS, whether participants had ever been diagnosed with depression, and how often they reported having felt depressed in the past 12 months. Validity of the factor structure was also assessed by correlations with a range of demographic, psychosocial and health related variables potentially associated with depression, such as marital status, life events, social support, and stress.

3.1.2 Methods

The sample for this study consisted of mid-age respondents to both the 1996 survey and the full-length version of Mid-Age Survey 2 in 1998 (n=11,648). The response rate for this analysis was 85.2% of those who consented to further contact at phase 1 and had not died or become too ill (n=13,664). A further 690 women (5%) completed the short version of Survey 2, which did not include the CESD. Non-respondents were those who did not return the survey (6.2%), those who declined to continue (1.5%), and women who were overseas or could not be traced (2%).

Depression
CESD score was calculated by totalling all item scores after reversing the positive mood items; up to one missing item was replaced by mean imputation (Andresen et al., 1994). The possible range of CESD scores is 0 to 30, with higher scores indicating more depressive symptomatology. Women were classified as *depressed* if they scored 10 or more (Andresen et al., 1994).

Other measures of depression used in this analysis included the "depression" item in the diagnoses question ('have you been told by a doctor that you have depression'); the "depression" item in the symptoms question ('in the last twelve months have you had depression'); and the relevant medications question ('during the past four weeks, have you taken any medications for depression').

Self-rated health
The Australian version of the Medical Outcomes Study Short Form Health Survey (SF-36) was used to measure perceived health and well-being (McCallum, 1995). Physical and mental health component scores (PCS and MCS) were standardised using the cohort means for Women's Health Australia, with higher scores indicative of better health (Mishra & Schofield, 1998). The mental health scale of the SF-36, with a cut-off of 52 or below, was also used to screen for depression (Ware, Kosinski & Keller, 1994).

Health behaviours
Alcohol status was derived from two questions 'How often do you usually drink alcohol?' and 'On a day when you drink alcohol, how many drinks do you usually have?' (National Heart Foundation, 1989). Women were classified as non-drinkers or at no, low or intermediate risk. Seven women at high risk were included with those at intermediate risk.

Exercise status was estimated from hours and minutes spent on walking, moderate and vigorous activities in the last week (Brown & Bauman, 2000). Exercise status was categorised as none, low, moderate and high where these categories represent an average of less than two minutes, 2-30 minutes, 30-75 minutes, more than 75 minutes of activity each day of the week.

Life factors
Life satisfaction was assessed in terms of satisfaction with 'what you have achieved so far in the areas of: work; career; study; family relationships; partner/closest personal relationship; friendships; social activities'. High scores indicate greater satisfaction. The stress score was calculated from items about stress related to own or others' health, work, living arrangements, study, money and relationships. High scores indicate more stress. The Medical Outcomes Study (MOS) social support scale was used as an overall measure of functional social support, with high scores indicating more support (Sherbourne & Stewart, 1991). The life events score was summed from items about own and others' health, relationships with family and friends, death of family or friends, work related events and other major events.

Statistical analysis
Exploratory factor analysis with the principal components method and orthogonal rotation (varimax) was performed on the CESD items. Kaiser's measure of sampling adequacy (MSA) was used to quantify the correlations among the items. Inter-item reliability for each factor was assessed using Cronbach's alpha coefficients for standardised variables. The suitability of the factor analysis was assessed by the percent of variance explained and by communalities that show the amount of variance each item shares with all other items (Hair et al., 1997).

To assess construct validity, the CESD score was compared with potentially related variables. Positive associations were hypothesised with feeling depressed, a diagnosis of depression, taking

medication for depression, stress, severe tiredness and difficulty sleeping; and negative correlations with MCS and life satisfaction.

Bivariate associations were investigated between classification as *depressed* and plausibly related variables using χ^2 and correlations (SAS, 1999). To model potential confounding effects, multiple logistic regression was used, with adjustment for the women's area of residence and age.

3.1.3 Results

Of the 11,648 women who returned full-length surveys in 1998, 10,810 (93%) answered all the CESD items and another 594 (5%) missed only one item. Thus a CESD score could be calculated for 98% of those offered the CESD. Results were similar for the 9- and 10-item structure of the CESD (Table 6). The low loading and communality for the item, 'I felt hopeful about the future' suggests it should not be included in the factor. However the correlation between the 9- and 10-item scores was high (0.96) and for comparability with other papers, the 10-item score (CESD) will be used in this report and in the project in general.

The prevalence of respondents classified as *depressed* was 24% (95% confidence interval 23% to 25%). The correlations between the CESD and MCS, other indicators of depression and life satisfaction and stress scores were in the directions hypothesised (Table 7).

Bivariate analyses found significant associations between classification as *depressed* and some socio-demographic variables (Table 8), health indicators, health behaviours and life factors (Table 9).

After adjustment for age, area of residence and other variables, being classified as *depressed* was more likely among women who had difficulty managing on their available income, had experienced more life events in the last year, and had more than two general practitioner visits a year (Table 10). A hysterectomy, taking HRT, and smoking few or many cigarettes per day, were also associated with a greater probability of being classified as *depressed*. Women who rated their health more highly, had better social support, and exercised were less likely to be classified as *depressed*.

More detailed analysis, not shown in this report, examined specific survey items and their relationship with a classification as *depressed*. The aspects of social support most strongly associated with classification as *depressed* were low scores on the items 'someone to do something enjoyable with', 'someone who understands your problems' and 'someone to love and make you feel wanted'. The life events most strongly associated with classification as *depressed* were about relationships ('infidelity of spouse or partner', 'break-up of a close personal relationship') and abuse ('being pushed, grabbed, shoved, kicked or hit', 'being forced to take part in unwanted sexual activity'). In terms of satisfaction, family relationships, friendships and social activities were more strongly related to a classification as *depressed* than work and career, whereas health, money and living arrangements appeared to be more important aspects of stress.

3.1.4 References

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Table 6 Factor loadings and internal reliability for a ten-item Center for Epidemiological Studies Depression Scale (CESD-10) from responses of 11,648 mid-aged Australian women.

ITEM	% responded most or all of the time (5-7 days)	Percent missing	Mean (sd)[a]	CESD 10 items		CESD 9 items	
				Factor loadings	Communality	Factor loadings	Communality
I was bothered by things that don't usually bother me	2.1	1.6	0.39 (0.69)	0.69	0.47	0.69	0.48
I had trouble keeping my mind on what I was doing	3.2	1.3	0.56 (0.76)	0.76	0.58	0.77	0.59
I felt depressed	3.3	2.4	0.48 (0.77)	0.82	0.67	0.82	0.67
I felt that everything I did was an effort	4.9	1.4	0.60 (0.84)	0.79	0.62	0.80	0.64
I felt fearful	2.2	1.9	0.33 (0.67)	0.68	0.47	0.69	0.47
My sleep was restless	10.4	1.4	0.99 (0.97)	0.58	0.33	0.59	0.34
I was happy[b]	6.5[c]	1.5	0.73 (0.95)	0.68	0.46	0.65	0.42
I felt lonely	3.7	1.4	0.45 (0.78)	0.58	0.34	0.58	0.34
I could not "get going"	5.2	1.2	0.72 (0.84)	0.71	0.51	0.72	0.52
I felt hopeful about the future[b]	17.4[c]	2.3	1.15 (1.15)	0.41	0.17		
Cumulative percentage of variation explained				46%		50%	
Cronbach's alpha				0.86		0.87	

[a] *Complete cases (n=10,810)* [b] *Item responses reversed for scoring.* [c] *After item responses reversed.*

Table 7 Construct validity: correlations with Center for Epidemiological Studies Depression Scale (CESD) for women aged 47-52 years (n=11648).

	Pearson's r
Mental Health Component Score (MCS)	-0.75
Had depression in last year	0.63
Mean stress score	0.59
Frequency of severe tiredness in the last year	0.48
Life satisfaction score	-0.47
Frequency of difficulty sleeping in the last year	0.45
Told by a doctor that you have depression	0.36
Taken medication for depression in last four weeks	0.29

All results statistically significant with p<0.0001.

Table 8 Socio-demographic characteristics significantly associated with 'depression' as defined by Center for Epidemiological Studies Depression Scale (CESD).

	N	CESD≥10 %
Marital status		
Married/defacto	9379	21.8
Divorced/separated/widowed	1574	36.0
Single	379	27.4
Education		
No formal qualifications	1877	32.3
School certificate or less	3599	23.6
Higher school certificate	1915	23.0
Trade/ certificate/ diploma	2264	21.8
University degree or higher	1657	19.6
Manage on income available		
Easy	1717	13.7
Not to bad	4564	18.2
Difficult some of the time	3294	27.1
Difficult all of the time/ impossible	1699	44.1

Only statistically significant results with p<0.001 are shown.
Area of residence and age were not significantly associated with CESD.

Table 9 Health and lifestyle characteristics significantly associated with 'depression' as defined by Center for Epidemiological Studies Depression Scale (CESD).

	N	CESD≥10 %	Correlation
Number of diagnoses (eg diabetes, heart disease, cancer)			
None	9961	22.7	
One	1272	31.9	
Two or more	171	45.6	
Number of general practitioner visits			
None	1060	14.9	
One or two	4393	15.6	
Three or four	2954	24.2	
Five or six	1494	32.1	
Seven or more	1423	47.9	
Number of specialist visits			
None	6655	20.2	
One or two	3122	25.9	
Three or more	1322	38.4	
Menopausal status			
Hysterectomy and HRT	1696	34.4	
Hysterectomy, no HRT	1259	26.7	
HRT only	2144	30.0	
Postmenopausal	864	20.8	
Perimenopausal	2546	21.0	
Premenopausal	2854	15.8	
Private hospital insurance			
No	5945	26.4	
Yes	5365	21.3	
Physical health component score	11214		-0.30
Body mass index (weight in kilograms/ height in metres^2)	10557		0.09
Smoking status			
Non-smoker	9388	22.0	
Smoke <10 per day	440	28.9	
Smoke 10-20 per day	499	30.9	
Smoke >20 per day	992	37.3	
Alcohol status			
Non-drinker	1496	24.2	
No risk drinker	9026	23.4	
Low risk drinker	666	27.9	
Intermediate risk drinker	113	33.6	
Exercise			
None	1192	33.9	
Low	3400	25.0	
Moderate	2441	20.0	
High	3185	19.0	
MOS social support	11231		-0.40

table continues

Table 9 continues	N	CESD≥10 %	Correlation
Sum of life events	11400		0.25
Ever experienced any form of physical, mental, emotional or sexual abuse or violence			
No	7070	17.2	
Yes	4178	35.3	

Only statistically significant results with p<0.001 are shown.

Table 10 Multiple logistic regression with Center for Epidemiological Studies Depression Scale (CESD≥10) as the outcome (n=10268).

	Adjusted odds ratio	95% confidence interval
Manage on income available		
Easy	1.00	
Not to bad	1.18	0.99; 1.41
Difficult some of the time	1.42	1.18; 1.70
Difficult all of the time/ impossible	2.17	1.78; 2.65
Number of general practitioner visits		
None	1.00	
One or two	1.08	0.87; 1.35
Three or four	1.56	1.25; 1.95
Five or six	1.86	1.46; 2.36
Seven or more	2.51	1.96; 3.22
Menopause status		
Pre-menopause	1.00	
Peri-menopause	1.20	1.02; 1.42
Post-menopause	1.13	0.89; 1.43
Hysterectomy, no HRT	1.42	1.17; 1.73
HRT only	1.69	1.43; 2.00
Hysterectomy and HRT	1.70	1.42; 2.02
Smoking status		
Non-smoker	1.00	
Smoke <10 cigarettes per day	1.48	1.15; 1.90
Smoke 10 – 20 cigarettes per day	1.17	0.92; 1.49
Smoke >20 cigarettes per day	1.42	1.20; 1.69
Exercise group		
None	1.00	
Low	0.76	0.66; 0.88
Moderate	0.64	0.54; 0.75
High	0.60	0.51; 0.70
Physical health component score	0.980	0.975; 0.985
MOS social support	0.53	0.50; 0.56
Sum of life events	1.17	1.14; 1.20

Adjusted for other variables in the model (p<.001) and for age and area of residence.

3.2 INCONSISTENCIES IN SELF-REPORT OF MAJOR DIAGNOSES AND SURGICAL PROCEDURES: SURVEYS 1 AND 2 OF THE MID-AGE WOMEN

As longitudinal analyses are becoming an increasingly important aspect of the project, the existence of inconsistencies across time in respondents' reporting of major events is becoming apparent. This report on the extent and possible source of such inconsistencies, focusing on major diagnoses and surgical procedures among the mid-age cohort, was prepared by Jenny Powers. There are many possible sources of inconsistency, including misresponding by the participants and data capture errors. Survey 1 of all cohorts (1996) was coded using hand entry. Survey 2 of the mid-age cohort (1998) was entered using electronic scanning, but major logistical problems were identified through standard data checks at that time. Extensive efforts were made to correct the resultant data errors and generate clean databases for analysis. Subsequently, all data have been entered using electronic scanning contracted to a different scanning company, which has been shown by internal checks to have significantly higher standards of accuracy. We believe that data capture errors for all main survey data entered since 1999 are negligible.

3.2.1 Survey items

The 1996 Survey 1 questions for diagnoses and operations in the mid-age cohort were:

15 Have you ever been told by a doctor that you have:
(Circle one number on each line)

		Yes	No
a	Diabetes (high blood sugar)	1	2
b	Heart disease	1	2
c	Hypertension (high blood pressure)	1	2
d	Stroke	1	2
e	Thrombosis (a blood clot)	1	2
f	Low iron level	1	2
g	Asthma	1	2
h	Bronchitis/emphysema	1	2
i	Osteoporosis	1	2
j	Breast cancer	1	2
k	Cervical cancer	1	2
l	Lung cancer	1	2
m	Bowel cancer	1	2
n	Skin cancer	1	2
o	Other major illness *(Please specify on line)*	1	2

16 Have you EVER had any of the following operations?
(Circle one number <u>on each line</u>)

		Yes	No
a	Hysterectomy	1	2
b	Both ovaries removed	1	2
c	Repair of prolapsed vagina, bladder or bowel	1	2
d	Endometrial ablation	1	2
e	Mastectomy (removal of one or both breasts)	1	2
f	Lumpectomy (removal of lump from breast)	1	2
g	Breast biopsy (taking a sample of breast tissue for sampling)	1	2
h	Cholecystectomy (gall bladder removed)	1	2
i	Any cosmetic surgery (eg for face, breasts, fat removal etc)	1	2
j	Other surgery or procedure (*Please specify on line)* _____	1	2

In 1998, Survey 2 of the mid-age cohort used the following questions:

21 Have you EVER been told by a doctor that you have:
(Mark as many as applicable. Leave blank if you have never had this problem)

		yes in the last 2 years	yes more than 2 years ago
a	Insulin dependent (type 1) diabetes	O	O
b	Non-insulin dependent (type 2) diabetes	O	O
c	Heart disease	O	O
d	Hypertension (high blood pressure)	O	O
e	Stroke	O	O
f	Thrombosis (a blood clot)	O	O
g	Low iron level (iron deficiency or anaemia)	O	O
h	Asthma	O	O
i	Bronchitis/emphysema	O	O
j	Osteoporosis	O	O
k	Breast cancer	O	O
l	Cervical cancer	O	O
m	Bowel cancer	O	O
n	Skin cancer	O	O
o	Other cancer	O	O
p	Depression	O	O
q	Anxiety	O	O
r	Other psychiatric disorder	O	O
s	Other major illness	O	O

21	**Have you EVER had any of the following operations?** *(Mark as many as applicable. Leave blank if you have never had this problem)*	**yes in the last 2 years**	**yes more than 2 years ago**
a	Hysterectomy	O	O
b	Both ovaries removed	O	O
c	Repair of prolapsed vagina, bladder or bowel	O	O
d	Endometrial ablation *(removal of the lining of the uterus)*	O	O
e	Tubal ligation *(tubes tied)*	O	O
f	Mastectomy *(removal of one or both breasts)*	O	O
g	Lumpectomy *(removal of lump from breast)*	O	O
h	Breast biopsy *(taking a sample of breast tissue)*	O	O
i	Cholecystectomy *(gall bladder removed)*	O	O
j	Any cosmetic surgery *(eg face, breasts, fat removal etc)*	O	O
k	Gastroscopy/colonoscopy	O	O

The following tables use data from women who completed Survey 1 and the full-length version of Survey 2 (n=11,648). Some diagnoses were only listed at Survey 1 and others only at Survey 2. In addition, for diagnoses such as diabetes, it is possible that respondents may have included gestational diabetes at Survey 1 and not at Survey 2.

Definitions of categories used in Tables

No diagnosis	No diagnosis at phase 1 or phase 2
New case	No diagnosis at phase 1, diagnosis in last 2 years at phase 2
Existing case	Diagnosis at phase 1 and phase 2
Error1	Inconsistent – diagnosis at phase 1, not at phase 2
Error2	Inconsistent – no diagnosis at phase 1, more than 2 years ago at phase 2.

Table 11 Diagnoses at phase 1 and phase 2 for 11,648 mid-age women

	No diagnosis		New case		Existing case		Error1		Error2	
	N	%	N	%	N	%	N	%	N	%
Diabetes	11,149	95.7	98	0.8	215	1.8	103	0.9	33	0.3
Heart disease	11,187	96.0	72	0.6	130	1.1	120	1.0	54	0.5
Hypertension	8,716	74.8	343	2.9	1,722	14.8	689	5.9	120	1.0
Stroke	11,449	98.3	20	0.2	52	0.4	37	0.3	26	0.2
Thrombosis	10,904	93.6	52	0.4	316	2.7	240	2.1	60	0.5
Low iron level	7,261	62.3	313	2.7	1,987	17.1	1,713	14.7	316	2.7
Asthma	9,477	81.4	175	1.5	1,258	10.8	525	4.5	147	1.3
Bronchitis/emphysema	9,107	78.2	209	1.8	919	7.9	1,159	10.0	190	1.6
Osteoporosis	10,950	94.0	133	1.1	193	1.7	237	2.0	63	0.5
Breast cancer	11,258	96.7	61	0.5	175	1.5	58	0.5	29	0.2
Cervical cancer	11,145	95.7	25	0.2	226	1.9	144	1.2	42	0.4
Bowel cancer	11,514	98.8	13	0.1	17	0.1	32	0.3	10	0.1
Skin cancer	9,878	84.8	244	2.1	772	6.6	574	4.9	115	1.0

For the least common diagnoses, errors were low (Table 11). The errors were higher (6.9%, 5.8%, and 5.9%) for hypertension, asthma and skin cancer but less than the prevalence of cases. For the most prevalent diagnoses, low iron level and bronchitis, the errors were high (17.4% and 11.6%) and about the same as the prevalence of these diagnoses. In fact, for bronchitis the overall error was higher than the identified cases.

Errors obviously vary depending on the diagnoses. Some diagnoses, such as low iron level and bronchitis, may be associated with an acute rather than chronic condition and thus the respondent may veridically have the condition on one occasion and not on another. For diagnoses of some chronic diseases such as hypertension and diabetes, respondents who are receiving treatment that successfully controls the condition may consider that they no longer have this particular condition.

Some apparent errors may be due to the change in question wording. At phase 1, all types of diabetes were included, whereas at phase 2 only types I and II were included. A woman who had had gestational diabetes may have answered affirmatively at phase 1 but would be unlikely to answer “yes” to type I or type II diabetes at phase 2.

The most common error was reporting a diagnosis at phase 1 and not reporting the same diagnosis at phase 2 (Error1). There are several possible explanations for Error1. It may be a problem of interpretation, with women at the phase 2 survey interpreting the option of “more than two years” ago as meaning in the last few years, rather than “ever”. It is also possible that women considered that they had already told us about this and did not need to tell us again. Alternatively, they may be receiving adequate treatment for the problem and therefore do not think they still have the condition. Another possibility is that some had been tested for a particular condition (eg cervical cancer), believed that they had had a positive diagnosis at the time of the first survey, and were later found not to have the condition.

Error2 is well recognised and relates to the problems of telescoping and recall. People frequently forget how long ago something happened and so have difficulty distinguishing between possible responses of “yes, in the last 2 years” and “yes, more than 2 years ago”.

Some women appeared to be obvious outliers. There were eight women who appeared to have all 19 diagnoses at phase 2 and one woman with 18 diagnoses. A closer inspection of their data suggests that they had read the two "yes" columns for this question as if they were 'Yes' for one column and 'No' for the other column.

It would seem reasonable to recode these women's responses according to the right hand column with all their other diagnoses coded 0 at phase 2.

Another unexplored possibility is that of data capture error at phase 1 and/ or phase 2, but this would be unlikely to explain most of the error. A small quality assurance audit was conducted to explore this possibility, and is reported in the next subsection.

There were several questions relating to breast cancer: mammograms, breast biopsy, lumpectomy and mastectomy. This allowed some cross-checking of data and of original surveys to explore consistency within and between surveys. Therefore phase 1 surveys were checked for errors where inconsistencies were found in the diagnosis of breast cancer at phase 1 and 2 and related questions. Fifty-eight women had marked breast cancer at phase 1 but not at phase 2, 29 women had not marked breast cancer at phase 1 but had marked breast cancer "more than 2 years ago" at phase 2. Eight of these 29 women were among those who apparently marked 18 or 19 diagnoses at phase 2 and therefore should be recoded as not having breast cancer at phase 2. A further 16 women were identified who recorded no breast cancer at phase 1 or 2 but had had a mastectomy at phase 1. As two surveys could not be found, 101 phase 1 surveys were checked against the database for errors in diagnoses and operations.

After correcting errors found at phase 1, the aim was to check 90 items on phase 2 surveys for 117 women who had inconsistent or outlying data for diagnoses or operations, and 119 women who were randomly selected from those whose original surveys were stored in the same batches. The women with inconsistent records included forty-five women who had marked breast cancer at phase 1 but not at phase 2, and thirty-nine women who had recorded no breast cancer at either phase but had marked mastectomy at phase 2. There were another thirty-three possibly incorrect records, where women had marked more than 10 diagnoses or more than 8 operations at phase 2, or more than 7 diagnoses or operations at phase 1. As some surveys could not be readily located, 113 phase 2 surveys with inconsistent data and 114 randomly selected phase 2 surveys were checked for errors. Checking involved physically locating the original survey and checking the match between the original responses and the electronic database used in all analyses.

For the women with outlying or inconsistent data in either phase 1 or phase 2, data capture errors (due to data entry or scanning) and participant errors are summarised in Table 12 for breast cancer or surgery and for all other listed diagnoses or operations (excluding 'other'). For example, 20 of the 101 phase 1 records had a data capture error on breast cancer, and there were no errors on breast cancer in the 113 phase 2 records checked.

Table 12 Data capture and participant error percentages per item at phase 1 and phase 2, among women identified as "inconsistent" responders

	Data capture error		Participant error	
	Phase 1	**Phase 2**	**Phase 1**	**Phase 2**
Number of surveys	**101**	**113**	**101**	**113**
Breast cancer (based on 1 item)	19.8%	0%	3.0%	0%
Other diagnoses (based on 13 diagnoses at phase 1 and 17 diagnoses at phase 2)	5.3%	0.4%	0.9%	0.4%
Breast surgery (based on 3 items)	0.7%	4.7%	0%	0.9%
Other surgery (based on 6 items at phase 1 and 8 items at phase 2)	0.5%	1.1%	0.2%	0.1%
Average for other diagnoses and operations	3.8%	0.6%	0.7%	0.3%

Table 12, which focuses on women whose data already suggested inconsistency, gives some indication of the worst data capture error percentage for each phase. In our current survey protocol, all surveys are checked and obvious errors are corrected prior to data capture, so we have eliminated most obvious participant errors. Although there was a very high error rate in breast cancer at phase 1 and in breast surgery at phase 2, it must be stressed that these records were specifically chosen because there were inconsistencies in the breast cancer and surgery data provided at the two time points. Assuming that errors do not cluster (although in data entry this is unlikely to be the case), it appears that the worst error rate is 3.8% for phase 1 and 0.6% for phase 2.

Looking at the pattern of data entry errors at phase 1, it appears there was a parallax problem for about half of the diagnosis errors where for example breast cancer was keyed instead of osteoporosis. In another five cases, it looks as though the data entry operator got her finger stuck on '1', so that every diagnoses past a certain point was incorrectly entered. This explains the higher error rate for other diagnoses at phase 1. Fortunately this error did not continue through the operations, which is the next question on the same page as the diagnoses. However it may have some implications for other questions that consist of long lists on a page such as the symptoms and life events questions.

At phase 2, the overwhelming problem appears to be phantom data. Fourteen women were recorded as having a mastectomy when this was not marked on their surveys. There was no obvious pattern to the phantom data. They were not clustered in any way.

Observable participant error rates were low at both phases. Some survey responses were difficult to read and others were inconsistently answered (eg circled "yes" for breast cancer but wrote "tested negative" in the margin). Some problems could have been avoided by the editing procedures now in place. Many women wrote other diagnoses and surgery without circling 'other' and others circled 'other' but listed diagnoses or surgery that were already listed. For these reasons the 'other' category is not included in these figures or in number of diagnoses or operations.

Audit of Mid-age Survey 2

In addition to the 113 surveys identified as having inconsistent data relating to diagnoses and operations relating to breast cancer, another 114 surveys were randomly selected from the same batches and the original surveys were checked against the databases. Data scanning and participant errors for these two groups of women are shown in Table 13. As expected, there were higher error rates for the "inconsistent" sample, selected on the basis of detected data problems, than for the random sample; this was particularly true for error rates for breast cancer and breast surgery, the items used to identify the "inconsistent" group. For example, breast surgery had been scanned as present when no breast surgery was marked on 15 surveys in the "inconsistent" sample and in none in the random sample.

Table 13 Data scanning and participant error percentages per item at phase 2

	Data capture error		Participant error	
	Inconsistent sample	**Random sample**	**Inconsistent sample**	**Random sample**
Number of surveys	**113**	**114**	**113**	**114**
Breast cancer (based on 1 item)	0%	0%	0%	0%
Other diagnoses (based on 17 items at phase 2)	0.4%	0.1%	0.4%	0.1%
Breast surgery (based on 3 items)	4.7%	0%	0.9%	0%
Other surgery (based on 8 items at phase 2)	1.1%	0.3%	0.1%	0%
Other scanned items (based on 46 items)	0.1%	0.1%	0.1%	0%
Data entry items (based on 15 items)	1.0%	0.9%	0%	0%
Overall error rate (90 items)	0.6%	0.2%	0.1%	0%

Overall error rates were small in both groups and considerably less than the 2% that is the industry standard for hand-entered data.

3.3 VALIDITY OF THE INVENTORY OF PSYCHOSOCIAL BALANCE

An abridged version of The Inventory of Psychosocial Balance (IPB) was used in Survey 2 of the Older Cohort (1999) and the Younger Cohort (2000) with the intention of assessing adult psychosocial development and its relationship with health. This report was prepared by Sandra Bell and Christina Lee.

Erikson (1950) developed an influential theory of adult psychosocial development which emphasised social influences and psychological strengths. Erikson proposed that people pass through eight stages, each associated with a particular "psychosocial crisis," from early infancy until late adulthood, and that it was through the resolution of these crises that strengths and successful development would be achieved. Table 14 outlines the stages of the model.

Table 14 Erikson's psychosocial model of human development

Approximate age	No.	Stage	Crises	Potential strength to be gained
0-1	I	Early infancy	Basic trust versus mistrust	Hope
2-3	II	Later infancy	Autonomy versus shame and doubt	Will
4-5	III	Early childhood	Initiative versus guilt	Purpose
6-12	IV	Middle childhood	Industry versus inferiority	Competence
13-18	V	Adolescence	Identity versus role confusion	Fidelity
19-25	VI	Early adulthood	Intimacy versus isolation	Love
25-65	VII	Middle adulthood	Generativity versus self-absorption and stagnation	Care
65+	VIII	Late adulthood	Ego integrity versus despair	Wisdom

The IPB (Domino & Affonso, 1990) is a 120-item scale designed to assess the resolution of these eight psychosocial crises, and its length makes it inappropriate for inclusion in the main surveys. Two representative items of each of the eight sub-scales were included in Survey 2 of the younger and older cohorts.

3.3.1 IPB in Younger Survey 2

The 9,683 participants who responded to Survey 2 were aged between 22 and 27, which would place the majority of this cohort in the "early adulthood" stage at which they are theorised to be dealing with crises of intimacy versus isolation. Table 15 presents the 16 items of the Reduced IPB, and their distributions, with the negative items (c, l, and n) having their distributions reversed.

Table 15 Reduced IPB Distributions for Younger Survey 2

	Please indicate how often each of these statements apply to you: *(Mark one <u>on each line</u>)*	*Never (%)*	*Rarely (%)*	*Some-times (%)*	*Often (%)*	*Stage*
a	I can usually depend on others	2.6	11.7	40.9	44.8	1
b	I am a very organised person	0.7	6.0	40.4	52.9	2
c	Sometimes I wonder who I really am (reversed)	11.8	35.4	30.4	22.4	5
d	I have experienced some very close friendships	1.0	10.1	38.3	50.6	6
e	My religious or spiritual beliefs are stronger now than they have ever been	41.8	25.8	19.4	13.0	8
f	When faced with a problem, I am very good at developing various solutions	0.9	8.6	57.4	33.2	3
g	When faced with a task, I like to apply myself fully	0.3	3.0	40.6	56.2	4
h	I derive great pleasure in watching a child master a new skill	6.0	12.1	26.8	55.1	7
i	Most conflicts between people can be resolved by discussion	0.4	3.0	44.8	51.8	1
j	I am quite self-sufficient	0.4	3.1	35.0	61.4	2
k	In general, I know what I want out of life	1.8	12.4	42.2	43.5	5
l	I often feel lonely even when there are others around me (reversed)	11.7	37.1	34.3	16.8	6
m	Life has been good to me	1.0	7.0	40.3	51.8	8
n	I prefer a job that requires little initiative***** (reversed)	15.9	21.3	29.9	33.0	3
o	I genuinely enjoy work*****	1.0	6.3	45.1	47.6	4
p	Planning for future generations is very important	1.6	6.8	30.9	60.9	7

* *'Job' and 'work' may refer to paid or unpaid work, volunteer work, or any other task or chore which occupies your time.*

For the majority of items, “never” responses have the lowest frequency, increasing across the scale with the highest frequency being for “often”. There are four items that do not follow this trend. Item f (developing solutions to a problem) differs from this trend by having the frequency peak at “sometimes” rather than “often”, whilst item c (wonder who I am) and item l (feel lonely even with others around), have a modal response of “rarely” which was originally “sometimes” before reversal. Item e is the fourth item that does not have “often” as the modal answer and instead has a modal answer of “never.”

The next step was to combine the two individual items for each stage and derive a combined mean, and assess the correlation between the two items. Scoring is 1 for never; 2 for rarely; 3 for sometimes; and 4 for often. Table 16 presents the means and correlations for the eight stages for the 8,897 participants who answered all 16 items.

Table 16 Means and correlations for IPB sub scales (Younger Survey 2)

Stage	Item	Mean (std dev)	Correlation*
1	a and i	6.8 (1.0)	0.13
2	b and j	7.0 (1.0)	0.23
3	f and n	6.0 (1.3)	0.07
4	g and o	6.9 (1.0)	0.28
5	c and k	5.9 (1.4)	0.38
6	d and l	5.9 (1.3)	0.22
7	h and p	6.8 (1.3)	0.32
8	e and m	5.5 (1.3)	0.09

** - All correlations were significant at p<.001*

All combined stage scores have the full possible range of 2 to 8. The highest means are for the first four stages, and stage 7. The highest correlations (indicating the most coherently assessed stages) are for stage 5 and 7, whilst stage 1, 3 and 8 have items that are almost unrelated. Table 17 compares the order of these means with those obtained among 20-25 year-olds for the full 120-item scale by Domino and Affonso (1990).

Table 17 Young 2 stage means compared to Domino and Affonso (1990) data

Stage	Items	Young 2		Domino & Affonso (1990)	
		Mean (std dev)	Order (highest to lowest)	Mean*	Order (highest to lowest)
1	a and i	6.8 (1.0)	3	57.8	3
2	b and j	7.0 (1.0)	1	52.1	8
3	f and n	6.0 (1.3)	5	53.2	6
4	g and o	6.9 (1.0)	2	55.6	4
5	c and k	5.9 (1.4)	6	53.1	7
6	d and l	5.9 (1.3)	6	59.5	1
7	h and p	6.8 (1.3)	3	58.6	2
8	e and m	5.5 (1.3)	8	54.1	5

** Standard deviations were not available*

Table 17 shows that these two samples produce very different orders of means. The resolution of a stage should theoretically lead to a higher mean, hence the earlier stages would be expected to have higher means than the later, but this was not the case for either sample.

Another method used by Domino and Affonso (1990) to assess whether the IPB measured the resolution of Erikson's psychosocial stages was to examine the expected number of significant correlations. This was done by correlating each mean stage score to every other mean stage score and postulating that for their young adult sample the first 5 scales of trust, autonomy, initiative, industry and identity should intercorrelate. Therefore, of the possible 28 correlations, the 10 intercorrelations between stages 1 to 5 should be significant and the others should not. Table 18

presents WHA and Domino and Affonso (1990) data for comparison. The median correlation coefficient for resolved versus unresolved stages are also reported.

Table 18 Young 2 stage intercorrelations compared to Domino and Affonso (1990) data

Sample	No. of expected correlations	No. of significant correlations	Resolved median r	Unresolved median r
Young 2	10	9*	0.23	0.18
Domino & Affonso – Young Adults	10	10	0.46	0.41

**The large sample size means that statistical significance was defined as r≥0.15.*

Domino and Affonso (1990) did not report the range of correlations for the resolved and unresolved stages. For the Young 2 sample, the range of correlations for the resolved stages (1 to 5) were r = 0.14 to 0.38, and for the unresolved stages (6 to 8) the range was r = 0.08 to 0.44, where r=0.44 was for stage 5 to stage 6, which would appear to indicate that a significant proportion of Young 2 may have already been dealing with the proposed middle adulthood crises of generativity versus stagnation.

It would appear that the revised and much shorter version of the IPB used is not equivalent to the full IPB. A principal component factor analyses with varimax rotation was run on all 16 items to ascertain whether there were factors within the revised IPB, not necessarily matching those of the original. The eigen values and eigen scores over 0.3 are presented in Table 19.

Table 19 Factor analysis – Younger Survey 2

Item*	Stage	Factor 1	Factor 2	Factor 3	Factor 4
Stages represented		(2 to 5)	(5 and 6)	(1, 6 and 8)	(7)
Eigen Value		2.31	1.78	1.70	1.48
g – apply fully	4	0.69			
j – self-sufficient	2	0.64			
b - organised	2	0.64			
f - solutions	3	0.60			
o – enjoy work	4	0.42			
c – who I am	5		0.82		
l - lonely	6		0.75		
k – know what want	5	0.45	0.45		
a – depend on others	1			0.67	
d - friendships	6			0.65	
m – life been good	8		0.37	**0.52**	
i - discussion	1	0.33		**0.38**	
e –religious beliefs	8			**0.38**	0.32
h – child master skill	7				0.80
p –future generations	7				0.75

Item n had no eigen scores over 0.3

The factor analysis shows four distinct factors. Items with two factor loadings over 0.3 have the highest factor loading bolded. Item k however, has equal weightings for both factor 1 and 2. Stages represented are shown under each factor heading and indicate there is some consensus, except for stages 5 and 6 with item k loading on 2 factors, and stage 6 items splitting across factor 2 and 3.

3.3.2 IPB in Older Survey 2

The 10,421 participants who responded to Survey 2 were aged between 73 and 78. From Table 14, this would place this cohort as in the late adulthood stage and therefore dealing with the crisis of ego integrity versus despair. Table 20 presents the 16 items of the reduced IPB, and their distributions, with the negative items (c, l, and n) having their distributions reversed.

Table 20 Reduced IPB distributions for Older Survey 2

	Please indicate how often each of these statements apply to you: *(Mark one on each line)*	*Never %*	*Rarely %*	*Some-times %*	*Often %*	*Stage*
a	I can usually depend on others	2.7	6.9	31.0	59.4	1
b	I am a very organised person	1.1	3.9	36.2	58.8	2
c	Sometimes I wonder who I really am (reversed)	3.0	10.1	14.9	72.0	5
d	I have experienced some very close friendships	2.6	6.3	31.4	59.8	6
e	My religious or spiritual beliefs are stronger now than they have ever been	18.5	14.1	28.1	39.3	8
f	When faced with a problem, I am very good at developing various solutions	1.6	6.2	52.6	39.6	3
g	When faced with a task, I like to apply myself fully	0.7	1.5	24.4	73.5	4
h	I derive great pleasure in watching a child master a new skill	1.7	4.6	18.6	75.1	7
i	Most conflicts between people can be resolved by discussion	0.5	2.7	44.8	52.1	1
j	I am quite self-sufficient	0.9	2.0	26.4	70.7	2
k	In general, I know what I want out of life	0.4	2.0	24.6	73.1	5
l	I often feel lonely even when there are others around me (reversed)	6.6	23.9	29.8	39.7	6
m	Life has been good to me	0.7	1.9	24.5	72.9	8
n	I prefer a job that requires little initiative***** (reversed)	20.8	40.2	18.0	20.9	3
o	I genuinely enjoy work*****	2.1	3.1	31.2	63.6	4
p	Planning for future generations is very important	2.4	3.1	20.8	73.7	7

* *'Job' and 'work' may refer to paid or unpaid work, volunteer work, or any other task or chore which occupies your time.*

For the majority of items, "never" responses has the lowest frequency, increasing up to the highest frequency for "often". There are three items that do not follow this trend. Item f (developing solutions to a problem) differs from this trend by having the frequency peak at "sometimes" rather than "often", whilst item e (religious beliefs) has a higher frequency for "never" than "rarely," although "often" is still the modal response. Item n has a modal response of "rarely" (originally "sometimes" before reversal).

The next step was to combine the two individual items for each stage and derive a combined mean, and assess the correlation between the two items, scored 1 for never; 2 for rarely; 3 for sometimes; and 4 for often. Table 21 presents the means and correlations for the eight stages for the 7,559 participants who answered all 16 items.

Table 21 Means and correlations for IPB sub scales (Older 2)

Stage	Item	Mean (std dev)	Correlation
1	a and i	7.0 (1.0)	0.11
2	b and j	7.2 (1.0)	0.30
3	f and n	5.7 (1.3)	0.07
4	g and o	7.3 (1.0)	0.35
5	c and k	7.3 (1.0)	0.18
6	d and l	6.5 (1.2)	0.09
7	h and p	7.3 (1.0)	0.30
8	e and m	6.6 (1.3)	0.12

All combined stage scores have the full possible range of 2 to 8. The highest correlations are for stage 2, 4 and 7 indicating these are the most coherently assessed stages, whilst stage 1, 3 and 6 and 8 have items that are almost unrelated. Table 22 compares the order of these means with those obtained among 65-70 year-olds for the full 120-item scale by Domino and Affonso (1990).

Table 22 Older Survey 2 stage means compared to Domino and Affonso (1990) data

		Older 2		Domino & Affonso (1990)	
Stage	Item	Mean (std dev)	Order (highest to lowest)	Mean*	Order (highest to lowest)
1	a and i	7.0 (1.0)	5	56.6	4
2	b and j	7.2 (1.0)	4	55.8	6
3	f and n	5.7 (1.3)	8	50.1	8
4	g and o	7.3 (1.0)	1	53.1	7
5	c and k	7.3 (1.0)	1	56.9	3
6	d and l	6.5 (1.2)	7	56.3	5
7	h and p	7.3 (1.0)	1	62.5	1
8	e and m	6.6 (1.3)	6	58.6	2

- *Standard deviations were not available*

Table 22 shows that these two samples produce very different orders of means. The resolution of a stage should theoretically lead to a higher mean, and in this age group means should be high for stages 1 to 7, and lower for stage 8, but this was not the case for either sample.

Another method used by Domino and Affonso (1990) to assess whether the IPB measured the resolution of Erikson's psychosocial stages was to examine the expected number of significant correlations. This was done by correlating each mean stage score to every other mean stage score and postulating that for their older adult sample all subscales should intercorrelate. Table 23 presents WHA and Domino and Affonso (1990) data for comparison. The median correlation coefficient for resolved stages are also reported.

Table 23 Older Survey 2 stage intercorrelations compared to Domino and Affonso (1990) data

Sample	No. of expected correlations	No. of significant correlations	Resolved median
Older 2	28	19*	0.17
Domino & Affonso - Elderly	28	26	0.52

** The large sample size means that statistical significance was defined as r≥0.15.*

Domino & Affonso (1990) did not report the range of correlations for the resolved and unresolved stages. For the Older 2 sample, the range of correlations was r = 0.08 to 0.42.

It would appear that the revised, and much shorter version of the IPB is not equivalent to the full IPB. A principal component factor analyses with varimax rotation was run on all 16 items to ascertain if there were factors within the revised IPB, not necessarily matching those of the original. The eigen values and eigen scores over 0.3 are presented in Table 24.

Table 24 Older Survey 2 factor analysis

Item	Stage	Factor 1	Factor 2	Factor 3	Factor 4
Stages represented		(2 to 5)	(1, 6, 7, 8)	(5, 6, 8)	(3)
Eigen Value		2.50	1.89	1.50	1.09
g – apply fully	4	0.67			
j – self-sufficient	2	0.67			
b - organised	2	0.65			
f - solutions	3	0.61			
k – know what want	5	0.57			
o – enjoy work	4	0.53			-0.33
h – child master skill	7		0.60		
p –future generations	7		0.55		
d - friendships	6		0.53		
a – depend on others	1		**0.53**	0.33	
i - discussion	1		0.48		
e –religious beliefs	8		**0.40**		-0.32
l - lonely	6			0.73	
c – who I am	5			0.69	
m – life been good	8		0.34	**0.45**	
n – little initiative	3				0.88

The factor analyses indicates that there are four distinct factors. Items with two factor loadings over 0.3 have the highest factor loading in bold. Stages represented are shown under each factor heading and indicate there is some consensus, except for stages 5 and 6 items splitting across factors. Item n is in a factor on its own. This could be because the question reads, "I prefer a job that requires little initiative", which is easy to read as "I prefer a job that requires **a** little initiative", thus reversing the direction of the question from negative to positive.

3.3.3 Comparison of IPB in Younger Survey 2 and Older Survey 2

A final analysis of the reduced IPB was undertaken to determine whether there were significant differences across the 8 stages between the two cohorts. T-tests were used to assess whether the means were significantly different from each other and these are presented in Table 25.

Table 25 Comparison of Young 2 and Older 2 for the revised IPB subscales

Stage	Young 2 mean (std dev)	Older 2 mean (std dev)	T-test value*
1	6.8 (1.0)	7.0 (1.0)	-13.53
2	7.0 (1.0)	7.2 (1.0)	-11.95
3	6.0 (1.3)	5.7 (1.3)	17.23
4	6.9 (1.0)	7.3 (1.0)	-24.49
5	5.9 (1.4)	7.3 (1.0)	-74.53
6	5.9 (1.3)	6.5 (1.2)	-30.58
7	6.8 (1.3)	7.3 (1.0)	-29.67
8	5.5 (1.3)	6.6 (1.3)	-57.86

** All significant at the level, p<.0001*

Table 25 indicates that for each stage the means are significantly different. Stage 3 is the only one where the Young 2 mean is higher than the Older 2 mean; this may be another effect of the problems in interpretation of item n.

Overall, the revised IPB does not appear to be analogous to the original IPB. Older women do score significantly higher on seven of the eight subscales, but on the basis of the data presented in this section, the use of this scale as a measurement of psychosocial development is not recommended.

4 MAINTENANCE OF COHORTS

Cohort maintenance and tracking of "return-to-sender" mail continues according to the strategies outlined in previous reports. The office team continue to track all women who responded to Survey 1 in 1996, even those who have not responded to Survey 2 or Survey 3. Participants for whom we have no current contact details remain in the tracking system unless they are positively identified as deceased, withdrawn, permanently emigrated, or otherwise ineligible or unwilling to participate. Secondary contacts, electoral rolls, and electronic white pages continue to be the main sources of information. As in previous years, a newsletter was sent to all participants in August (see Appendix 7.1). This produced 975 items of mail returned to sender (747 from the young cohort, 155 from the mid-age cohort and 73 from the older cohort), all of which have been entered into the tracking database for follow-up.

5 DATA LINKAGE

5.1 PROGRESS WITH ANALYSIS OF MEDICARE/DVA DATA FOR 1995 TO 1999

The ALSWH provides an opportunity to examine variations in bulk billing and out-of-pocket costs for medical services according to place of residence. Almost 23,000 of the women in the study have given written consent for their Medicare/DVA data to be released to the research team. In this six-month period, data for 2000 and 2001 have been received from the Health Insurance Commission, and the data files have been cleaned, checked and readied for analysis. Using these data, variations in bulk billing and out-of-pocket costs for GP consultations were examined for the seven-year period 1995-2001. This work is still in progress but this interim report was prepared by Anne Young.

All claims for services, including GP consultations, processed by HIC for the women who gave consent, for the seven-year period 1995-2001, were extracted by the HIC and provided to the research team for analysis. The unit records included the woman's study identification number, postcode, the date, type of billing, charge and Medicare rebate for each service provided. General practice consultations were defined as item numbers 1-98, 601, 602, 697, 698 in the Medicare Benefits Schedule.

For consultations which were bulk billed, the out-of-pocket cost was defined as zero. For all other consultations, the cost was calculated as the difference between the amount charged by the provider and the Medicare rebate for the service (which includes the Safety Net payment where applicable). The average out-of-pocket cost for each woman for each calendar year was calculated, provided that she had had at least one consultation in that year. For ease of presentation and due to the skewed distribution of the cost data, the average out-of-pocket cost was categorised as $0 (all consultations for that year for that woman bulk billed); less than or equal to $5; more than $5 and less than or equal to $10; more than $10 per consultation.

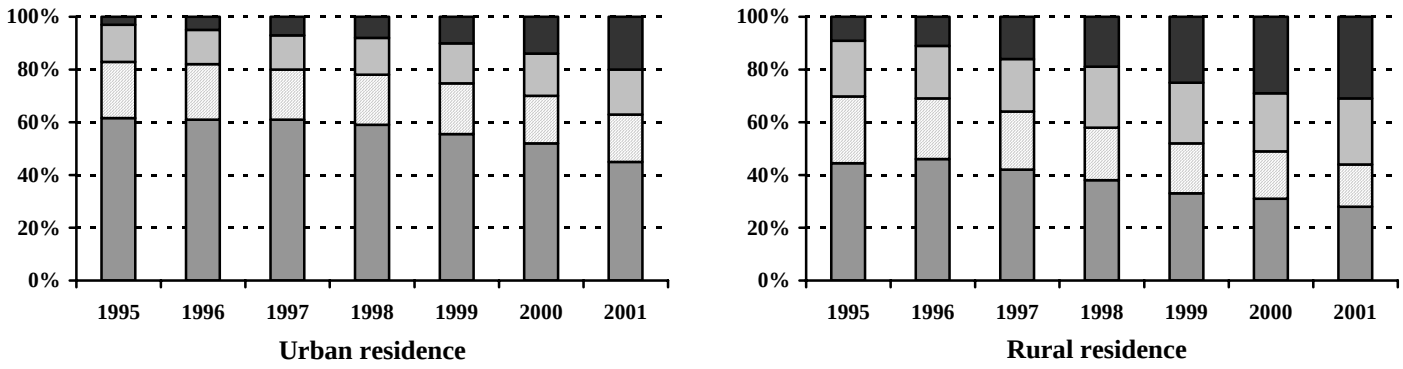
The postcode of residence of the woman at the time of each consultation was classified as urban (capital city, other metropolitan area) or rural (large rural centre, small rural centre, other rural areas, remote centre and other remote areas). If a woman lived in both urban and rural areas during a calendar year, the area where she had the majority of GP consultations was defined as her area of residence for that year.

The average out-of-pocket cost per consultation for each woman was summarised by age cohort and area of residence for each year 1995-2001, to examine trends over time in bulk billing and out-of-pocket costs. When comparing costs over time, the effects of inflation need to be removed. This was done by adjusting costs for all years and expressing them in terms of the purchasing power of money in a single year, using the implicit price deflator series calculated by the Australian Bureau of Statistics as the conversion factor. However as the adjusted costs differed only slightly from the actual costs and showed the same trends over time, the actual costs are presented in this report.

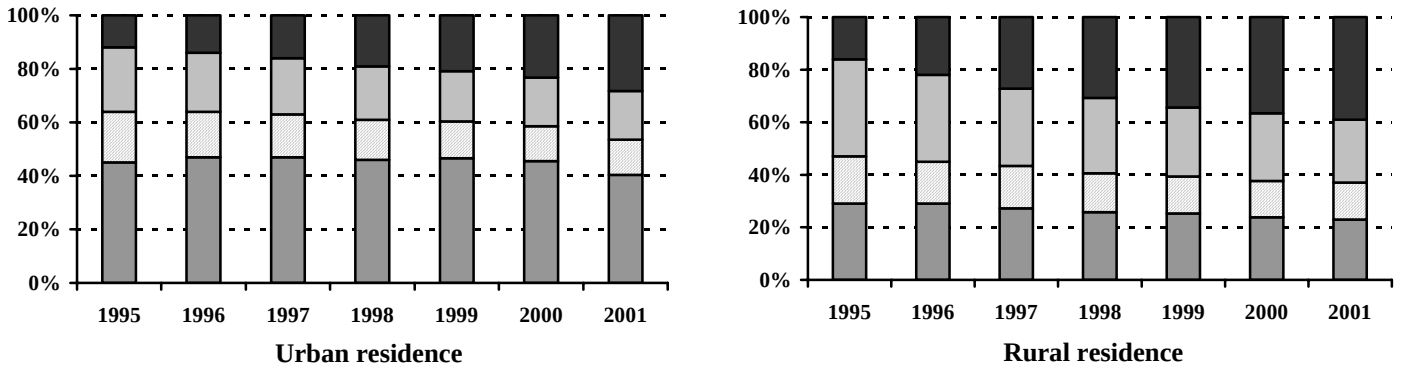
There were almost one million general practice consultations over the seven-year period for the women who gave consent for their records to be linked. The percentage of women who had all their GP consultations bulk billed (and hence had no out-of-pocket costs) was about 20% higher in urban areas than rural areas, for all age groups (Figure 1). Furthermore, the percentage of women having high out-of-pocket costs increased over time in rural areas, particularly for the mid age women. The percentage of women receiving bulk billing declined in rural areas over the seven year period, although there was very little change in urban areas, except among the young women.

This report presents new findings about access to bulk billing and changes over time in costs for general practice consultations for women in Australia. The results demonstrate large geographical inequities in the use of bulk billing, although there is some consideration given to women in poorer health and with lower socioeconomic status. The major finding of this analysis is that not only are the rates of bulk billing lower, and declining, in rural areas, but the out-of-pocket costs are increasing. These costs are increasing as the women age, as this is a longitudinal study of the same women over time. It might be expected that among the older cohort, out-of-pocket costs would decrease as the women age, but this is not the case, especially in rural areas. A strength of the longitudinal design of this study is that these trends can be monitored over the next few years to evaluate the impact of policies to reduce these inequalities.

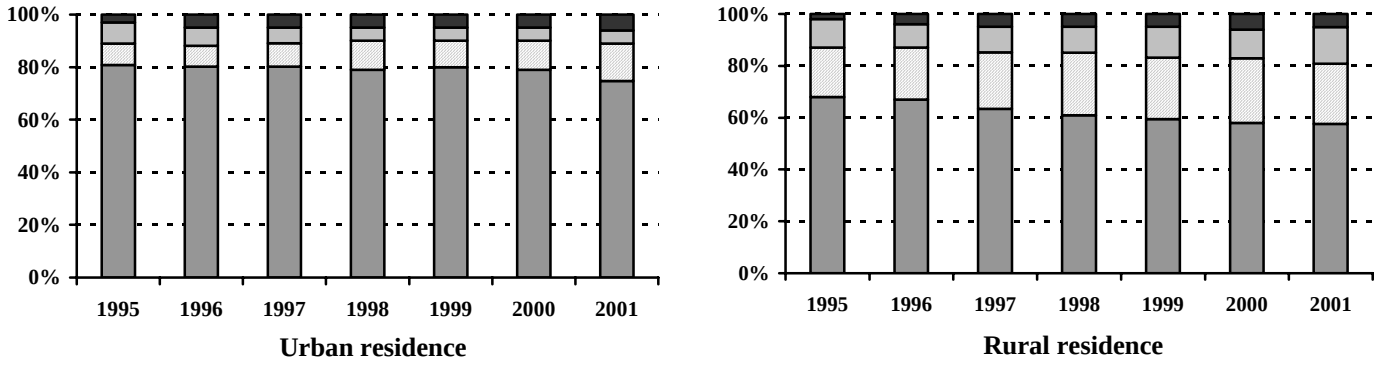
Figure 1 Mean out-of-pocket cost per GP consultation per woman 1995-2001, by age group and area of residence.



Young women (aged 17-22 in 1995 to 23-28 in 2001)



Mid age women (aged 44-49 in 1995 to 50-55 in 2001)



Older women (aged 69-74 in 1995 to 75-80 in 2001)

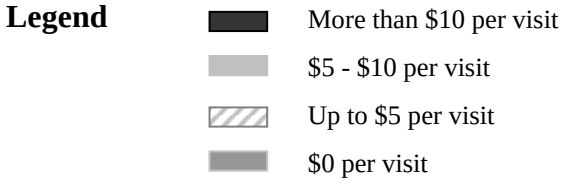


Table 26 Mean out-of-pocket cost per GP consultation for each woman, by age group and area of residence 1995-2001, for women with at least one GP consultation.

		Year (and age of women)						
Area		**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Urban	**Cost**	**18-23 yrs**	**19-24 yrs**	**20-25 yrs**	**21-26 yrs**	**22-27 yrs**	**23-28 yrs**	**24-29 yrs**
	$0	61	61	61	59	55	52	45
	≤$5	21	21	19	19	19	18	18
	≤$10	14	13	13	14	15	16	17
	>$10	3	5	7	8	10	14	20
		100	100	100	100	100	100	100
		45-50 yrs	**46-51 yrs**	**47-52 yrs**	**48-53 yrs**	**49-54 yrs**	**50-55 yrs**	**51-56 yrs**
	$0	45	47	47	46	47	45	40
	≤$5	19	17	16	15	14	13	13
	≤$10	24	22	21	20	19	18	18
	>$10	12	14	16	19	21	23	28
		100	100	100	100	100	100	100
		70-75 yrs	**71-76 yrs**	**72-77 yrs**	**73-78 yrs**	**74-79 yrs**	**75-80 yrs**	**76-81 yrs**
	$0	80	81	81	79	80	79	74
	≤$5	8	8	9	11	10	11	14
	≤$10	8	7	6	5	5	5	5
	>$10	3	5	5	5	5	5	6
		100	100	100	100	100	100	100
Rural	**Cost**	**18-23 yrs**	**19-24 yrs**	**20-25 yrs**	**21-26 yrs**	**22-27 yrs**	**23-28 yrs**	**24-29 yrs**
	$0	44	46	42	38	33	31	28
	≤$5	25	23	22	20	19	18	16
	≤$10	21	20	20	23	23	22	25
	>$10	9	11	16	19	25	29	31
		100	100	100	100	100	100	100
		45-50 yrs	**46-51 yrs**	**47-52 yrs**	**48-53 yrs**	**49-54 yrs**	**50-55 yrs**	**51-56 yrs**
	$0	29	29	27	26	25	24	23
	≤$5	18	16	16	15	14	14	14
	≤$10	37	33	29	29	26	26	24
	>$10	16	22	27	31	34	37	39
		100	100	100	100	100	100	100
		70-75 yrs	**71-76 yrs**	**72-77 yrs**	**73-78 yrs**	**74-79 yrs**	**75-80 yrs**	**76-81 yrs**
	$0	68	67	64	61	60	58	57
	≤$5	19	20	22	24	24	25	23
	≤$10	11	9	10	10	12	11	14
	>$10	2	4	5	5	5	6	5
		100	100	100	100	100	100	100

Note: Totals may differ slightly from 100 due to rounding

5.2 PROGRESS ON PREPARATION OF DATABOOKS FOR MEDICARE/DVA DATA

Anne Young and Emily Anderson are producing databooks of Medicare/DVA services for those women who gave consent for the release of their individual records from the Health Insurance Commission. There will be a separate databook for each year from 1995 to 2001 for each age cohort, resulting in a total of 21 databooks. These databooks will allow detailed comparisons of health service use to be made over time within an age cohort, as well as comparisons across age cohorts and by area of residence.

A specialised SAS program has been written to generate each databook. The program firstly reads in the HIC records for the given year for the age cohort and categorises the postcode of residence of the woman, at the time the service was rendered, as urban or nonurban. All claims are then summarised to produce tables of the following variables, according to urban/nonurban area of residence:

- total number of claims
- broad type of service category
  Unreferred attendances – GP/VRGP; Unreferred attendances – other; Specialist attendances; Obstetrics; Anaesthetics; Pathology; Diagnostic imaging; Operations; Assist at operations; Optometry; Radio and nuclear therapy; Miscellaneous; Pathology transport; DVA not elsewhere classified; Enhanced primary care.
- type of provider for GP consultations
  vocationally registered GP; other medical provider
- length of GP consultation
  short; standard; long; prolonged; after-hours.

Each databook will contain a table describing the distribution of women in each age cohort for each year living in urban and nonurban areas. The area for each *woman* (rather than for each *claim*) is defined according to where the woman lived for the majority of her GP services. Women who had no GP services but did have other claims for services in that year, are classified as living in an urban or nonurban area according to where they lived for the majority of their non-GP claims. Women with no claims for Medicare or DVA services in a given year, are allocated to the area where they lived according to WHA data.

The program also reads in a file containing a large number of new variables that were created for each woman for each year from the Medicare/DVA records. These new variables for each woman include:

- the number of GP attendances;
- total GP charges;
- total number of bulk-billed attendances;
- total out of pocket costs for GP visits;
- total number of visits to registered GPs and other medical providers;
- total number of GPs visited;
- greatest number of attendances to one GP (to measure continuity of care);
- number of female GP attendances;
- proportion of visits to female GPs;
- proportion of GP visits that were bulk-billed;
- proportion of visits to registered GPs; and
- average out of pocket cost per GP attendance.

The summary file for each woman is used to produce the following tables:

- number of GP consultations per woman by area of residence
  univariate summary statistics (mean, standard deviation, minimum, maximum, median, quartiles)

- the number of different general practitioners attended by area of residence
  No GPs attended
  1 GP attended
  2-3 GPs attended
  4-5 GPs attended
  6-7 GPs attended
  8 or more GP's attended

These data books should be completed by the end of 2002.

6 DATA ANALYSIS

6.1 ANALYSIS OF RECREATIONAL DRUG USE DATA – YOUNG SURVEY 2 (2000)

An initial analysis of responses to items on illicit drug use among the younger cohort was included in Report 18 (June 2002). This report, prepared by Anne Russell and Cathy Turner, provides an update of that work, and suggests a strategy for categorizing types of users and ex-users for use in further analysis.

6.1.1 Overview

Overall, 9,572 women responded to Survey 2 of the younger cohort of ALSWH in 2000. These women were aged between 22 and 27 at the time. Of these women, 9,512 women (99%) completed the section on illicit drug use. Overall, 5,372 (56.5%) reported they had used one or more illicit drugs at some time; 46% of ever-users had used at least one illicit drug in the previous 12 months (defined as current users). Cannabis is by far the most commonly reported drug used, followed by amphetamines and ecstasy. Four groups of ever-users could be identified: past users of cannabis only (42%); current users of cannabis only (17%); past users of more than one drug (12%); and current users of more than one drug (29%). Over 90% of multiple drug users (both past and current) had used cannabis. Multiple drug users (both past and current) had generally initiated cannabis use about 2 to 3 years before initiating use of any other drug. The data suggest that cannabis use is common among young women and that it may serve as a "gateway" to use of other illicit drugs. However, they also suggest that a large proportion of cannabis users do not use other drugs. Past users of any drug – with the exception of cannabis - had generally initiated use of that drug earlier than had current users, suggesting that use of illicit drugs may frequently be a short-term and self-limiting pattern of behaviour. About half of all young women who had used illicit drugs at some time had stopped by the time of the survey. Analysis of the relationships between drug use and health indices is in progress.

6.1.2 Prevalence, patterns of drug use and age of initiation

Among the 9,512 women reporting data on illicit drug use, 5,372 (56.5%) had used one or more illicit drugs at some time. Of these women 54% (n=2,897) reported past use and 46% (n=2,475) reported current drug use (within the twelve months preceding the survey). Table 27 compares the prevalence of having ever used an illicit drug, or having used in the last 12 months. Where possible, comparisons have been made to the 1998 and 2001 National Drug Household Surveys. It is evident from Table 27 that the drugs of concern for young women are cannabis, amphetamines and ecstasy. For each of these three drugs, the prevalence figures show that current users still make up about half of the women who reported ever having used these drugs at some time.

Women's patterns of drug use followed four different patterns as outlined in Table 28. Of the women who reported drug use, the largest group (n=2,235, 42%) had only ever used cannabis in the past; another smaller group of women reported only ever using cannabis but remained current users (n=939, 17%). The third (and smallest) group of women reported past multiple drug use (n=662, 12%). Subsequent analysis of patterns of use within this group revealed that 93% of women had reported previous cannabis use. The fourth (but second largest) group of women (n=1,536, 29%) reported current multiple drug use. Subsequent analysis of patterns of use within this group revealed that 97% of women had reported previous cannabis use at some time and 81% reported using cannabis in the last twelve months. Analysis did not reveal any women who were only using amphetamines, LSD, or ecstasy.

The mean age of initiation for all women who had reported drug use is outlined in Table 29 for each of the ten drugs listed. These figures are not mutually exclusive as 41% of women had used multiple drugs at some time. When all users were stratified into either a past user or a current user for any of the drugs listed, current users tended to initiate use within each drug category a year or more later than past users, with the exception of cannabis, in which current users had the lowest mean age of initiation. Table 29 also compares the mean age of initiation for past users and current users of each of the specified drugs listed. Again the trend is for current users of each of the specified drugs to have initiated use more than a year later than past users of the same drug, with the exception of cannabis and heroin. There was no significant difference in the initiation age of past users (mean = 17.2) and current users (mean = 17.1) of cannabis or heroin.

Age of drug use initiation was further examined across the four patterns of drug use that had previously emerged and is outlined in Table 30. Due to the longitudinal nature of the study it was possible to calculate the duration of cannabis use for those women who were still current users. It is clear from Table 30 that women who reported either current or past multiple drug use had initiated cannabis use either one to two years before the women who reported cannabis use only; and that multiple drug users had initiated cannabis use two to three years prior to initiating any other drug. The latter finding is consistent with the 'gateway' theory that suggests cannabis use leads to other drugs. The next stage of this analysis is to explore the extent to which various patterns of drug use are associated with health-related, sociodemographic and other variables.

Table 27 Comparison of WHA data to AIHW data on prevalence of drug ever used, or in last 12 months

	Prevalence of drug ever used			Prevalence of drug used in last 12 months		
	WHA F 22-27	**AIHW[1] F 20-29**	**AIHW[2] M & F 14+**	**WHA F 22-27**	**AIHW[1] F 20-29**	**AIHW[2] M & F 14+**
Cannabis	55.4	56.2	39.1	22.9	23.2	17.9
Analgesics *	--		11.5	29.6		5.2
Amphetamines	14.6	19.0	8.8	7.4	8.2	3.7
LSD	12.5		9.9	2.7		3.0
Hallucinogens	4.8		--	0.7		--
Tranquillisers	4.6		6.2	1.7		3.0
Cocaine	5.0		4.3	2.2		1.4
Ecstasy/designer drugs	12.5	16.9	4.8	7.8	8.3	2.4
Inhalants	1.7		3.9	0.2		0.9
Heroin	1.2	2.0	2.2	0.4	0.5	0.8
Barbiturates	0.5		1.6	0.1		0.3
Steroids *	--		0.8	0.1		0.2
Any Illicit Drug	64.0	59.9	46.0	--	30.5	23.0
Injected Drug		2.9	2.1		1.3	0.8

**data from WHA not useful for this drug due to reporting medicinal usage during childhood*

[1] *Australian Institute of Health and Welfare 2002. 2001 National Drug Household Survey: First results. AIHW Cat No. PHE 35. Canberra: AIHW (Drug Statistics Series No.9)*

[2] *Miller M & Draper G 2001. Statistics on drug use in Australia 2000. AIHW Cat No. PHE 30. Canberra: AIHW (Drug Statistics Series No.8) 1998 Survey*

Table 28 Patterns of drug use for young women

	n	%
Never used any drug	4,140	43
Only drug ever used is cannabis; not in the last 12 months	2,235	24
Only drug ever used is cannabis; including in the last 12 months	939	10
Has been a multiple drug user or user of a single drug other than Cannabis; no drugs used in the last 12 months	662	7
Has been a multiple drug user or user of a single drug other than Cannabis; has used at least 1 drug in the last 12 months	1,536	16

Table 29 Comparison of past users' and current users' mean age of initiation for each of the ten drugs

	n	All users Mean age	Past but not current user of any drug	Current user of any drug	p-value	Past user of specified drug	Current user of specified drug	p-value
a. Cannabis	5 232	17.2	17.3	17.0	<0.0001	17.2	17.1	0.0648
c. Amphetamines	1 365	19.6	18.8	19.8	<0.0001	18.9	20.2	<0.0001
d. LSD	1 160	18.7	18.4	18.9	0.0008	18.4	19.8	<0.0001
e. Natural hallucinogens	431	18.6	17.7	18.9	<0.0001	18.2	20.7	<0.0001
f. Tranqillisers	412	19.9	19.6	20.0	0.2670	19.3	20.8	<0.0001
g. Cocaine	461	21.1	20.0	21.3	<0.0001	20.3	22.0	<0.0001
h. Ecstasy	1 156	20.8	19.8	21.0	<0.0001	19.9	21.3	<0.0001
i. Inhalants	150	16.2	15.6	16.6	0.0243	15.6	20.6	<0.0001
j. Heroin	100	19.9	18.1	20.2	0.0014	19.8	20.2	0.4069
k. Barbiturates	37	18.9	17.1	19.3	0.0529	18.3	21.3	0.0044

Table 30 Mean age of initiation (95% CI) and p-values for overall differences in means across patterns of drug use

	Age in 1996	Age of initiating cannabis	Minimum age of initiating any other drug	Difference in age of initiating cannabis and any other drug	Years using cannabis among current users
1 Never used any drug	20.7 (20.7, 20.8)				
2 Only drug ever used is cannabis; not in the last 12 months	20.8 (20.7, 20.8)	17.5 (17.4,17.6)			
3 Only drug ever used is cannabis; including in the last 12 months	20.6 (20.5, 20.7)	18.1 (17.9, 18.2)			6.5 (6.3, 6.7)
4 Before the last 12 months, was a multiple drug user or a user of a single drug other than cannabis	20.9 (20.8, 21.0)	16.5 (16.3, 16.6)	18.5 (18.3, 18.7)	1.9 (1.7, 2.1)	
5 In the last 12 months has been a multiple drug user or user of a single drug other than cannabis	20.6 (20.5, 20.6)	16.3 (16.2, 16.5)	19.3 (19.1, 19.4)	2.9 (2.7, 3.0)	8.2 (8.1, 8.4)
p-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

7 DISSEMINATION OF STUDY FINDINGS

7.1 COMMUNICATION WITH STUDY PARTICIPANTS

The annual newsletter to participants for 2002 appears in Appendix 7.

7.2 PUBLICATIONS

7.2.1 Papers published

Brown WJ, Mishra GD & Dobson AJ. Changes in physical symptoms during the menopause transition. *International Journal of Behavioral Medicine,* 2002; 9(1): 53-67.

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.

Hussain R, Schofield M & Loxton D. Cosmetic surgery history and health service use in midlife: Women's Health Australia. *Medical Journal of Australia,* 2002; 176: 576-579.

Objective: To explore among middle-aged women, the relationship between having ever had cosmetic surgery and the frequency of use of other health services.
Design: Retrospective analysis of cross-sectional survey data from the Women's Health Australia (WHA) study.
Setting and participants: A nationally representative sample of the "mid-aged" (45-50 years) cohort of women who participated in the 1996 WHA baseline postal survey. Responses were received from 14 100 women (a response rate of 54%).
Results: Seven percent of women reported ever having had cosmetic surgery. After adjusting for demographic variables, multivariate analysis confirmed that women who had cosmetic surgery were significantly more likely to use heath services more frequently (eg, surgical procedures, consultations with specialists and alternative health care providers). Cosmetic surgery was also associated with a greater number of chronic illnesses and use of medication for anxiety and sleep problems.
Conclusion: Further research is needed to determine whether cosmetic surgery is directly related to health conditions or to attitudinal or psychosocial variables. Such research should examine whether alternative interventions may be more cost-effective in dealing with the issues that motivate women to seek cosmetic surgery.

Schofield M, Hussain R, Loxton D & Miller Z. Psychosocial and health behavioural covariates of cosmetic surgery: Women's Health Australia study. *Journal of Health Psychology*, 2002; 7(4): 445-457.

Current psychosocial and health behavioural covariates of past cosmetic surgery was assessed in a population-based sample (N=14,100) aged 45-49 years, from the baseline survey of the Women's Health Australia study. 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 significant covariates of 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, 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, 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. The psychological and health implications of the findings are discussed.

Ball K & Kenardy J. Body weight, body image and eating behaviours: relationship with ethnicity and acculturation in a community sample of young Australian women. *Eating Behaviors*, 2002; 3(3): 205-216.

A study was conducted to investigate associations between ethnicity and acculturation status, and risk factors for eating disorders among young adult women. A community sample of 14,779 women aged 18-23 completed a comprehensive mail-out survey which incorporated questions on country of birth, length of time spent in Australia, body weight, weight dissatisfaction, dieting, binge eating and compensatory disordered eating behaviours. Results 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. Results challenge claims that risk factors for disordered eating are restricted to Caucasian females in Western societies. Implications for understanding ethnic and sociocultural influences on body weight, dieting and disordered eating are considered.

Parker G & Lee C. Predictors of physical and emotional health in a sample of abused Australian women. *Journal of Interpersonal Violence*, 2002; 17(9): 987-1001.

This study investigated the extent to which aspects of abuse and of help-seeking were associated with the physical and emotional outcomes of women's experiences of violence and abuse. A total of 1159 women aged 48 to 53, from the mid-age cohort of the Women's Health Australia longitudinal project, completed self-report questionnaires. All had reported having experienced abuse and had indicated their willingness to participate in surveys on the topic. Measures included descriptors of the abuse, SF-36 physical and mental health summary scores, GHQ-12, and the CES-D depression scale. Poorer physical and mental health, psychological distress, depression, and subjective perception of negative effects were predicted by abuse having been frequent, having continued over time, and having occurred in adulthood but not having occurred recently. Having discussed the situation with a psychiatrist or doctor, and having wanted to leave a situation but not being able, were also significant predictors of poorer outcomes. However, characteristics of the abuse and of help-seeking accounted for less than 20% of the variance in outcome measures. Further research should concentrate on personal characteristics of the women and on coping strategies which are

predictive of positive outcomes, in order to develop strategies which can help women to survive abusive experiences.

Young A. Putting data into context: findings from linking Medicare health service use and expenditure data with longitudinal health survey data. ***Proceedings from Symposium on health data linkage: its value for Australian health policy development and policy relevant research*****. pp. 1-20. Adelaide: Public Health Information Development Unit, 2002.**

Introduction: The Australian Longitudinal Study on Women's Health (ALSWH), funded by the Commonwealth Department of Health and Ageing, is a study of the health and well being of three large cohorts of Australian women. The ALSWH has made extensive use of linked survey and Medicare/Department of Veterans' Affairs data. Results are presented to illustrate the value of the linked data for informing policy makers about provision of health services and for monitoring compliance with best practice guidelines.
Methods: The project recruited three large, nationally representative cohorts of women, aged 18-23 years (n=14,228), 45-50 years (n=13,338) and 70-75 years (n=12,317) in 1996. Self-administered postal surveys are completed every three years and include a wide range of measures of demographic, social and health-related factors. Almost 23,000 of the women have given written consent for the release of their individual records from the Health Insurance Commission. Data relating to more than 1.5 million Medicare/DVA services provided to these women during 1995-1999 have been linked to the first two phases of their survey data. Changes in health, health service use and the costs of services were examined according to age, urban/rural residence and socioeconomic status. Analysis of the linked data for subgroups of women, such as frequent attenders to general practice, and the use of best practice guidelines for diabetes care were also examined.
Results: For all age groups, women with lower socioeconomic status tended to have lower out of pocket costs for general practice visits. However, women in rural and remote areas reported poorer access to doctors who bulk bill and Medicare data showed these women had higher out of pocket costs than women living in urban areas. Many of the very frequent attenders to general practice had suffered a major personal illness, and the survey data showed that many also had very difficult personal and social circumstances. Women with diabetes, and those who developed diabetes, reported poorer health and greater use of health services and medications than women without diabetes. Medicare data helped to quantify the increased health service use and expenditure over time (for services outside hospital) for these women. However their Medicare data also showed that compliance with best practice guidelines for diabetes care, such as monitoring HbA1c, was sub-optimal.
Conclusions: The linked data provide information on medical conditions and social circumstances which are valuable for understanding health service use. Inequalities in the provision and costs of health care services were identified. The linked data can be used to monitor compliance with best practice guidelines for care and to determine the impact of strategies designed to improve the health and well being of women.

Feldman S, Byles J, Mishra G & Powers J. The health and social needs of recently widowed older women in Australia. ***Australasian Journal on Ageing,*** **2002; 21(3): 135-140.**

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.

Mishra GD, Ball K, Dobson AJ, Byles JE & Warner-Smith P. Which aspects of socioeconomic status are related to health in mid-aged and older women? *International Journal of Behavioral Medicine*, 2002; 9(3): 263-285.

A population-based study was conducted 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. Data from 11,637 women aged 45-50 and 9,510 women aged 70-75 were analysed. Confirmatory factor analysis produced four domains among the mid-aged cohort (employment, family unit, education and migration) and four domains 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 95), 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. The main exception was that in the older cohort, the education domain was significantly associated with all specific health measures.

Lee C & Powers JR. Number of social roles, health and well-being in three generations of Australian women. *International Journal of Behavioral Medicine*, 2002; 9(3): 195-215.

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 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. 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. 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. 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.

7.2.2 Papers accepted

Ball K, Brown W & Crawford D. Who does not gain weight? Prevalence and predictors of weight maintenance in young women. *International Journal of Obesity*.

Objective: To investigate the prevalence and predictors of weight maintenance over time in a large sample of young Australian women.
Design: This population study examined baseline and 4-year follow-up data from the cohort of young women participating in the Australian Longitudinal Study on Women's Health.
Subjects: A total of 8,726 young women aged 18-23 years at baseline.
Measures: Height, weight and body mass index (BMI); physical activity; time spent sitting; selected eating behaviours (eg, dieting, disordered eating, takeaway food consumption); cigarette smoking, alcohol consumption; parity; and sociodemographic characteristics.
Results: Only 39% of the women reported their BMI at follow-up to be within 5% of their baseline BMI (maintainers); 36% had gained weight and 14% had lost weight. Weight maintainers were more likely to be in managerial or professional occupations; to have never married; to be currently studying; and to not be mothers. Controlling for sociodemographic factors, weight maintainers were more likely to be in a healthy weight range at baseline; and to report that they spent less time sitting, and consumed less takeaway food, than women who gained weight.
Conclusions: Fewer than half the young women in this community sample maintained their weight over this four-year period in their early twenties. Findings of widespread weight gain, particularly among those already overweight, suggest that early adulthood, which is a time of significant life changes for many women, may be an important time for implementing strategies to promote maintenance of healthy weight. Strategies which encourage decreased sitting time and less take-away food consumption may be effective for encouraging weight maintenance at this life stage.

Schofield MJ & Mishra GD. Validity of self-report screening scale for elder abuse: Women's Health Australia study. *The Gerontologist*.

Purpose of the study: Early identification of elder abuse requires a valid, easily administered screening instrument. This study examined the reliability and validity of the 'Vulnerability to Abuse' Screening Scale (VASS), a 12-item self-report measure with four factors (vulnerability, dependence, dejection, coercion).
Design and methods: The sample comprised 10,421 nationally representative Women's Health Australia study participants who completed Time 2 postal survey in 1999, aged 73-78. We tested validity of the VASS factor structure and whether baseline risk status independently predicted Time 2 attrition.
Results: Findings confirmed the VASS factor structure and construct validity. Four factors explained 51% of variance, and factors were internally consistent. The vulnerability and coercion factors held the strongest face and construct validity for physical and psychological abuse. The dependence and dejection factors were valid, reliable and significantly predicted three year attrition after controlling for confounders.
Implications: Further work is needed to determine sensitivity and specificity of VASS as a screening instrument for elder abuse. Qualitative research could examine specific experiences and contexts of vulnerable women.

Mishra GD, Brown WJ & Dobson AJ. Physical and mental health: changes during menopause transition. *Quality of Life Research*.

Objective*:* To measure changes in physical and mental health in six groups of women defined by menopausal status or use of hormone replacement therapy.
Design*:* Longitudinal study with two years follow-up.
Participants*:* 8623 women participating in the Australian Longitudinal Study on Women's Health, aged 45-50 years in 1996.
Main outcome measures*:* Changes in the eight dimensions of the Short Form General Health Survey (SF-36) adjusted for baseline scores, lifestyle, behavioural and demographic factors.
Results*:* At baseline, mean scores for all dimensions of the SF-36 were highest in pre-menopausal women. There were declines in the SF-36 dimensions in all six groups of women. Declines were largest in physical functioning (adjusted mean change of -4.9, 95% confidence interval -6.2 to -3.5) and physical role limitation (-5.7, 95% CI -8.2 to -3.2) in women who remained peri-menopausal throughout the study period and in women taking hormone replacement therapy at the time of either survey; physical functioning: -5.3 (-6.7 to -3.9), role physical limitation: -7.5 (-9.9 to -5.1). They were smallest in women who remained pre-menopausal; physical functioning: -3.2 (-4.4 to -2.0); role physical limitation: -2.1 (-4.3 to 0.1).
Conclusions*:* Physical aspects of general health and well-being decline during the menopausal transition. Sensitive measures and careful analysis are needed to understand why these changes are worse for peri-menopausal women and those taking hormone replacement therapy.

Miller YD, Brown WJ, Smith N & Chiarelli P. Managing urinary incontinence across the lifespan. *International Journal of Behavioral Medicine*.

Objective: In the 1996 baseline surveys of the Australian Longitudinal Study of Women's Health (ALSWH) 36.1% of mid-age women (45-50) and 35% of older women (70-75) reported leaking urine. This study aimed to investigate (1) the range of self-management strategies used to deal with Urinary Incontinence (UI), (2) the reasons why many women who report leaking urine do not seek help for UI, and (3) the types of health professionals consulted and treatment provided, and perceptions of satisfaction with these, among a sample of women in each age group who reported leaking urine 'often' at baseline.
Methods*:* Five-hundred participants were randomly selected from women in each of the mid-age and older cohorts of the Australian Longitudinal Study of Women's Health (ALSWH) who had reported leaking urine 'often' in a previous survey. Details about UI (frequency, severity, and situations), self-management behaviours and help-seeking for UI, types of health professional consulted, recommended treatment for the problem, and satisfaction with the service provided by health-care professionals and the outcomes of recommended treatments were sought through a self-report mailed follow-up survey.
Results: Most respondents had leaked urine in the last month (94%, and 91% of mid-age and older women respectively), and 72.2% and 73.1% of mid-aged and older women respectively had sought help or advice about their UI. In both age groups, the likelihood of having sought help significantly increased with severity of incontinence. 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. Many women in both cohorts had employed avoidance techniques in an attempt to prevent leaking urine, including reducing their liquid consumption, going to the toilet 'just in case', and rushing to the toilet the minute they felt the need to.
Conclusions*:* Strategies are needed to inform women who experience UI of more effective management techniques, and the possible health risks associated with commonly used avoidance behaviours. There may be a need to better publicise existing incontinence services, and improve access to these services for women of all ages.

Byles JE, Mishra GD, Harris MA & Nair K. The problems of sleep for older women: changes in health outcomes. *Age and Aging*.

Objective: To identify the persistence of sleeping difficulty and medication use in a cohort of older Australian women from baseline to three year follow-up and to explore the relationship between these factors and health-related quality of life scores, falls and other health care use.
Method: A three-year longitudinal survey of Australian 10,430 women aged 70–75 years at baseline. These women were participants in the Australian Longitudinal Study on Women's Health (ALSWH) randomly selected from the Australian Medicare database.
Results: A majority of women (63%) endorsed one or more items related to sleeping difficulty at three year follow-up: 33% reported one item only, 16% reported 2 or 3 items, and 14% reported more than 3 items; (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". Total scores on the Nottingham Health Profile sleep sub-scale ranged from 0-100 and were skewed to the right. The median score was 12.57. There was a strong statistical association between reporting sleeping difficulty at baseline and at follow-up. A total of 1532 (15%) women reported use of sleeping medication at follow-up and women were 6.5 times more likely to report use if they also reported any item of sleep difficulty. There was a moderate level of agreement (88%, Kappa = 0.56) between taking sleeping medication within 4 weeks before the baseline survey and within four weeks before follow-up. On multivariate analysis, sleeping difficulty at baseline was negatively associated with general health perceptions, emotional role limitations and general mental health sub-scales of the Short-Form – 36 Health Survey (SF-36) at follow-up; the use of sleep medication at baseline was negatively associated 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.
Conclusion: Sleeping difficulty is a common and persistent complaint among older women and is strongly associated with use of sleeping medications. Both behaviours are negatively associated with health status.

Powers JR, Young AF, Russell A & Pachana NA. Implications of non-response of older women to a short form of the Center for Epidemiologic Studies Depression Scale. *International Journal of Aging and Human Development.*

The Center for Epidemiologic Studies Depression Scale (CES-D) is frequently used in epidemiological surveys to screen for depression, especially among older adults. The present article addresses the problem of non-completion of a short form of the CES-D (CESD-10) in a mailed survey of women aged 73 to 78 years enrolled in the Australian Longitudinal Study on Women's Health. Non-completion of the CESD-10 was significantly higher for older women than for mid-age (47-52 years) and young (22-27 years) women. Among the older participants, completers of the CESD-10 had higher levels of education, found it easier to manage on available income and had better physical and mental health. Non-completers of the CESD-10 had SF-36 scores that were intermediate between those for women classified as depressed and as non-depressed using the CESD-10. Although levels of self-reported depression and other indicators of depression were slightly higher among non-completers than completers, the levels varied with the number of missing CESD-10 items. To avoid problems of missing data, especially in mailed surveys to older populations, instructions for the CESD-10 should emphasise the need to complete all items. CESD-10 items may need to be spread throughout the survey to minimise their negative impact.

Warner-Smith P, Mishra G & Brown P. Women's wellbeing and their satisfaction with hours of paid work. *Health Sociology Review*.

While the labour force participation of women in post-industrial western societies is increasing, study after study shows that women still take major responsibility for family work, whatever their employment commitments. However, it has also been shown that employment is associated with better health and well-being for women. In regard to optimal integration of work, wellbeing and family life, there is therefore a need for more fine-grained research which looks at the specifics of women's health and their patterns of time use.

This paper reports on associations between satisfaction with hours of paid work and the physical and mental health of mid age women. Data are drawn from the Australian Longitudinal Study on Women's Health (now known as the Women's Health Australia [WHA] project) which is a 20 year survey of the health of over 40,000 Australian women in three age cohorts. At the baseline survey in 1996 the cohorts were aged 18-23 ('young'), 45-50 ('mid age') and 70-75 ('older').

Mid age women who were happy with their hours of paid work were most likely to be working part-time between 16 and 24 hours per week. They were followed by those who were working 'long part-time' of 25 to 34 hours per week. However, in every time category, women who were happy with their hours of work had better mental and physical health than women who would like to work either more hours or fewer hours. While 'long part-time' hours appear to be generally linked with optimal health for mid age women, it is certainly not the case that 'one size fits all'. Factors such as type of caring responsibilities, and living arrangement were found to be associated with satisfaction with hours of paid employment.

Mishra G, Lee C, Brown W & Dobson A. Menopausal transitions, symptoms and country of birth: The Australian Longitudinal Study on Women's Health. *Australian and New Zealand Journal of Public Health.*

Menopausal transitions and symptoms experienced by women born in different countries have been assessed in the Australian Longitudinal Study on Women's Health. Data from 8,623 women aged 45-50 in 1996, who responded to surveys in 1996 and 1998 and had not had a hysterectomy, were analyzed. Approximately 25 percent were born outside Australia. Women were categorized by country of birth, menopausal status at Survey 1 and 2, and menopausal transition. Four endocrine-related and twelve general symptoms were assessed. Women from Asia were twice as likely as Australian-born women to be post-menopausal at Survey 1, twice as likely to become post-menopausal between surveys, less likely to remain peri-menopausal, and less likely to report hot flushes and night sweats. Odds ratios for each symptom at Survey 2 were near unity for all country of birth groups compared with Australian born women, with or without adjustment for symptoms at Survey 1, menopausal transition category, behaviour, lifestyle and demographics. Thus women from Asia entered menopause earlier and passed through it more quickly, but once this was taken into account all women showed the same patterns of symptoms. There may be differences between ethnic groups which influence the timing of menopause, but the subjective experience appears similar across groups.

Strodl E, Kenardy J & Aroney C. Perceived stress as a predictor of the self-reported new diagnosis of symptomatic CHD in older women. *International Journal of Behavioral Medicine*.

This article describes one aspect of a prospective cohort study of 10 432 women aged between 70 to 75 years of age. After a three-year period, 503 women reported a new diagnosed of angina or myocardial infarction (symptomatic coronary heart disease [CHD]). Time one psychosocial variables (Duke Social Support Index, time pressure, Perceived Stress Scale, 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 subsequent symptomatic CHD. Of these variables, the Duke Social Support Index, Perceived Stress Scale and the Mental Health Index all proved to be significant predictors of symptomatic CHD diagnosis. Only the Perceived Stress Scale, however, proved to be a significant independent predictor. After controlling for time one non-psychosocial variables, as well as the frequency of family doctor visits, Perceived Stress remained a significant predictor of the first time diagnosis of symptomatic CHD in this cohort of Older women.

7.3 CONFERENCE PRESENTATIONS

Brown WJ. Physical activity and women: news, views and progress. *The First Australasian Nutrition, Physical Activity and Cancer Conference.* Sydney, New South Wales, Australia. 24-26 June 2002.

The health benefits of physical activity (PA) are well known, especially in terms of cardiovascular disease, bone health and diabetes, and especially in men. Evidence for the health benefits of PA in women is less well known and, until recently, more equivocal. For example, the early studies of cardiovascular disease in women did not show the same risk reductions with increasing PA in women as in men, a finding which has been ascribed to the difficulties of measuring PA in women.

There is now however a growing body of evidence from cohort studies around the world that suggests a protective role for PA in women. This exists in relation to all cause mortality, cardiovascular disease, stroke, diabetes, falls and fractures, and there is some evidence to suggest benefits in relation to prevention of cognitive decline, and breast and colon cancer.

Given the benefits of PA, a paramount question for those interested in the promotion of PA is how to support women to be more active, given the social circumstances of women in the 21st century. In this paper, data from the Australian Longitudinal Study on Women's Health and associated studies will be used to illustrate barriers to and determinants of PA in both younger and older women. For example, in early adult life, the major barriers to physical activity reflect the profound time pressures faced by women who have multiple social roles in paid and unpaid work. Later in life, as time pressures moderate, social support from partner and friends appears to be an essential element for long term maintenance of activity.

There have been few randomised controlled intervention trials with a specific focus on women. Recent results from studies of both women and men suggest that getting previously inactive women to be more active might depend on fairly intensive interventions which focus on tailoring to individual preferences for different types of activity. More controlled intervention trials are required to explore the long-term impact of behaviour change strategies in this population group.

Patterson AJ, Brown WJ, Roberts DCK & Seldon MR. Dietary treatment of iron deficiency in women of childbearing age. *9th World Congress on Clinical Nutrition*. London, England. 24-26 June, 2002.

Background: The Australian Iron Status Advisory Panel advocates the use of dietary intervention as the first treatment option in mild cases of iron deficiency (serum ferritin 10-15ug/L). However, there appear to be no studies examining the efficacy of dietary treatment of iron deficiency.
Objective**:** To compare the effects of iron supplementation and a high iron diet on serum ferritin (SF) and hemoglobin (Hb) in iron deficient women of childbearing age.
Design: 44 iron deficient (SF < 15μg/L *or* SF 15-20μg/L, plus serum iron <10 μmol/L and total iron binding capacity > 68 μmol/L) and 22 iron replete (Hb ≥ 120g/L *and* SF > 20μg/L) women, matched for age and parity categories, had iron studies performed and completed 7 day weighed food records (T0). Iron deficient women were randomly allocated to either iron supplementation (105mg/d) or a high iron diet (recommended intake of absorbable iron 2.25mg/d) for 12 weeks. Hematological and dietary assessments were repeated at the end of the intervention phase (T1) and again after a 6 month non-intervention phase (T2).
Results: Mean SF for the supplement group increased from 9.0±3.1μg/L to 24.8±10.0μg/L during the intervention phase and remained stable during the non-intervention phase (24.2±8.8μg/L), while increases in SF for the diet group were smaller during the intervention phase (8.9±3.1μg/L to 11.0±5.9μg/L), and continued to improve during the non-intervention phase to 15.2±9.5μg/L. Mean Hb tended to improve for both intervention groups but the change was only significant for the supplement group [Supplement: T0=125.2±9.1mg/L, T1=130.4±6.8mg/L, T2=131.4±6.6mg/L; Diet: T0=127.6±8.5mg/L, T1=130.6±7.1mg/L, T2=130.8±6.9mg/L].
Conclusions***:*** A high iron diet produced smaller increases in SF than iron supplementation for iron deficient women of childbearing age during a 12 week intervention, but resulted in continued improvements in iron status during a 6 month follow-up.

Patterson AJ, Young AF, Powers JR, Brown WJ & Byles JE. Relationships between nutrition screening checklists and the health and wellbeing of older Australian women. *9th World Congress on Clinical Nutrition*. London, England. 24-26 June, 2002.

Background*:* Malnutrition in older populations has been linked to increased levels of morbidity, and poor or delayed recovery from illness. Identifying those at risk in the community is however difficult and several checklists have been developed as screening or awareness tools.
Objective: 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: Responses to individual items in the ANSI checklist, and ANSI and NSI scores, were associated with measures of health and health service utilisation. Women with high ANSI and NSI scores had poorer physical and mental health, higher health care utilisation and were less likely to be in the acceptable weight range. The performance of the unweighted score (TSI) showed similar results. 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. However, for identifying women with BMI outside the acceptable range, sensitivity, specificity and positive predictive values for all of these checklists were less than 60%.
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.

Lee C. Research into practice: experiences from Women's Health Australia. Invited Address. *The 13th International Congress on Women's Health*. Seoul, Korea. 26-29 June 2002.

Even when governments are sensitive to gender issues in health care, the development of appropriate policy and practice guidelines depends on the availability of good epidemiological data. The Australian government supports Women's Health Australia (The Australian Longitudinal Study on Women's Health), a research project that aims to provide an information base to inform gender-appropriate health care policy. Women's Health Australia, which began in 1995, is a longitudinal survey of 40,000 Australian women in three age groups (aged 18-23, 45-50, and 70-75) when first recruited in 1996. Self-report data on diagnoses, symptoms, health service use, health behaviours, physical and emotional well-being, and sociodemographic variables are collected through mailed surveys, and linkage to national health service records is also available for those women who provide consent. This presentation provides an overview and description of the project, and demonstrates the value of large-scale survey research of this nature with examples of young women and smoking; urinary incontinence among mid-age and older women; and older women and sleeping difficulties. Challenges in a diverse and multicultural society are discussed, and the value of national surveys is illustrated.

Hollingworth SA, Russell A, Dobson A. Contraceptive behaviour of young women in Australia – Women's Health Australia project. *Australian Centre for Tropical Health and Nutrition and Australasian College of Tropical Medicine 2002 Conference.* Brisbane, Queensland, Australia. 2-6 July 2002.

Objective: To determine which socio-demographic factors and health-related behaviours are associated with contraceptive use and type used in young Australian women.
Methods: The study sample comprised 14779 women aged 18-23 who participated in the baseline survey in 1996 of the Women's Health Australia study. Of these, 9683 women aged 22-27 participated in the second survey in 2000. Self reported use and type of contraceptive and other factors were measured. Associations between contraceptive behaviours and socio-demographic and health-related behaviours were examined.
Results: 72% of young women reported being contraceptive users in 1996 compared to 77% in 2000. Of the contraceptive users, the oral contraceptive pill (OCP) alone comprised 51% in 1996 and 55% in 2000. Women in de facto relationships were much more likely to use contraception than married or never married women at both times. Immigrant women and women of NESB (non-English speaking background) were much less likely to use contraception but of those who did, they were more likely to use condoms and other methods compared to OCP use alone. Among women aged 18-23, those in rural and remote areas were more likely to use contraception and more likely to use OCP alone compared to urban women, but this difference decreased for women aged 22-27.
Conclusions: Most young Australian women use contraception. They are more inclined to take the OCP than any other method. Women in lower socio-demographic groups, however, appear to use contraception less and tend to use less reliable methods compared to those in the higher groups.
Implications: Health promotion and education to increase the uptake of more reliable methods of contraception in young women in the lower socio-demographic strata.

Young AF & Dobson AJ. Current challenges in the measurement and analysis of health outcomes in the Australian Longitudinal Study on Women's Health. *16th Australian Statistical Conference Statistical Society of Australia Inc*. Canberra, Australian Capital Territory, Australia. 7-12 July 2002.

Large and complex data sets, especially longitudinal ones, present methodological challenges in terms of measurement, data quality and statistical analysis. The Australian Longitudinal Study on Women's Health, funded by the Commonwealth Department of Health and Ageing, began in 1995 with a national random sample of more than 40,000 women. For some of the challenges we face, the task is to translate existing theory into practice. For other statistical and interpretive challenges, we need to develop original solutions. This paper will present an overview of the methodological topics currently under study in the Project and those proposed for the next five years, including:

- *Attrition and other sources of bias*: it is necessary to identify systematic and random effects and to understand the reasons for non-response
- *Missing data and multiple imputation*: with successive surveys, problems of inconsistent responses and missing data grow
- *Validity of measurements*: we put considerable effort into psychometric assessment of the instruments we use, the validity of self-reported diagnosis and the responsiveness of our measures in different age cohorts and different settings.
- *Record linkage*: the Project has made extensive use of linked survey and Medicare records and is exploring linkage to other databases
- *Geocoding*: the use of spatial referencing of localities is being investigated to enable more refined measurement of remoteness and access to services.
- *Measuring change*: changes in health outcomes may be interpreted in different ways: in absolute terms, relative to previous levels, relative to baseline levels, relative to changes in a reference group, and so on. The appropriateness of alternative approaches for different situations is being explored.

Given the recent growth in the number of longitudinal studies both nationally and internationally, the discussion of these methodological topics has relevance beyond this project.

Dobson AJ. Methodological problems with longitudinal studies: questions from the Australian Longitudinal Study On Women's Health. *16th Australian Statistical Conference Statistical Society of Australia Inc*. Canberra, Australian Capital Territory, Australia. 7-12 July 2002.

For any longitudinal study it is necessary to create variables (transition variables) that measure changes over time. In some cases this amounts to building up a picture over time of major events in each woman's life, such as history of pregnancies (including miscarriages and terminations as well as live births). In other cases it is a matter of tracking changes in health, weight and other factors that vary over time. Researchers face a number of challenges and it seems appropriate to develop standard ways of overcoming these and reporting how that is done. For example, how are inconsistencies over time resolved, how are definitions of transition variables reported in sufficient detail that they can be replicated by other scientists, what is the best way of analysing these data? It would be good if all the major longitudinal studied in Australia were to get together regularly to share their experiences and also to work with similar networks developing in Europe and North America to produce international standards of best practice.

Coping with missing data and method for imputing missing values is an area of on-going work in ALSWH. This is a rapidly growing field in Statistics and software developments are increasing. Nevertheless our experience suggests that the assumptions on which much of the methodology is built do not apply in practice.

Regression to the mean is the phenomenon whereby people with abnormally high values of some measurement at one time are likely to have values nearer the mean when they are measured again. This can lead to under- or over-estimation of changes over time. For continuous scale measurements the methods to adjust for this bias are well-established. However this is not the case for ordinal categorical variables. Very large changes can appear to take place for when there are only a small number of possible categories; for example, for some of the dimensions of SF36. This is a topic where more research is needed to ensure that we are able to make best use of the data available to us.

Lee C. Women's Health Australia, seven years on: contributions to the evidence base for health outcome policy and practice. *8th Annual National Conference: International Health Outcomes Conference 2002*. Canberra, Australian Capital Territory, Australia. 17-18 July 2002.

The Australian Longitudinal Study on Women's Health (Women's Health Australia), which began in 1995, is a longitudinal survey of 40,000 Australian women in three age groups (aged 18-23, 45-50, and 70-75 when first recruited in 1996). Self-report data on diagnoses, symptoms, health service use, health behaviours, physical and emotional well-being, and sociodemographic variables are collected through mailed surveys, and linkage to Medicare unit records is also available for those women who provide consent.

This paper provides an update on the project so far, focusing on the value of longitudinal surveys in the evaluation of health care needs and of trends in risk factors, in order to provide evidence underlying the National Health Priority Areas among Australian women. Data from the younger cohort are used to explore trends in obesity, sedentariness and smoking and to examine their relationships with demographic changes during this life stage. Evidence on depression, suicide-related variables, and illicit drug use in this cohort emphasizes the importance of preventive mental health interventions. Data from the mid-age and older women provide an evidence base upon which to develop policy and practice focusing on cancer screening, risk factors for diabetes and CVD, and the development of arthritis.

The value of this project for evidence-based practice in Australia is illustrated with examples of analyses conducted for the Queensland Cancer Fund and for Women's Health Victoria, identifying groups of women with specific health service needs.

The other papers in this symposium provide examples of the uses of the Project in providing an evidence base to underlie policy and practice in the areas of sleeping medication use, diabetes, and urinary continence.

Byles J & Harris M. A good night's sleep: sleeping difficulty and sleeping medication use among older Australian women. *8th Annual National Conference: International Health Outcomes Conference 2002*. Canberra, Australian Capital Territory, Australia. 17-18 July 2002.

Sleeping difficulties impact on quality of life among older Australians in particular, and daytime sleepiness increases the risk of falls and other accidents. The prevalence of sleeping medication use and the extent to which it is taken optimally also needs to be understood in order to develop effective health promotion strategies to minimize sleep disturbance and its consequences.

Analysis of Women's Health Australia data from Surveys 1 and 2 of the older women showed a high prevalence of sleeping difficulties, with 63% of women endorsing at least one item relating to sleeping difficulty at Survey 2. Sleeping difficulties tended to be persistent, with sleeping difficulty at Survey 1 (1996) a strong predictor of the same problem at Survey 2 (1999). Sleeping difficulties at Survey 1 were cross-sectionally and prospectively predictive of poorer SF-36 scores, as well as predicting falls, accidents, and higher use of health services.

Eleven individual interviews with participants explored older women's perceptions of the role of sleep, showing that older women felt that good sleep was very important to well-being and to good day-to-day functioning. Respondents were not favourably disposed to sleeping medications, expressing concerns about side effects and about dependency.
On the basis of these findings, a substudy has been conducted women with and without reports of sleeping difficulty, and with and without medication use. A total of 1,011 women (84% response rate) responded to a written survey. This paper presents data on the prevalence of sleeping difficulties across different groups of women, and demonstrates associations between sleeping difficulty and SF-36, depression, and major diagnoses. Women report a range of strategies to help them sleep, and have a variety of perspectives on the use of medications.

These data provide a basis for the development of appropriate and targeted interventions to improve sleep quality among older Australian women.

Young A, Byles J & Lowe J. Keeping diabetes under control: using record linkage to evaluate health care and health outcomes for women with diabetes. *8th Annual National Conference: International Health Outcomes Conference 2002*. Canberra, Australian Capital Territory, Australia. 17-18 July 2002.

Diabetes is one of the most common and costly chronic diseases and is associated with a variety of complications and premature mortality. Although the prevalence of diabetes is escalating in Australia, little is known about the general pattern and standard of diabetes care. The Australian Longitudinal Study of Women's Health (ALSWH) has provided an opportunity to monitor the processes, outcomes and costs of health care for women with diabetes. Almost 2% of the mid age women and 8% of the older women reported being diagnosed with diabetes prior to Survey 1 in 1996. A further 1.1% of the mid age women and 2.3% of the older women reported being diagnosed with diabetes between Survey 1 and Survey 2.

Analysis of the longitudinal survey data showed that women with diabetes reported poorer health, higher rates of risk factors such as overweight, greater use of health care services and medications and higher rates of comorbidity than other women. A detailed analysis of health service use was undertaken using Medicare claims data for 1997-1999 for those women who consented. Although the amount spent under Medicare was higher for women with diabetes, adherence to best practice guidelines, such as use of HbA1c tests, was sub-optimal.

A substudy was conducted during 2001 to explore women's perspectives on having diabetes and to obtain further information about their health care and health outcomes. Of the 871 women with diabetes who responded (80% response rate), most had been diagnosed with diabetes when they went to the GP for another reason and the patterns of care, rates of complications and knowledge of the condition differed according to age. Despite their poorer health, the women retained a fairly positive view of their control of the condition, with most agreeing that having diabetes had encouraged them to improve their lifestyle.

This paper presents results obtained by linking the main surveys, the substudy and Medicare data to track health outcomes and to evaluate health services for women with diabetes. The results will be used to inform intervention strategies to reduce the burden of diabetes in Australia.

Brown W, Miller Y, Chiarelli P & Lee C. Women's waterworks: evidence base for the development of continence management programmes in Australia. *8th Annual National Conference: International Health Outcomes Conference 2002*. Canberra, Australian Capital Territory, Australia. 17-18 July 2002.

In an ageing population, urinary incontinence is increasingly important in terms of quality of life and burden of care. The 1996 surveys of the Australian Longitudinal Study of Women's Health (ALSWH) showed that continence problems are not restricted to older women; 13% of young women (18-23 years), 36% of mid-age women (45-50) and 35% of older women (70-75) reported leaking urine. Leaking urine was associated with number of births, with obesity, urinary tract infections, and frequent upper respiratory tract infections, as well as with lower scores on the physical and mental components of the SF-36. The majority of women had never sought medical help for this problem.

On the basis of these findings, a substudy of young, mid-aged and older women who reported leaking urine "often" was conducted. The majority of these were cases of 'mixed' incontinence. Most respondents had leaked urine in the last month, but only half had sought help or advice about managing UI. Many women in all three cohorts had employed avoidance techniques, such as reducing their liquid consumption, going to the toilet 'just in case', and rushing to the toilet the minute they felt the need to. 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. Incontinence severity tended to increase with BMI for women of all ages, and increased severity scores were associated with having urine that burns or stings. Additional independent risk factors for increasing incontinence severity were past or present use of hormone replacement therapy in older women, and BMI, births assisted with forceps or other delivery aids and history of hysterectomy in mid-age women.

These findings have led to the development of a trial programme which aims to intervene with mid-age women with mild to moderate incontinence in order to improve functioning. The programme involves bladder training and pubococcygeal muscle conditioning, and preliminary results are encouraging.

This paper presents results from the main surveys, the substudy, and the intervention in order to illustrate the development of an evidence base in this important public health topic.

Ball K, Brown W, Crawford D. Who does not gain weight? *7th International Congress of Behavioural Medicine*. Helsinki, Finland. 28-31 August, 2002.

This population study investigated the prevalence and predictors of weight maintenance over time in a large sample of young Australian women. A total of 8,726 women aged 18-24 years provided baseline and 4-year follow-up data as part of the Australian Longitudinal Study on Women's Health. Measures included height, weight and body mass index (BMI); physical activity; time spent sitting; selected eating behaviours (eg, dieting, disordered eating, takeaway food consumption); cigarette smoking, alcohol consumption; parity; and sociodemographic characteristics. Results of analyses showed that 39% of the women reported their BMI at follow-up to be within 5% of their baseline BMI (maintainers); 36% had gained weight and 14% had lost weight. Weight maintainers

were more likely to be in managerial or professional occupations; to have never married; to be currently studying; and to not be mothers. Controlling for sociodemographic factors, weight maintainers were more likely to be in a healthy weight range at baseline; and to report they spent less time sitting, and consumed less takeaway food, than women who gained weight.

In conclusion, less than half of the young women in this community sample are maintaining their weight. Findings of widespread weight gain, particularly among those already overweight, suggest Australia's obesity epidemic may be worsening. Prevention strategies encouraging decreased sitting time and less take-away food consumption may be effective for encouraging weight maintenance at this life stage.

Young A. How can longitudinal data inform diabetes prevention strategies?: Findings from the Australian Longitudinal Study On Women's Health. *7th International Congress of Behavioural Medicine*. Helsinki, Finland. 28-31 August, 2002.

The escalating prevalence of diabetes and the high rates of obesity and insufficient physical activity are a cause for concern in Australia, as in other countries. While it is well known that the SNAP (smoking, nutrition, alcohol and physical activity) factors and body weight play important roles in the development of diabetes, longitudinal data are needed to examine the relationships between these factors over time. This paper presents results from the first six years of the Australian Longitudinal Study on Women's Health (ALSWH). The study began in 1996 with a nationally representative sample of more than 40,000 women in three age groups. Survey data from the mid age (45-50 years) and older (70-75 years) cohorts, linked with health service utilisation records maintained by Australia's national health system, will be presented.

The longitudinal data provide insight into the development of diabetes and its impact on the health and well being of women. The data indicate clear differences in risk factor profiles, health and health service utilisation of women who do and do not develop diabetes, that are evident before diagnosis. Furthermore, a nested in-depth study of 1400 women with diabetes was conducted during 2001. The extent to which the women with diabetes received recommended medical services and screening, as well as their perspectives on the condition, will be reported within the context of their health, well being and social circumstances. These results provide a sound basis for health promotion messages and intervention strategies to reduce diabetes among women.

Guillemin M & Brown W. Mid-age women, heart disease and risk. *34th Annual Public Health Association of Australia Conference*. Adelaide, South Australia, Australia. 29 September – 2 October 2002.

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. 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. This research provides much-needed information about how women understand their risk of heart disease and their use of preventive strategies during mid-age.

Parker G. Disciplinary collisions or complementary relationships: widening the methodological frame on gendered abuse research. *Australian Association for Social Research Annual Conference*. Blue Mountains, New South Wales, Australia. 1-4 October 2002.

My research is a substudy of the Women's Health Australia (WHA) project. The main aim is to assess the coping behaviours and strategies of women from the mid-aged cohort who have been abused in an adult relationship (16 years and over). Although some Australian studies have drawn attention to the problematic nature of abuse experience, gendered abuse has not been examined from a more integrated and contextually sensitive perspective that includes personal, relational, and social aspects of victimhood. The deliberate focus of this present investigation, therefore, has been (and still is) to combine the strengths of qualitative (idiographic) and quantitative (nomothetic) traditions in order to not simply describe, but to also construct a more useful heuristic of the reality of abuse experience for Australian women.

I have found that qualitative assessment of the narrative text from a phenomenological-hermeneutic perspective has brought new depths of understanding and interpretation to the descriptive and inferential analyses. For example, 59 per cent of women in the survey reported leaving an abusive situation as an adult. This 'hard data', however, does not explain the reasons for leaving. Concurrent qualitative analyses showed that cognitive and protection issues primarily underlay the women's decision to leave. These included reaching their limits of tolerance, having an "epiphany" or becoming suddenly aware of the destructive nature of the relationship, realising that leaving brought an opportunity for a better life, and, in the case of 2 women, there was a chance for retribution. Safety for their children, their own self, and/or their extended family was also important to these women. Further analyses within the study are continuing to bring further understanding of how abused women use the resources available to them to cope with their experience(s).

Although this remains work-in-progress, the analyses to date show that integration of data from two very different forms of analytic methodologies is critical in providing a more comprehensive and explanatory model of responses in situations of personal crisis. This information has significant epistemological value as it not only brings changes to the way gendered abuse is framed in the wider community, it also provides important clues for the development of future government and support agency intervention and prevention guidelines.

Larson A, Bell M & Young A. Relation between mobility and women's health. *11th Biennial Conference of the Australian Population Association*. Sydney, New South Wales, Australia. 2-4 October 2002.

Health-selective migration has been implicated as one of the mechanisms by which socio-spatial disadvantage is created and maintained. However, recent studies have been limited by use of a narrow range of health and mobility variables. This paper uses the first two waves of the middle-aged cohort (ages 45-50) of the Australian Longitudinal Study on Women's Health to investigate the relationship between four sets of health variables with local moves (within the same postcode), between postcodes and inter-regional migration 'up' and 'down' a remote-rural-urban hierarchy. Women with poor health status, suffering from chronic diseases, using relatively more prescription medications and seeing general practitioners more frequently, had higher likelihood in making a local move in the two years between the surveys. These relationships contribute to the growing literature on the links between chronic ill health, social disadvantage and place. On the other hand, inter-regional patterns between health and mobility reflect the relative lack of services in rural and remote Australia, resulting in significant relationship between use of medical services and moves 'up' the urban settlement hierarchy.

Brown P & Warner-Smith P. Temporal dimensions of well-being among young, middle-aged and older women in Australia. *International Association for Time Use Research Conference 2002*. Lisbon, Portugal. 16-18 October 2002.

This paper examines associations between time pressure, leisure participation and women's health using selected data from the Australian Longitudinal Study on Women's Health. Data are drawn from two main sources: i) baseline and repeat survey data from a cohort study involving a sample of 41,000 Australian women aged 18-23, 45-50 and 70-75 (in 1996) conducted between 1996 and 2000; and ii) transcripts from focus group discussions with 62 women aged 20-25 and 47-52 (in 2000) which explored women's attitudes towards leisure and time. Differences in patterns of time use and women's experience of time will be compared in the context of a broader examination of the major sources of time pressure in women's lives – including multiple roles, life transitions and changing attitudes to time – and the degree to which women who are the products of different historical eras may experience time differently. Such associations are of interest in light of recent literature and policy debates concerning increases in work-life tensions, and the degree to which well-being may be positively related to reduced time pressure, more leisure and greater control of personal time schedules.

Hillier L, McNair R, Horsley P, DeVisser R, Kavanagh A & Pitts M. Substance use and emotional health issues of young lesbians and bisexual women: Results from the Women's Health Australia study. *Health in Difference- National Gay, lesbian transgender and bisexual health conference*. Sydney, New South Wales, Australia. 1 November 2002.

Aims: In the first study of its kind in Australia, we compare non-exclusively heterosexual women with exclusively heterosexual young women in the Women's Health Australia longitudinal study. Comparisons were made regarding health status, risk factors and health service usage.
Methodology: A question about their sexual orientation was included for the first time in the second survey of the young women's cohort in 2000. 7.4% of just over 9 000 women reported attraction to both men and women, and 1.0% identified as mainly or exclusively attracted to women. All non-exclusively heterosexual women were analysed and compared with the total group.
Findings: Three aspects of the analysis will be presented, substance use, mental health status and the difference in usage of health services. This study demonstrates convincingly that young Australian lesbian and bisexual women are at higher risk of ever using licit and illicit drugs, including drugs of injection. Higher levels of depression and anxiety were recorded, with over twice as many women reporting that life is not worth living. Associated risk factors for reduced mental health including a history of physical abuse, emotional abuse and harassment were all significantly higher.
Discussion: This study is the first of its kind in Australia in which the health status of non-heterosexual young women has been analysed within a population-based study. The remainder of the session will be open to discussion on the implications of these data for lesbian health and health care.

Dobson A, Ball K & Mishra G. Socio-economic status in women of different ages: Australian Longitudinal Study On Women's Health. *Queensland University of Technology, Eighth International Health Summer School 2002*. Kelvin Grove, Queensland, Australia. 20-22 November 2002.

Using data from the 1995 Australian National Health Survey (NHS) we identified five conceptually meaningful domains (employment, housing, migration, family unit and education) which can describe SES for women at different life stages. These are related to health status as measured by

SF-36, both in NHS data and for participants in the Australian Longitudinal Study of Women's Health (ALSWH). For ALSWH women the associations between domains of SES and health differ by age group: SES differentials in health are greater for middle-aged women than older women. In recent years the SES differentials in physical health have widened among middle-aged women but not among older women but substantial SES differentials in mortality remain.

Ball K, Brown W & Crawford D. Who does not gain weight? Prevalence and predictors of weight maintenance among young women. *Australian Health and Medical Research Congress*. Melbourne, Victoria, Australia. 25-29 November 2002.

This population study investigated the prevalence and predictors of weight maintenance over time in a large sample of young Australian women. A total of 8,726 women (aged 18-23 years at Survey 1 and 22-27 years at Survey 2) provided data as part of the Australian Longitudinal Study on Women's Health (Women's Health Australia). Measures included height, weight and body mass index (BMI); physical activity; time spent sitting; selected eating behaviours (dieting, disordered eating, takeaway food consumption); cigarette smoking; alcohol consumption; parity; and socio-demographic characteristics. Results showed that only 44% of the women had maintained a BMI within 5% of their Survey 1 BMI (maintainers) over the study period; 41% had gained weight and 15% had lost weight. Weight maintainers were more likely to be in managerial or professional occupations; to have never married; to be currently studying; and not to be mothers. Controlling for socio-demographic factors, weight maintainers were more likely to be in a healthy weight range at Survey 1; to report spending less time sitting, and consuming less takeaway food, than women who gained weight. In conclusion, fewer than half of the young women in this community sample are maintaining their weight. Findings of widespread weight gain, particularly among those already overweight, suggest Australia's obesity epidemic may be worsening. Prevention strategies encouraging decreased sitting time and less take-away food consumption may be effective for encouraging weight maintenance at this life stage.

Williams L, Brown W & Young A. Weight gain in mid-aged women: the Women's Health Australia study. *Australian Health and Medical Research Congress*. Melbourne, Victoria, Australia. 25-29 November 2002.

Longitudinal analysis of the weight data for participants aged 45-50 in the Australian Longitudinal Study on Women's Health (referred to as Women's Health Australia) reinforces that mid-age is a time of weight gain for Australian women. After excluding women with surgical menopause, the mean weight gain in the two year period between baseline (survey one) and follow-up (survey two) for the 9,200 women in the cohort was 1.0 ±4.7kg. The cohort began with a mean BMI of 25.5±5.0 which increased to 25.9±5.1 by survey two. One third of the cohort gained 2.25kg or more in the two year interval, an amount shown to be clinically significant in contributing to metabolic syndrome. Sixteen percent of weight gainers increased weight by 4.5kg or more. Fifteen percent decreased weight by 2.25 kg or more. Only half the cohort maintained their weight within the range of ±2.25kg (~5lb).

The analysis also examined the influence of the menopause transition on weight change. Cross-sectional results at baseline had shown women in the late stages of peri-menopause (amenorrhoea for 3 months but less than 12 months) had significantly higher BMI than women at other stages of menopause. A general linear model of the relationship between menopausal transition status and weight gain showed that women who progressed through both stages of menopause (premenopause to postmenopause) in the two year period experienced the highest mean weight gain (1.5kg), followed by those going through stage two (perimenopause to postmenopause) (1.1kg) after

controlling for age, height, weight, geographic location, smoking and exercise at baseline. Women who maintained premenopausal status or those who progressed from premenopause to perimenopause had the lowest mean weight gain (0.9kg). These findings have implications for prevention of weight gain during the menopause transition.

7.4 OTHER PRESENTATIONS

Lee C. Running a large-scale longitudinal survey: Experiences from the Women's Health Australia project. *Joint seminar, PHAA and La Trobe Centre for Mothers' and Children's Health.* Melbourne, Victoria, Australia. 28 May 2002.

Lee C. Women's Health Australia: Selected results and work in progress. *Joint seminar, PHAA and La Trobe Centre for Mothers' and Children's Health*. Melbourne, Victoria, Australia. 28 May 2002.

Lee C & Bryson L. The Australian Longitudinal Study on Women's Health. *Women's Health Victoria Forum.* Melbourne, Victoria, Australia. 3 June 2002.

Bryson L. Women and health project. *Massey University, Victoria University and Wellington School of Medicine*. Massey University, Wellington, New Zealand. 1 July 2002

Bryson L. Research, policy and practice. *New Zealand Royal Society Invited Workshop*. Massey University, Wellington, New Zealand. 3 July 2002.

Bryson L. Women and health study. *Auckland University of Technology: Host: Alcohol and Public Health Research Unit*. Auckland, New Zealand. 5 July 2002.

Bryson L. Auckland workshop on community-related research. *Seminar for Auckland University of Technology*. Auckland, New Zealand. 5 July 2002.

Dobson A. Some methodological issues from the Australian Longitudinal Study On Women's Health. *APS Psychologists: 'Good Thinking', APS College of Health Psychologists – QLD Branch*. Kelvin Grove, Queensland, Australia. 19 July 2002.

Williams L. Evidence for the role of menopause in weight gain in mid-age women. *3rd 2002 Meeting of the Nutrition Society of Australia (Inc) – Newcastle Group*. Newcastle, New South Wales, Australia. 24 July 2002.

McNair R. Proposed Research on Lesbians' Health in WHA. *Lesbian Health Research Forum*, Royal Women's Hospital, Melbourne. (co-sponsored by RWH and the Australian Lesbian Medical Association). 14 September 2001.

Lee C, Byles J & Young A. Women's Health Australia: What the older cohort tells us about aged care. *Hunter Institute for Ageing Research*. Newcastle, New South Wales, Australia. 3 October 2002.

Ball K. Social and behavioural predictors of overweight in Australia. *Informal presentation at HNR Staff Seminar series*. Cambridge University, UK. 28 October 2002.

McNair R. Findings from the Women's Health Australia Longitudinal study regarding non-heterosexual women . *Lesbian health research forum: Aids Council of NSW*. Sydney, New South Wales, Australia. 8 November 2002.

7.5 DISSEMINATION OF METHODOLOGICAL EXPERTISE

The research team continue to provide advice to agencies that are considering projects with related methodologies. In the six months to December 2002, the research staff at Newcastle has provided considerable advice and background materials to staff of the Australian Institute for Family Studies, who are setting up the Longitudinal Study of Australian Children. This included a visit from Carol Soloff, statistical manager of that project, to discuss issues in sample selection and the practicalities of working with the Health Insurance Commission, using Medicare unit records, and related issues.

7.6 MEDIA

1/7/02	Article in Joint Medical Newsletter University of Newcastle "Forty thousand women have their say about health" – Christina Lee
11/7/02	Article in Sydney Morning Herald "Cancer warning should not lead to HRT controls, warns expert" – comment from Annette Dobson within article.
15/8/02	Community Radio Fitzroy Crossing – " Domestic violence" – Glennys Parker.
26/9/02	Article in Sydney Daily Telegraph "Marriage is worth the weight for happy women" – Christina Lee.
26/9/02	Article in Brisbane Courier Mail "Marriage weighs on women" – Christina Lee.
26/9/02	Fox FM Melbourne , Ali – "Marriage and weight gain" – Christina Lee.
26/9/02	3AK Talk Show Melbourne, Greg Evans -"Marriage and weight gain" – Christina Lee.
26/9/02	2HD Hunter Today, Newcastle, Warren and Christie - "Marriage and weight gain" – Christina Lee.
26/9/02	5AA Adelaide, Mike Jeffries Christie - "Marriage and weight gain" – Christina Lee.
26/9/02	ABC FM Darwin, Julie Christensen - "Marriage and weight gain" – Christina Lee.
26/9/02	ABC FM Adelaide, Kevin Norton - "Marriage and weight gain" – Christina Lee.
26/9/02	2SM Drive, Sydney, Jake and Yvette - "Marriage and weight gain" – Christina Lee.
26/9/02	ABC FM Alice Springs, Ingrid - "Marriage and weight gain" – Christina Lee.
1/10/02	Article in Good Taste Magazine "Young women and stress" – Lois Bryson
4/10/02	Mention on Panel Show ABC TV The Glass House - "Marriage and weight gain"
16/10/02	Article in Daily Telegraph – "Cosmetic surgery probe" – Margot Schofield.
16/10/02	ABC Newcastle, Brett Lavering – "Cosmetic surgery and wellbeing" - Margot Schofield.
16/10/02	2AD/2TM County NSW, Julie Hebbard - "Cosmetic surgery and wellbeing" - Margot Schofield.
16/10/02	ABC Darwin, Fred McCue - "Cosmetic surgery and wellbeing" - Margot Schofield.

16/10/02 ABC Mid North Coast, Kate Follington - “Cosmetic surgery and wellbeing” - Margot Schofield.

16/10/02 ABC Inland, Georgi Klug - “Cosmetic surgery and wellbeing” - Margot Schofield.

8 ARCHIVING

8.1 ARCHIVING OF SURVEY DATA

All Survey 1 and Survey 2 data have been archived with the Social Sciences Data Archive (SSDA) at the Australian National University. As archiving is a time-consuming process both for the Women’s Health Australia data management staff and for the staff at SSDA, archiving is conducted once a year. We plan to commence archiving of Survey 3 data with the Mid-Age database, during the first half of 2003. This database is currently being used by Investigators for preliminary analysis but still requires some final checks and finalization of documentation before being made available for public use.

The agreement between Women’s Health Australia and SSDA states that researchers wishing to access the databases must obtain permission from the Study Investigators before access is permitted. The dynamic status of the project, the fact that women are still providing data, and concerns about overlaps in the use to which data are put, comprise the rationale for this decision. To date, no requests have come to the Investigators through SSDA. Rather, researchers who are interested in using the data have generally contacted the Project Manager or Study Investigators personally and have entered into a collegial relationship in which techniques and knowledge can be shared.

Despite this, the research team will continue to archive the data, both as a reliable off-site backup and as a resource that may be used by others in the longer term.

8.2 ARCHIVING OF STATISTICAL ANALYSES AND RELATED MATERIAL

In response to concerns that published analyses need to be replicable and that statistical procedures should be open to checking, the Data Management Group has instituted systems for the archiving of data analyses and statistical methods. Documentation of the procedures to be followed appears in Appendix 8.1.

9 FINANCIAL STATEMENT

Expenditure January- December 2002
DHA income July 2001 – June 2002
Based on University of Newcastle Finance One System 28/10/02
Accounts 593-1029 and 593-1023

INCOME			EXPENDITURE			
Source	**Details**	**Income**	**Items**	**Actual Expenditure 1/1/02 – 30/6/02**	**Actual Expenditure 1/7/02 – 28/10/02**	**Forward Estimate 29/10/02- 31/12/02**
DHA	Contract	738,000	Shared research (UQ)	1,844	27,952	0
			Surveys & data entry	53,093	31,907	0
			Newsletter printing	0	11,733	10,588[a]
			Data linkage (AEC, HIC)	0	15,651	400
			Computer h'ware, s'ware	10,097	256	13,543[a]
			Equipment & maintenance	50	0	5,000[b]
			Postage & freight	15,592	12,451	1,905[a]
			Telephone	8,940	5,105	1,000[b]
			Printing, stationery, office supplies	379	2,194	500[b]
UQ	Research Contribution (salary)	57,600	General consumables/ Repairs	3,829	1,917	500[b]
U of N	Research Contribution	50,000	Travel/ Hospitality	8,366	17,724	8,000[b]
	Research Quantum	109,238	Salaries	216,496	176,197	78,669[a]
	Research Infrastructure Grant	3,747	On-costs	44,406	34,349	18,185[a]
	Conference Travel Grants	4,800	Annual Report	0	0	4,000[b]
			University O'head charge	102,378	0	0
			Postgraduate scholarships/ fees	20,512	10,652	5,000[a]
TOTALS		**$963,385**		**$485,982**	**$348,088**	**$147,290**
						($17,975)

[a] *firm commitment*
[b] *figures are estimates*

10 PROJECT STAFF JULY – DECEMBER 2002

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

Project Manager:	Professor Christina Lee
Data Manager:	Ms Jean Ball
Statistician:	Dr Anne Young
Statistician:	Ms Jenny Powers
Research Assistants:	Mrs Lyn Adamson Mrs Joy Goldsworthy Ms Jane a'Beckett Ms Emily Anderson Mrs Sandra Bell Ms Jenny Helman Mr Marc Howlett Mrs Claire Johnson Ms Rosie Brotherston Ms Sheree Gregory
Secretary (shared position):	Ms Penny Knight, Ms Sue James
Project Assistants:	Ms Eliza Frazer Ms Alicia Frost Ms Catherine Ireland Ms Natasha Matthews Ms Cristina Mears Ms Zoe Turner

10.2 PROJECT STAFF: UNIVERSITY OF QUEENSLAND

Senior Project Officer:	Ms Anne Russell
Research Assistants:	Ms Natalie Grove Ms Liane McDermott

10.3 PROJECT INVESTIGATORS

Professor Annette Dobson, School of Population Health, University of Queensland, Study Director
Dr Kylie Ball, School of Health, Deakin University
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
Dr Nancy Pachana, School of Psychology, University of Queensland
Associate Professor Margot Schofield, School of Health, University of New England
Dr Penny Warner Smith, School of Social Sciences, University of Newcastle
Dr Anne Young, Research Centre for Gender and Health, University of Newcastle

10.4 ASSOCIATE INVESTIGATORS CURRENTLY WORKING WITH THE MAIN COHORTS

Dr Jon Adams, Centre for Clinical Epidemiology and Biostatistics, University of Newcastle
Dr Surinder Baines, Discipline of Nutrition and Dietetics, University of Newcastle
Mr Michael Bittman, School of Sociology, University of New South Wales
Professor Peter Brown, School of Leisure Studies, Griffith University
Dr Samantha Hollingworth, School of Population Health, University of Queensland
Dr Rafat Hussain, School of Health, University of New England
Dr Helen Keleher, School of Health and Human Sciences, La Trobe University, Bendigo
Dr Julia Lowe, Discipline of Endocrinology, University of Newcastle
Dr Ruth McNair, School of General Practice, University of Melbourne
Dr Amanda Patterson, King's College, London
Dr Charmaine Power, School of Nursing and Midwifery, Flinders University
Dr David Sibbritt, Centre for Clinical Epidemiology and Biostatistics, University of Newcastle
Dr Angela Taft, Centre for Mothers' and Children's Health, La Trobe University
Dr Stewart Trost, School of Human Movement, University of Queensland
Dr Cathy Turner, School of Population Health, University of Queensland
Dr Tracey Wade, School of Psychology, Flinders University
Dr Edith Weisberg, FPA Health
Ms Lauren Williams, Discipline of Nutrition and Dietetics, University of Newcastle

10.5 RESEARCH STUDENTS

Student	Supervisor	Funding	Years
Esben Strodl	J Kenardy	Australian Postgraduate Award	1998-
Lauren Williams	A Young, W Brown	Part-time (university staff)	1998-
Melissa Graham	H Keleher, E James (La Trobe)	La Trobe University Postgraduate Award	1998-
Deb Loxton	M Schofield, R Hussain	Australian Postgraduate Award	1999-
Glennys Parker	C Lee	Research Quantum	2000-
Lisa Milne	D Wicks, G Mishra & P Nilan	Departmental Department of Sociology and Anthropology, University of Newcastle	2000-
Gabrielle Rose	A Dobson, J Najman, L Manderson	Australian Postgraduate Award	2001-
Heather McKay	J Fisher (U Melbourne), C Lee	University of Melbourne Postgraduate Award	2001-
Bev Lloyd	S Quine (U Sydney), C Lee	Australian Postgraduate Award	2001-
Sandra Bell	C Lee	University of Newcastle Faculty of Science & Maths Fellowship	2001-
Julie Hodges	P Warner-Smith	Australian Postgraduate Award	2001-
Lauren Miller-Lewis	T Wade (Flinders)	Australian Postgraduate Award	2001-
Nadine Smith	A Dobson	NHMRC Scholarship	2001-
Kate France	C Lee	Australian Postgraduate Award	2002-

10.6 OFFICE RELOCATION, SEPTEMBER 2002

A major logistical exercise during 2001 and 2002 has been the planning and eventual relocation of the Newcastle office (the Research Centre for Gender and Health) from the main University of Newcastle campus at Callaghan to the David Maddison Building in the centre of Newcastle. This was originally built to house clinical Departments of the former Faculty of Medicine and is co-located with the Royal Newcastle Hospital. The relocation involved moving all office staff and equipment, as well as all securely stored surveys. Extensive renovations, and the provision of new equipment, were also required. This was a time-consuming task but provided an opportunity to review physical arrangements and procedures. The new office location provides more space for the expanding group of full-time, part-time and causal staff, postgraduate students, associates, and visitors.

Appendix 1

Collaborative research activities

Appendix 1.1

Steering committee teleconference minutes

STEERING COMMITTEE TELECONFERENCE
Monday 1 July 2002

Present: Annette Dobson, Christina Lee, Anne Young, Julie Byles, Wendy Brown
Apologies: Gita Mishra
Minutes: Penny Knight

Item No	Item	Action	By whom Due date
1	**WELCOME AND APOLOGIES** Gita not available		
2	**MINUTES AND MATTERS ARISING** All on agenda – no problems with previous minutes		
3	**STRATEGIC ISSUES** **REVIEW 2002** No report received from reviewers. Original due date 1/7/02 but there have been several delays. **STRUCTURE OF COMMITTEES** Proposal is for the Steering Committee and two sub-committees, Data Management and Publications, Substudies and Analysis. Terms of reference for Data Management committee developed in discussions in the data management meetings – endorsed With regard to PSA Annette suggests that membership should be appointed by the Steering Committee - agreed. Terms of reference for the Steering Committee should be put in place. Chris to draft these and circulate to Steering Committee. Data Management committee membership defined by job descriptions, to be chaired by Anne Young. Steering Committee membership is AD, CL (ex officio), AY, WB, JB and need one other person. Chris to ask Penny Warner-Smith. PSA membership AD, CL (ex officio), GM, JK, JB. All committees appointed on an annual basis (Jun – Jul)	Chris to draft terms of reference Chris to ask Penny	Chris Chris

Item No	Item	Action	By whom Due date
	LINKAGE ISSUES Anne reported that DoHA staff met with John Bass to discuss linkage of Medicare data with research data. Meetings went well. Rob Wooding, Chief Information Officer, Portfolio Strategies Division of DoHA, is a good person to work with and is aware of the situation. DoHA should not be put under pressure for an answer. If the review has a recommendation with regard to linkage, that will give us an extra lever. Follow up after receipt of the review. HIC staff are being more co-operative and there has been progress with regard to the data we need, but documentation is very poor. **INDIGENOUS WOMEN IN THE MAIN COHORT** Natalie Groves started working on indigenous health. Annette to estimate costs involved and invoice WHA. Annette looked at sample size probably only adding to the Young cohort at this stage. Natalie to look at the age distribution of indigenous women and see how many are in the age group of the mid-age cohort. We are concentrating only on urban area. Initial perspective is that recruitment might be possible by identifying Collector Districts with a large proportion of indigenous people and targeting those areas only. But even they are only around 15% indigenous. A sample of several thousands would need to be approached to have a cohort of around 1000 women over a ten year follow-up. **OLD 3 RESPONSE** Staff more than half way through the phoning. Withdrawal and death rate 15 – 20% of those phoned. Expect to complete phoning in a couple of weeks. Overall response rate of about 85% is expected. Staff should be congratulated on their efforts in this regard. **SUBSTUDIES** Kylie and Sandra's has been sent out and some back already. Lauren Miller's is out, and some returned. Bev Lloyd has started her pre-pilot phoning. Liane McDermott has University of Newcastle ethics approval, waiting for UQ.	Annette to cost and invoice WHA	Annette

Item No	Item	Action	By whom Due date
	THE MOVE Keys have been cut for the new compactus and we will be able to start moving files next week. A meeting arranged with Jean, Lyn and University moving people to talk about moving compactus contents. Friday 19 July new date for moving the office. Steering Committee meeting dates have been scheduled. No further business and conference concluded 10 am.		

Next meeting: Monday 29 July 2002 at 9 am.

STEERING COMMITTEE TELECONFERENCE
Monday 5 August 2002

Present: Annette Dobson, Christina Lee, Anne Young, Penny Warner-Smith, Wendy Brown
Apologies: Julie Byles
Minutes: Penny Knight

Item No	Item	Action	By whom Due date
1	**WELCOME AND APOLOGIES** Julie not available Annette welcomed Penny on behalf of Steering Committee		
2	**MINUTES AND MATTERS ARISING** All on agenda – no problems with previous minutes		
3	**STRATEGIC ISSUES** **REVIEW 2002** No report received from reviewers. Timing is becoming crucial because of time constraints. It was decided not to approach Kerin O'Dea at this stage. Annette to speak to Brendan Gibson to see if he can expedite it. It should be explained that Chris, Wendy and Anne are going to be away, returning only 2 weeks before the meeting. Chris to explain to Elizabeth Hoole and Sue Geddes at NHMRC about the time constraints. It appears that Annette and colleagues do have the Public Health Capacity grant, but no paperwork has come from Elizabeth Hall to back it up. There have been some budget cuts with regard to salaries, but unable to determine what this entails until we have it in writing. **PUBLICATIONS, SUBSTUDIES AND ANALYSIS (PSA)** This has been formed, it has terms of reference, and has begun to work. Feedback is varied but there is enough to be useful. **INDIGENOUS WOMEN IN THE MAIN COHORT** Natalie Grove doing an excellent job. Has made contact with people who are running successful studies with indigenous people. She is gathering information for a report, which will be much more	Annette to speak to Brendan Chris to speak to Elizabeth and Sue	Annette Chris

Item No	Item	Action	By whom Due date
	general than the brief. She has looked in some depth at the question of ethics and talked to people who have gone through the consultation processes. Talked to people about the sampling frame and the success or non success they have had of finding indigenous people by going to areas where there are known to be lots of indigenous people. She has been told that it is very difficult to find the indigenous participants, but also to find indigenous interviewers and maintaining contact with them. Having set the scene, it would then go on to the question of increasing the number of participants in the main cohort and basically WHA is inappropriate on every criteria. Conclusion going to be that this is just not feasible. The report would set up guidelines for anyone looking at the job would need to consider, should it go out to tender. Annette to check on UQ invoice to pay Natalie. **OLD 3 RESPONSE** 81.5% completed surveys received. Phone foreign language interviews being done at present. Phone reminders are completed – only a very small number who haven't been contacted. The SC congratulated the staff on their performance. **SUBSTUDIES** Liane McDermott – UQ ethics has now been approved. Liane to start phoning in September from WHA offices in Newcastle. Pilots to be done from UQ before she goes to Newcastle. Liane needs to clarify exactly what information she wants from the interviews. Chris Everingham substudy. Chris' husband died last week and she will return to her studies once she has recovered. All other substudies progressing smoothly. **YOUNG 3** Pilot survey for Young 3 has been finalised and we are getting quotes to get them printed. To go out within a fortnight (mid August). **THE MOVE** The move has been indefinitely delayed. Decision has to be reached between the University and	Annette to check on invoice	Annette

Item No	Item	Action	By whom Due date
	Hunter Area Health with regard to the buildings and the phone lines before we can move. **AOB** Medicare data finally arrived, and we are under way with analysing. Newsletter proofs are expected soon. Girls have started tracking Young now that Old 3 is nearly completed. Having a measure of success with the young women we haven't heard from since Young 1. Wendy has requested a simple table of responders vs non-responders, for each cohort for time 2. Chris to ask Lyn to look into availability of 2001 census data from ABS. Anne's study leave to start earlier than anticipated – November - April. Chris on leave (Helsinki conference included) 23/8 – 9/9. Wendy leaving 25/8 – 2/10, and then away again 11/10 – 11/11. Anne (Helsinki) 27/8 – 6/9. No further business and conference concluded 10 am.	Chris to speak to Lyn	Chris

Next meeting: Monday 19 August 2002 at 9 am.

STEERING COMMITTEE TELECONFERENCE
17 September 2002

Present: Annette Dobson (Chair), Christina Lee, Penny Warner Smith, Anne Young
Apologies: Julie Byles, Wendy Brown
Minutes: Christina Lee

Item	Action/Who
1. Welcome and apologies As noted	
2. Minutes from previous meeting No action required	
3. Strategic Issues *Meeting in Canberra 25th September* Annette Dobson, Christina Lee, Penny Warner Smith and Anne Young to attend. The PAC met today (17/9/02) in a closed meeting to discuss the Review and recommendations. We will meet with Marion Dunlop and Brendan Gibson from Strategic Planning Branch of Population Health Division from 10 to 12, and with the Departmental Reference Group 2-4. Marion Dunlop has not had close involvement with the project before (she is Assistant Secretary, Strategic Planning Branch, Population Health Division – a very senior position). We need to emphasise the value of a longitudinal approach and of linked data in providing policy-relevant information, and to stress the existing and planned connections between research activities and DoHA priorities. DRG currently consists of the following: Brendan Gibson (Committee Chair, from Strategic Planning Branch); Judy Straton (Strategic Planning Branch) – apologies for 25/9/02 Karen Wilson (FACS, longitudinal studies – HILDA and LSAC) – apologies for 25/9/02 Andrew Benson (OATSIH) Elizabeth Hoole (ONHMRC) Margaret McDonald (Health Services Division – GP Branch) Virginia Arrowsmith (Ageing & Aged Care Division) Lorrae Barry (Health Access & Finance Division) Sally Goodspeed (Portfolio Strategies Division, outposted from ABS)	Finalize travel for Penny – Christina/Penny Knight

Item	Action/Who
Alison Ross (Health Services Division - Mental Health & Special Programs Branch) Megan Cook (Health Services Division – Office of Rural Health) The DRG have already met and prepared documents in response to the Review – these are attached to the end of these notes. We will present a brief talk on the project, and an update of progress to date, as well as addressing the agenda. Annette, Anne, Penny and Christina will have another brief teleconference on Monday 23 Sept to finalize arrangements. **Relationships between UN and UQ** The need to determine the best way of developing the project across the two main sites that capitalizes on continuity and existing strengths was discussed. We will continue to explore strategies over the next few months. **Indigenous Women in Main Cohorts** talie Grove has prepared a draft report, and plans to obtain feedback from key players including those involved in the ALSWH Indigenous Project. We will table a draft document at DRG and will speak to it at that time, but the report is not due until December. The draft report addresses the principles inherent in working with indigenous Australians, and the methodological issues that arise with longitudinal research with indigenous people, before considering the enhancing of indigenous representation in ALSWH as a special case. The conclusions are that this seems inappropriate on a range of grounds. It is worth noting that the majority of the outstanding "ad hoc analyses" funding has been expended on this project.	
4. Report on WHA Office activities Notes on office activities were circulated with the agenda. The office has moved and we will circulate everyone with updated contact details just as soon as these are available. In the mean time, note that email addresses have not changed and our street address is Level 2, David Maddison Building, Watt Street Newcastle NSW 2300. The move went better than expected and though there is still a long list of jobs, missing items, and furniture to be provided, we are almost up and running once more. We (mostly) have phones, IT access, fax, photocopier etc and are settling in.	
5. Any other business ***Data linkage*** Anne Young reported that she has been talking with John Bass about linkage of existing data sets and that there seems to be a growing interest and willingness at DoHA and elsewhere to consider the issues of de-identified linkage of databases. Nursing home administrative data may be easier to link than some other data sets as they are already managed by DoHA.	

Next meeting: Monday 14 October 2002 at 9 am (NSW/QLD time)

STEERING COMMITTEE TELECONFERENCE
Monday 21 October 2002

Present: Annette Dobson, Christina Lee, Anne Young, Penny Warner-Smith, Wendy Brown
Apologies: Julie Byles
Minutes: Penny Knight

Item No	Item	Action	By whom Due date
1	**WELCOME AND APOLOGIES** Julie not available Annette welcomed members of Steering Committee		
2	**MINUTES AND MATTERS ARISING** All on agenda – no problems with previous minutes		
3	**STRATEGIC ISSUES** **REVIEW 2002** Meeting in Canberra – see Chris' notes. **INDIGENOUS WOMEN IN THE MAIN COHORT** Annette spoke to Gail Williams about the issue of indigenous exercise, who said she didn't see a problem in principle but she didn't know what the data were. Annette to see Brendan in Canberra on Thursday, if possible, to clarify. Gail seems to be under the impression that the review is for the Minister, and that it is for the Minister to accept the review or not. She is unable to tell the reference group as she believes the review is confidential. Annette believes that there is a strong recommendation in the review, that that part be closed down. In principle there is no problem in providing the physical activity data as Kerry Edwards wanted. Annette to get Brendan's view about the likelihood of another cut when she sees him in Canberra. **CANBERRA MEETING** See Chris' notes for comments on DRG meeting. Feeling that what Brendan was proposing was that there should be no formal 6 monthly meeting, and continue with the written 6 monthly report, whilst having smaller, more targeted meetings.	Annette to see Brendan in Canberra	Annette

Item No	Item	Action	By whom Due date
	Wendy has been brought up to date on the Canberra meeting in discussions with Chris and also from the notes. There may still be a certain amount of research agenda negotiation that has to be held once we know who we are discussing things with. **RESEARCH SYNTHESES** Chris has asked Joy to make a list of papers already published, and papers in press under the five headings, and has also made a list of those people currently working in those areas. Chris will circulate the list today. Emily Anderson to have increased working hours over December/January working on rural health stats. Wendy to approach Stewart Trost with regard to work on physical activity. Chris has a number of names for Research Assistants. • Natalie Grove – could have contract extended for another six months. Anne Russell and Annette looking around for statistical assistants. • Cherie Gregory – name put forward by Penny, to be investigated further. • Wendy knows of a psychology student who has data analysis skills. She will try to ascertain availability. • Rosie Brotherston approached Chris last week – also a possibility. Need to go through each area in turn and strategise before the meeting in Canberra in a couple of weeks. Leader of each group will undertake to speak to a couple of others and toss some ideas around beforehand. Need to ensure that Carey Smith is involved in the meeting on Rural Health next Wednesday (30th October).	Chris to circulate list Wendy to speak to Stewart Trost Wendy to ascertain availability	Chris Wendy Wendy

Item No	Item	Action	By whom Due date
	RELATIONSHIPS BETWEEN NEWCASTLE AND UQ A face to face meeting in Newcastle on Thursday 28 November. Lois won't be available until 24 November – important that she be included. As much factual information as possible must be gathered before then. Annette endeavouring to organise a meeting with Jan Massey, at the office for research at UQ to clarify some points. At this point it is very unclear what RQ would be in the future now that the national competitive grant scheme is being treated in the same way as all other grants. Important to work out how the relationship between the two Universities is best dealt with. Very important to have the flexibility to manage budgets. Both Universities need to be approached as to what their reaction would be to a split funding. David Siddle has said that he would not treat the project in any way less favourable than Newcastle. There are several issues to be addressed. Firstly the financial situation, what the Universities are prepared to offer and what they are prepared to take. The next is what is the best way to manage the project, and lastly the best place to locate the various sections. Need the flexibility to allow for this to happen at different times. Might start off at the beginning of the contract with one thing and then in six months or a year, might need to change it for various reasons. Long term planning for the next funding period in five years time is essential. Current investigators to be invited to the meeting in November, as well all the staff. Peter Brown and Julia Lowe to be added to the list. Approximately 15 people in all. Chris to make the necessary arrangements. **UPDATE ON OLD 3, MID 3 AND YOUNG 3** Young 3 Pilot a bit of a concern. Just under 50% last Friday. Phoning has started. RTS from newsletter – girls already working on tracking.	Annette to talk to Jan Chris to make arrangements for meeting	Annette

Item No	Item	Action	By whom Due date
	SUBSTUDIES Kylie and Sandra response rate over 70%. Lauren Miller – 72%. Phone surveys going more slowly because participants are difficult to find. Grant applications for Mens' cardiovascular disease project, and people with degenerative conditions, still pending. If funded we will run substudies next year – Chris to add to substudy list. Margot – older women phone survey also on hold until funding is assured. No further business and conference concluded 10:20 am.	Chris to add to substudy list	

Next meeting: Monday 11 November 2002 at 9 am (Queensland time) and 10 am (NSW time)

STEERING COMMITTEE TELECONFERENCE
11 November 2002

Present: Annette Dobson (Chair), Julie Byles, Wendy Brown, Christina Lee, Penny Warner Smith
Apologies: Anne Young
Minutes: Christina Lee

Item	Action/Who
1. Welcome and apologies As noted	
2. Minutes from previous meeting No action required	
3. Strategic Issues ***3.1. Research Synthesis Meetings in Canberra 30th October and 8th November*** Meetings were held with representatives of five Divisions/Sections to discuss the use of WHA data in more policy-relevant ways. There is $150,000 available to assist in this process. From notes taken at the meetings, the following people will draft overviews of work to be conducted: Christina Lee Mental Health; Wendy Brown Obesity/Physical Activity; Penny Warner Smith Rural Health; Annette Dobson Chronic Disease; Julie Byles Ageing. Drafts to be sent to Christina Lee on Mon 11th Nov, who will review and circulate an overall document (taking into account the workload, resources, and time available) on Tues 12th Nov. The document is to be finalized and sent to Brendan Gibson, Janet McMahon and Marion Dunlop at DoHA by Wed 13th Nov. It was stressed that several different investigators might be involved in writing sections of each of the five research syntheses. The group's impression of the meetings was that they had been very valuable, that it had been interesting to see that our work was already a reasonably close match with policy interests, and that it was now up to us to complete the process by providing useful information. The contract variation has been received at Newcastle. It needs to be signed by Research Branch here and at UQ. ***3.2 Relationships between UN and UQ*** Christina Lee has spoken with Ron MacDonald (DVC Research UN), and Annette Dobson with David Siddle (DVC Research UQ), about the need to consider relationships between the universities at a formal level. A meeting of Investigators and staff has been arranged for 28th November. It was decided that the main task at this meeting would be to work out which	Write and circulate drafts – CL, WB, AD, PWS, JB Arrange signatures – CL

Item	Action/Who
tasks hang together in logical groupings. This is a first step for any further planning about locations. Three main groups of tasks were identified initially: data collection; statistical analysis; and writing/linkage with Commonwealth/strategic planning. The need for stronger timelines for the second and third of these was also flagged. Christina to plan a rough agenda for the day and circulate ***3.3 Other Strategic Issues*** Annette reported that the reviewers' report on the project had gone through the NHMRC Research Committee but due to a clerical error it was not considered at the recent Council meeting (something to do with incorrect photocopying). It will go back to Research Committee for final adjustments and then to Council out of session – this still means a delay of several weeks but Brendan Gibson continues to be hopeful that there will be recommendation to the Minister for Health by the end of February.	Rough out agenda - CL
4. Report on WHA Office activities Notes on office activities were circulated with the agenda. There was some discussion of the response rates to the Young 3 pilot, which are higher than those for the Young 2 pilot but still lower than those for other age groups. Respondent numbers for the surveys completed to date are as follows. These are absolute numbers (nobody has been left out simply because they died or emigrated or decided not to take part) and thus the retention rates look poorer than if we only include those who are still alive and eligible. There are tables in the Report for Reviewers outlining exactly where everyone went between Survey 1 and Survey 2. As a rule, we are sending surveys to everyone who has ever responded to a survey and has not actively withdrawn or become ineligible. That is, for Survey 3, we are tracking and contacting women who did not respond to Survey 2 as well as those who did. Young 1 14,779 Mid 1 14,100 Older 1 12,939 Young 2 9,682 Mid 2 12,338 Older 2 10,433 Mid 3 11,224 Older 3 8,468 The office move is still causing some disruption. Additional furniture has still not arrived and we are waiting for shelving to sort out some storage rooms, and for additional lateral files to collate all consents correctly. We hope to do this over December and January. Our server has been ordered and we hope to have it installed and operational this year.	

Item	Action/Who
5. Any other business We are trying out use of the WA linked data registry to see if we have any success in locating "lost" women with WA addresses.	

Meeting closed 10.00 am QLD time.
Next meeting: Tuesday 10 December at 9 am (QLD time); 10 am (NSW time).

Appendix 2

Conduct of surveys

Appendix 2.1

Young Survey 3 pilot materials

For copies of all ALSWH main surveys please visit:
http://www.newcastle.edu.au/centre/wha/surveys.html

Appendix 7

Dissemination of study findings

Appendix 7.1

Newsletter 2002

For a copy of the ALSWH 2002 participant newsletter please visit:
http://www.newcastle.edu.au/centre/wha/Reports/newsletters.html

Appendix 8

Archiving of statistical analyses and related materials

Appendix 8.1

Archiving procedures

DOCUMENTATION AND ARCHIVING: DATA ANALYSIS

The following procedures apply to all data analyses projects using data from the ALSWH. Procedures for documenting statistical methodology research by ALSWH investigators, staff or students are detailed in *Documentation and Archiving: Statistical Methodology.*

At the time of submission of a manuscript

The Publications Officer (RCGH, University of Newcastle) will establish a paper-based record related to the manuscript, known as the study file, which will be stored in a locked filing cabinet. The Publications Officer will also establish an associated computer disk storage area on a password-protected area of the network drive, in the format u:/archive/first_author_name/project_title.

The person who analyses the data reported in the manuscript will supply the Publications Officer with the following documentation for inclusion in the study file.

a. Electronic or paper copies of all *programs* used in the analyses; and
b. Electronic or paper copies of a *step-by-step guide* to the analysis.

Programs

All programs should include the author and the date when the program was last edited. Programs should show details of:

- data extraction from database(s);
- subject exclusions and population definitions;
- derived/calculated variables; and
- the analysis.

Program files for analysis should be annotated to show which procedures were applied to produce the data in tables and figures appearing in publications and reports.

Output files may be included at the discretion of the data analyst.

Access to these program files will not be permitted without the written approval of the data analyst and the first author of the manuscript. The Project Manager will be responsible for authorisation of access once this written approval is received.

STEP-BY-STEP GUIDE

The step-by-step guide should show the date and author and should include:

- file names, dates and locations for the original data sources used in the analyses;
- the location of all programs used in the analysis;
- a brief description of each program; and
- recommendations for the order of running programs.

The guide should be saved as an ASCII text file (README.txt) for universal access. The file should be updated as modifications or extensions of the analysis occur.

After the acceptance of manuscripts

Electronic copies of programs, datasets and output will be archived to CD by the Publications Officer. The Project Manager will ensure that CD and study file archives are stored for at least ten years after completion of the project, conforming to the Joint NHMRC/ AVCC Statement And Guidelines On Research Practice (http://www.health.gov.au/nhmrc/research/general/nhmrcavc.htm; 26 June 2001).

DOCUMENTATION AND ARCHIVING: STATISTICAL METHODOLOGY

The following procedures apply to all statistical methodology research using data from the ALSWH. Procedures for documenting data analyses projects by ALSWH investigators, staff or students are detailed in *Documentation and Archiving: Data Analysis.*

At the time of submission of a manuscript

The Publications Officer (RCGH, University of Newcastle) will establish a paper-based record related to the manuscript, known as the study file, which will be stored in a locked filing cabinet. The Publications Officer will also establish an associated computer disk storage area on a password-protected area of the network drive, in the format u:/archive/first_author_name/project_title.

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December 2002