

# report 20

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



## The Australian Longitudinal Study on Women's Health

10 June 2003



*The* UNIVERSITY  
*of* NEWCASTLE  
AUSTRALIA

in association with



THE UNIVERSITY  
OF QUEENSLAND  
AUSTRALIA

# REPORT 20

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## EXECUTIVE SUMMARY

1. A major activity in the reporting period has been the preparation of five “research syntheses”. These are reports of targeted analyses, focusing on current issues for the Commonwealth Department of Health and Ageing. They grew out of discussions with staff of the Department, who suggested that specific reports should be prepared to provide information that is directly relevant to policy. The aim was to make the findings of the study more immediately accessible to staff working on the development of policy and practice. Following preliminary meetings, reports were prepared that addressed current policy concerns in five areas: Mental Health, Rural Health, Obesity/Physical Activity, Ageing, and Health Service Use/Chronic Disease. Following a series of progress meetings, these five reports have been completed.

2. The timetable of annual surveys continues to progress smoothly. Survey 3 of the Younger cohort was mailed in March, with the first reminder sent in April and a targeted reminder in May. To date the response rate is around 50%, with follow-up phone calls still to be conducted. Work is continuing on cleaning the data Older Survey 3, collected in 2002, while the data from Mid-age Survey 3, collected in 2001, has now been archived. Planning for Mid-age Survey 4, to be mailed in March 2004, is in progress and the pilot is timetabled for August of this year.

3. Other research activity has continued during the reporting period. A number of substudies and additional analyses are underway. These include substudies focusing on assessment and health services for older women with cardiovascular disease; the health care experiences of family caregivers; young women’s decision-making regarding smoking; the processes of negotiating leisure time within couples; and mid-age women’s history of contraceptive use.

A number of analyses of existing data are also in progress. These include an examination of the gynaecological and emotional health of women who have experienced violence and abuse; investigations of patterns and correlates of illicit drug use among younger women; assessment of predictors and correlates of the maintenance of healthy weight among younger women; and a series of analyses of nutritional data among mid-age women.

4. Graduate research students provide an important dimension to the project. In the reporting period, it is very pleasing to note that one PhD student has submitted her thesis, on domestic violence, health and health services, and at least another four are expected to complete their theses in the very near future. Research theses provide a framework for research training in aspects of social epidemiology and health service and are an investment in the future of research and evaluation in this country. The majority of graduate students are supported by scholarships and grants from other sources, meaning that they add to the project and its outcome without significant cost to core funds.

5. Work on methods and measurement during the reporting period has been extensive, and has grown out of the needs of the research synthesis reports. In particular, extensive work has been conducted on the measurement of change. For categorical and ordinal variables, such as smoking status, marital status, and alcohol consumption, the process of defining transition variables is complex. Other methodological work has included assessment of measures of social support and the development of techniques to assess socioeconomic status among younger women.

6. Dissemination of findings to the scientific community has been a major focus during the reporting period. A total of 7 papers were published. These addressed a range of issues including analysis of menopausal symptoms; predictors and correlates of the maintenance of healthy weight; descriptive analyses of violence and abuse in women's lives; paid and unpaid work and wellbeing; changes in bulk billing in urban and rural areas of Australia; methods for the assessment of risk of elder abuse; and the management of urinary incontinence. A further 11 were accepted for publication in academic journals. As well as this, presentations were made at a number of national and international conferences.

7. While the project continues smoothly, there has been considerable organizational activity. The current contract with the Commonwealth Department of Health and Ageing expires at the end of June 2003 and at the time this report was prepared continuation of the project and details of further contract had yet to be determined. At the same time, there has been some staff reorganization. Professor Christina Lee, who has been Project Manager in Newcastle since January 2000, is moving to the University of Queensland in June 2003 and will become Project Co-ordinator (retaining most of the management roles), while Dr Penny Warner-Smith will take over as Interim Project Manager dealing with day-to-day activities in Newcastle. Longer-term changes are dependent on the outcomes of contract discussions but the research team are confident of our ability to maintain continuity.

## **1. COLLABORATIVE RESEARCH ACTIVITIES**

### **1.1. SCIENTIFIC MEETINGS AND TELECONFERENCES AMONG RESEARCH TEAM**

The strategy of electing a Steering Committee who participate in teleconferences and other planning activities, and report to the broader group of Investigators, has continued. 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 includes meeting notes and minutes for Steering Committee teleconferences held on 10<sup>th</sup> December 2002, 20<sup>th</sup> January, 17<sup>th</sup> February, 17<sup>th</sup> March, 14<sup>th</sup> April and 12<sup>th</sup> May 2003.

A meeting of Investigators and staff is planned for 13<sup>th</sup> June, to discuss content of Survey 4 of the Mid-age cohort.

### **1.2 SUMMARY OF COLLABORATIVE RESEARCH ACTIVITIES**

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

<b>Project:</b>	How well do health and community services help older people with neurodegenerative disorders and their family caregivers?
<b>ALSWH Investigators:</b>	Professor Annette Dobson, Professor Christina Lee
<b>Collaborating Investigators:</b>	Dr Leigh Tooth, Professor Andrew Wilson, Assoc Professor Gerard Byrne (School of Population Health, University of Queensland)
<b>Funding Source:</b>	NHMRC Project Grant

This is a comparative study of family carers for older people living with two groups of disorders which are likely to require different types of support and services. The two groups are Alzheimer's disease and dementia (mainly cognitive impairment); and Parkinson's disease, multiple sclerosis and the residual effects of stroke (mainly physical impairment). Family caregivers of sufferers of these conditions will be recruited using the Study. Information will be obtained from carers of their experiences of health care and other services, and the impact of caring on their own health. By comparing the responsiveness of health services to people living with these disorders under various circumstances throughout Australia it will be possible to identify opportunities for improving services and reducing the burden on carers. Neurodegenerative disorders cause considerable stress for family caregivers, the majority of whom are women, often themselves elderly and in poor health. ALSWH already has considerable information about the health and health service use of elderly Australian women, and can be used to identify those women who either need or provide family-based care. By collecting a small amount of information on this specific topic from a targeted subgroup of individuals who provide care and the caregivers of those participants who receive care, and combining it with existing data, it is possible to develop a detailed understanding of this research question with a minimal level of respondent burden.

Targeted surveys have been prepared and ethics approval has been received. Preliminary focus groups to assess the appropriateness of the surveys for the target audience are being arranged.



**Project:** Are cardiac conditions in older women managed appropriately?  
**ALSWH Investigator:** Professor Annette Dobson  
**Collaborating Investigators:** Professor Andrew Wilson (School of Population Health, University of Queensland)  
**Funding Source:** NHMRC Project Grant

Cardiac conditions, including heart attack, heart failure, angina and hypertension are very common among older Australians. They account for a large proportion of mortality, morbidity and health care costs. For most of the conditions there are highly effective treatments, however there is evidence that these are not as well used as they might be. Also, for women, diagnosis may be delayed because of perceptions that heart disease is a problem mainly of men. This substudy is based on the Older cohort of ALSWH. Women with cardiac conditions will be surveyed concerning their medical care. This targeted information, together with data from the main Surveys 1, 2 and 3, and Medicare unit records where they are available, will be compared with best practice guidelines established by NHMRC and the National Heart Foundation of Australia. The first stage of this project involves the development and validation of the survey instrument. This will be done with groups of cardiac patients with known diagnoses, drawn from hospital populations rather than from the ALSWH cohorts.

**Project:** Illicit drug use in young women  
**ALSWH Investigators:** Ms Anne Russell & Professor Wendy Brown  
**Collaborating Investigator:** Dr Catherine Turner (School of Population Health, University of Queensland)  
**Funding Source:** None

***Aim:***

This work examines patterns of illicit drug use among Younger women. Information on illicit drug use was collected in the second survey of the younger cohort (n=9512) in 2000, when these women were aged 22-27 years.

***Outcomes to date:***

Among these women, 58% reported having used an illicit drug at some time, with most of them (57%) having used cannabis. Amphetamines (16%), ecstasy/designer drugs (15%) and LSD (14%) were the next three most commonly used drugs. Four different patterns of drug use were identified: past users of cannabis only (39%); current users of cannabis only (17%); past multiple drug users (13%) and current multiple drug users (31%). Living in a de facto relationship or never being married, living with non-family members, a history of physical abuse, early sexual intercourse, smoking and binge drinking were significantly associated with exclusive use of cannabis and with use of multiple drugs, compared to never using illicit drugs. Living with a partner, experience of sexual or emotional abuse, pregnancy, diagnosis of depression and taking sleeping medication were significantly associated with being a multiple drug user but not with exclusive cannabis use. Multiple drug users had, on average, begun using cannabis 2-3 years before using any other illicit drug.

**Project:** Violence against young women and reproductive health  
**ALSWH Investigator:** Professor Christina Lee  
**Collaborating Investigators:** Dr Angela Taft & Dr Lyn Watson (Centre for Mothers' and Children's Health, La Trobe University)  
**Funding Source:** Office for the Status of Women

This analysis of existing data has been commissioned by the Office for the Status of Women (OSW), Department of the Prime Minister and Cabinet, and has been under way since mid 2002. The project is in three parts:

- A cross-sectional analysis of the correlates of violence against young Australian women at each of Surveys 1 and 2, completed in March 2003
- A report on these analyses to the Office for the Status of Women's annual conference, held in March 2003
- A longitudinal analysis of patterns of consistency and change in experiences of abuse, and of the longer-term effects of abuse on reproductive health across Surveys 1 and 2, to be completed in July 2003.

This report summarises the first part of the project. A full report has been submitted to OSW and is available from the research team if requested.

Part 1 describes the correlates of violence against young Australian women, with an emphasis on reproductive health. While there is already considerable clinical evidence from Australia, and community-based surveys from overseas, the ALSWH provides the first Australian evidence at a population level on this topic. Data from Survey 1 (1996) and Survey 2 (2000) of the Younger cohort of ALSWH provide the raw material for this analysis.

Cross-sectional analyses of the two surveys are reported here. Women were categorised into four groups:

- **1. No abuse: women in category 1 report not having experienced abuse or violence**  
75% at Survey 1; 82% at Survey 2
- **2. Physical or sexual abuse from people other than intimate partners**  
13% at Survey 1; 5% at Survey 2
- **3. Previous partner abuse**  
6% at Survey 1; 7% at Survey 2
- **4. Current or recent partner abuse and violence**  
5% at Survey 1; 3% at Survey 2

Experience of abuse, particularly abuse by partners, was associated with significantly lower reproductive health and with reproductive risks, as well as with a range of demographic factors, poor general health, unhealthy behaviours such as drinking and smoking, and low social support. The data demonstrate that partner abuse in particular is associated with a worrying level of health problems, many of which have far-reaching implications for these women's health and the health of their children. They indicate a need for concerted efforts to prevent partner violence against women, to educate health service providers in the recognition of partner violence, and to provide appropriate and effective interventions.

The next stage of this project will be a linked analysis of women's Survey 1 and Survey 2 data, allowing an exploration of the effects of changes in women's life circumstances on their experiences of abuse and on their reproductive health.

Cross-sectionally, this report shows that experience of abuse, particularly abuse by partners, is associated with:

- **Other abusive experiences**
  - Emotional abuse
  - Fear of family members

- **Demographic variables**
  - Younger age
  - Lower education
  - No paid work
  - De facto relationship
  - Living in a remote community
  - Indigenous background
  - NOT being of Asian background
- **Reproductive outcomes**
  - More pregnancies
  - More miscarriages
  - More terminations
  - More pre-term births
- **Other reproductive variables**
  - Less effective use of contraception
  - Higher rates of vaginal discharge
  - Higher rates of HPV and Hepatitis C
  - Inadequate Pap testing
- **General health**
  - Worse general physical and mental health
  - Higher rates of depression, anxiety and suicidality
  - Higher rates of problematic or disordered eating
  - Higher rates of smoking and heavy alcohol use
  - Higher rates of sleeping difficulty
- **Other factors**
  - Lower levels of social support
  - Higher use of health services
  - Higher educational aspirations
  - Lower aspirations for marriage

**Project:** Weight maintenance in young women  
**ALSWH Investigator:** Dr Kylie Ball  
**Collaborating Investigators:** Associate Professor David Crawford (School of Health Sciences, Deakin University)  
**Funding Source:** NHMRC Fellowship; Internal Deakin University Funds

This substudy follows-up a selected sample of women who have gained weight between surveys 1 and 2 of the Younger cohort, and women who have maintained their weight during this period, in order to investigate potential psychosocial and environmental predictors of weight gain/maintenance in this cohort. Surveys were mailed to 1200 young women early in 2002, and completed surveys were received from a total of 869 women. Data coding, entry and cleaning has been completed and preliminary analyses are in progress.

**Project:** Body Mass Index and Aspirations Analyses: Young Cohort  
**ALSWH Investigator:** Dr Kylie Ball & Associate Professor Justin Kenardy  
**Collaborating Investigators:** Associate Professor David Crawford (School of Health Sciences, Deakin University)  
**Funding Source:** None

This study aims to investigate associations over time between BMI and young women's aspirations for family, education and career, controlling for SES. Cross-sectional analyses of BMI, aspirations and young women's life satisfaction as well as longitudinal analyses of associations between these variables have been completed. A first draft of the paper has been completed and is being circulated among authors. It is expected this will be submitted for publication by August 2003.

**Project:** Dietary Analyses: Mid-age Women  
**ALSWH Investigator:** Dr Kylie Ball, Professor Wendy Brown, Professor Annette Dobson, Professor Christina Lee, Dr Gita Mishra, Dr Amanda Paterson  
**Collaborating Investigators:** Allison Hodge (Cancer Council Victoria)  
**Funding Source:** NHMRC Travel award (Dr Kylie Ball); MRC-NHR (UK)

This series of analyses aims to describe the diets of Australian women and how they vary by sociodemographic and health characteristics. Analysis of Food Frequency Questionnaire data from the Mid-age cohort was conducted during a visit by Kylie Ball to Cambridge University where she worked with Gita Mishra. Two preliminary papers were drafted and circulated to authors for comment. It is expected these will be submitted for publication by June 2003.

**Project:** Work-life tensions: time pressure, leisure and well-being among dual-earner parents in Australia  
**ALSWH investigator:** Professor Peter Brown, Professor Lois Bryson & Dr Penny Warner-Smith  
**Collaborating investigators:** Associate Professor Duncan Ironmonger (Melbourne University)  
**Funding Source:** ARC Discovery Grant (2003-2005)

**Project summary:** Empirical studies of work-life tensions, especially for women, have rarely considered how individuals actually experience time pressures. The main aim of this project is to examine the hypothesis that well-being is positively related to less time pressure, more leisure and greater control over time schedules. The project will use an innovative time-use sampling method to examine this hypothesis for parents in dual-earner households. The project will also investigate relationships between women's time use, life course experience and measures of physical and mental well-being by using data already available from the Mid-age and Younger cohorts.

**Project progress:** Ethics applications were submitted to Griffith and Newcastle Universities in January and both have been approved. Focus groups are planned in Newcastle and Brisbane mid-year, with participants to be recruited from outside the Study. Subsequent phases of the study – using random time-sampling and follow-up interviews – will involve a sample of 50 mid-age and 50 younger women selected from the Study, and their partners.

### 1.2.2. Completed postgraduate theses (since December 2002)

**Project:** Domestic abuse and health: Quantitative and qualitative investigations among mid-aged Australian women  
**Degree:** PhD Thesis  
**Candidate:** Ms Deborah Joanne Loxton (University of New England)  
**Supervisors:** Associate Professor Margot Schofield, Dr Rafat Hussain, & Professor Victor Minichiello  
**Funding Source:** Australian Postgraduate Award with stipend, School of Health, University of New England, & Keith and Dorothy McKay Travelling Scholarship

**Date of Submission:** 31 March 2003

This thesis aimed to examine the relationships between a history of domestic violence and women's health service use, and physical and psychological health in mid-life; to determine factors that mediate the relationship between domestic violence and mid-life health; and to elaborate on these quantitative findings with information from qualitative interviews.

Multiple regression analyses were conducted using data from the mid-aged sample of the ALSWH. The analyses used data from Survey 1 (1996; N = 14,100; 45-50 years) for health service use, physical health, and mediation analyses, and Survey 2 (1998; N = 11,648; 47-52 years) for psychological health analyses. Qualitative telephone interviews were conducted with a subset of the mid-age sample (2001; N = 26; 50-55 years).

Associations were found between domestic violence and increased health service use; decreased physical health, physical symptoms, and diagnosed illnesses; and diagnoses of psychological disorders and symptoms, and psychoactive medication use. The relationship between domestic violence and physical health was partially mediated by stress, life events, education, income management, and smoking; and the relationship between domestic violence and psychological health was mediated by stress, life events, and social support. In-depth qualitative interviews indicated that domestic abuse affected women's ability to seek health services; directly and adversely affected their physical and psychological health in the short- and long-term; and that mediating factors occurred subsequent to domestic abuse, and adversely affected health. Additional factors (eg. coping strategies) may also mediate the relationship between domestic abuse and health.

This thesis concludes that domestic abuse leads to an increased need for health services; and that domestic abuse has direct adverse and long-term consequences for physical and psychological health. Furthermore, domestic abuse affects lifestyle, and causes coping responses that influence physical and psychological health.

### **1.2.3. Student projects in progress**

**Project:** Stress, health behaviours, and the transition to young adulthood  
**PhD Candidate:** Ms Sandra Bell (Research Centre for Gender and Health, The University of Newcastle)  
**Supervisor:** Professor Christina Lee  
**Funding Source:** Research Centre for Gender and Health Scholarship, University of Newcastle  
**Expected Completion:** July 2003

The transition to young adulthood is a life stage that is characterized by multiple changes within a short time frame for the majority of the population. This transition represents the change between a lifestyle dependent on parents or guardians to the independent lifestyle of adulthood. This study examines four key life domains that are traditionally argued to change during the transition to young adulthood: residential independence; employment; relationships and motherhood. These four key life domains were examined for young Australian women, from the Younger cohort, to determine the applicability of traditional developmental theories of this transition to this population.

Once the life domains were defined they were used to explore their impact on stress and on health behaviours. In this study the health behaviours of smoking and physical activity were used.

For the next stage a substudy was conducted with surveys sent to 1200 Younger participants (response rate was over 70%). Questions addressed when the participants first moved out of home;

first started full-time work; first had a live-in relationship; and gave birth to their first child. These questions were used to examine the effects of the timing and sequencing of life domain transitions on stress and health behaviours. Timing refers to how old the young women were when they made these life changes, and the sequence refers to what order these changes were made. Analyses suggest that making changes at “normative” ages is associated with a healthier lifestyle, but that there is huge diversity in women’s lives during this life stage.

**Project:** Abused Mid-aged Women in Australia:  
Experiences, Well-being, and Ways of Coping  
**PhD Candidate:** Ms Glennys Parker (Research Centre for Gender and Health, The  
University of Newcastle)  
**Supervisor:** Professor Christina Lee  
**Funding Source:** University of Newcastle  
**Expected Completion:** July 2003

This PhD thesis explores Australian women’s efforts to cope with their experiences of abuse. Descriptive and comparative analyses have been completed, as well as qualitative assessment of the respondents’ own insights and observations. The findings show that, in general, abused women implement a wide range of strategies and resources to manage their own personal distress and difficult circumstances. In the main, these include leaving the abusive situation, seeking help from formal and informal sources, and attempting to dissociate or distract from the abuse. Acquiring a sense of personal agency, self-efficacy, and mastery over their lives was also very important to the women in the study. The final stage of this thesis is the development of a conceptual model of coping with abuse covering empirical measures and existential indicators. It is anticipated that this model will identify the coping styles and tactics that underlie positive outcomes in emotional health. Quantitative and qualitative analyses have been completed, and the thesis is currently being written.

**Project:** Treatments for Menstrual Symptoms: An Epidemiological Investigation  
**PhD Candidate:** Ms Melissa Graham (School of Health and Environment, La Trobe  
University, Bendigo)  
**Supervisors:** Dr Erica James, Dr Helen Keleher, & Associate Professor Julie Byles  
**Funding Source:** La Trobe University Bendigo Research Committee  
**Expected Completion:** July 2003

Hysterectomy is one of the most common gynaecological surgical procedures performed. 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 successfully. Factors such as socio-economic status, social support, geographical location, menstrual symptoms experienced, the availability of information about menstrual symptoms and treatments, and satisfaction with the outcomes of treatments may influence a women’s decision to elect hysterectomy.

The main aim of this study was to determine the difference between women who have had a hysterectomy as a treatment for menstrual symptoms and women who have not. To investigate these issues, two studies were conducted, a prospective study and a cross-sectional study.

The first study was prospective, and aimed to describe the characteristics of Australian women with menstrual symptoms, the treatments they tried for the relief of these symptoms, and their satisfaction with these treatments. Baseline and follow-up data for the prospective study have been collected, entered and analysed. Findings indicate that women were more satisfied with treatments

if they had experienced a number of menstrual symptoms. The number of treatments tried for the relief of menstrual symptoms was found to be positively associated with the perceived amount of information available about treatments. The women also tried more treatments for the relief of their menstrual symptoms if they experienced a higher number of symptoms. Analysis conducted over time suggests that there was a decrease in the number of menstrual symptoms experienced. However, there was no improvement in how the women's menstrual symptoms made them feel.

The second study was a cross-sectional study and aimed to describe the characteristics of Australian women who had a hysterectomy as a treatment for their menstrual symptoms and to identify relationships and pathways from menstrual symptoms to hysterectomy. Data collection, entry and analysis is complete. The results indicated that women are satisfied with hysterectomy as a treatment for menstrual symptoms. However, very few of the women had tried any other treatments for their menstrual symptoms prior to hysterectomy. Further analyses have explored relationships between the characteristics of women and their pathway to hysterectomy.

A comparative analysis was also undertaken of those women who had a hysterectomy (cross-sectional study) and those who did not (prospective study baseline data). Regression analysis was used to determine the factors that predict women's choice of treatments for the relief of menstrual symptoms. The findings indicate that better access to health care services, perceived availability of information about menstrual symptoms, many influences on the decision making process, and the number of menstrual symptoms experienced, all increased the likelihood of hysterectomy.

**Project:** Psychological factors in coronary heart disease  
**PhD Candidate:** Mr Esben Strodl (School of Psychology, University of Queensland)  
**Supervisors:** Associate Professor Justin Kenardy & Dr Con Aroney  
**Funding Source:** Australian Postgraduate Award Scholarship & grant from the Ipswich Hospital Foundation for study 3 on heart rate variability  
**Expected Completion:** July 2003

**Study 1:** Surveyed 204 unstable angina patients in hospital, at three month follow-up (n=147) and at 12 month follow-up (n=167). The study examined the effect of three moderators upon the relationship between psychological factors and the frequency of angina: gender, history of a heart attack, history of a coronary artery bypass graft (CABG). The results showed that there were associations between trait anger and angina in women, but not men, between state anger and angina frequency in those who had not had a heart attack, but not in those who had, and between anger and anxiety and angina frequency in those who had had a CABG, but not those who hadn't.

**Study 2:** Analysed the data from the ALSWH database of older women from 1996 and 1999. The study found that a history of heart intervention (CABG or angioplasty) moderated the relationship between psychological factors and the presence of chest pain in women with coronary heart disease. That is, frequent feelings of time pressure, as well as a greater frequency of life events, appear to be related to the presence of chest pain three years later in older women with heart disease without prior heart intervention; while a diagnosis of depression appears to be related to the presence of chest pain three years later in older women with heart disease and prior heart intervention.

**Study 3:** Examined the effect of three moderators (gender, history of heart attack, history of CABG) on the relationship between cardiovascular reactivity, heart rate variability (HRV) and angina frequency in a sample of 30 stable angina patients. The results showed that a history of a heart attack and CABG did moderate the associations. That is, the measure of HRV that represents the balance between the sympathetic and parasympathetic nervous system was strongly associated with angina frequency in patients who reported no previous heart attack, while there were no such associations in patients who did report a past history of heart attack. With respect to CABG, we found that sympathetic nervous system activity may be related with angina frequency in those who

have not undergone CABG, while parasympathetic nervous system withdrawal might be related to angina frequency in those who have undergone CABG.

**Overall conclusion:** The relationship between psychological factors and the experience of transient coronary chest pain is complex and requires the consideration of moderators. Among these moderators, gender, history of heart attack and history of CABG appear to be important variables to consider.

**Project:** Childlessness and the Role of Choice in Childless Women's Reproductive Outcome  
**PhD Candidate:** Ms Heather McKay (Key Centre for Women's Health in Society, School of Population Health, University of Melbourne)  
**Supervisors:** Dr Jane Fisher & Professor Christina Lee  
**Funding Source:** Melbourne Research Scholarship (Faculty-Based MRS). The Victorian component of data collection for this study is supported by a grant from 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 mothers have fewer children and because more women remain childless. This research 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 the ALSWH, a substudy has been conducted to investigate these issues. Women in the mid-age cohort of ALSWH participants who have already indicated they have never given birth to a child have been invited to participate.

After receiving ethics approval from both the Universities of Melbourne and Newcastle pre-piloting and piloting phases of the project were successfully completed in 2002. The substudy survey was mailed to 535 ALSWH participants who were eligible to participate in October 2002, and telephone follow-up of those who had not responded was conducted in January 2003. The response rate has been around 80% and initial results indicate that, on the whole, women were willing to thoughtfully contribute to this research project. Data entry and analysis is currently in progress.

**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)  
**Supervisors:** Dr Tracey Wade & Professor Christina Lee  
**Funding Source:** Australian Postgraduate Award, Flinders University of South Australia & Flinders University Research Budget.  
**Expected Completion:** May 2004

**Aims, Methods and Outcomes:** Pregnancy and childbirth have significant negative impacts on women's lives. This research aims to identify psychosocial risk factors for late-adolescent pregnancy, childbirth and pregnancy risk taking. Two studies will be used to achieve this aim.

**Study 1:** Existing ALSWH data from Surveys 1 and 2 of the younger cohort (conducted in 1996 and 2000) were analysed. The relationship between reproductive behaviour and socio-demographic, unemployment, competence, psychosocial well-being, and aspirations was assessed in a sample of 1647 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 problem behaviour correlated with late-adolescent pregnancy. Low educational attainment combined with low status employment also correlated with late-adolescent childbirth. Longitudinally, poorer psychosocial well-being, and high aspirations for marriage and motherhood combined with low job aspirations, were risk factors for both late-adolescent pregnancy and childbirth. Stress and alcohol use were additional risk factors for pregnancy, and unemployment 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 by conducting a ALSWH sub-study. A contraceptive use questionnaire measuring pregnancy risk-taking (defined as inconsistent and non-optimal use of contraception), was designed and pilot tested with the ALSWH pilot group. Following this, the questionnaire was sent to 120 of the youngest late-adolescent women from the ALSWH younger cohort. A total of 90 (75%) have been returned. Pre-existing information on their psychosocial status has then been used to identify possible risk and protective factors for pregnancy risk-taking in these young women. With statistical analysis currently underway, preliminary findings point to poor psychosocial well-being as an important predictor of pregnancy risk-taking.

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

**Project:** Depressed mood: Psychometric and Health-Related Issues  
**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 & contribution from the School of Population Health, University of Queensland  
**Expected Completion:** January 2005

**Aim:** The main aim of this thesis is to undertake methodological research to ensure that the complex relationships between depressed mood, psychosocial characteristics, life events and physical health amongst the mid-age women in the ALSWH are rigorously examined. This is important because failure to consider the complexity of these relationships may lead to spurious effects being incorrectly identified.

**Key areas to be addressed in this thesis are:** Psychometric issues: measurement and analysis of depressed mood. Issues with factor analysis of scales with both positively and negatively phrased items. Reporting bias in life events: telescoping and the impact of depressed mood. Assessing change in depressed mood: adjusting for regression to the mean. Depressed mood, health and life events: exploring the relationships. Investigate how psychosocial variates are related to depressed mood: factor analysis and regression. Explore how change in depressed mood is related to change in health and life events: direction and causation.

**Outcomes so far:** Scales often contain both positively phrased and negatively phrased items; for example, the CESD-10 contains the positive item 'I was happy' and the negative item 'I felt depressed'. Factor analysis of scales with both positively and negatively phrased items can result in a scale that should have only one factor appearing to have two: one factor containing only the

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

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. Work on determining the effects of telescoping and depression on responses to life event items found that 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 the mid-age cohort. While some of the differences in incidence may relate to the life stage of the women (e.g., going through menopause), differences in 12-month incidence would not have been expected for most events. Women who were depressed (i.e., had low mental health scores) reported a higher incidence of almost all life events, indicating that mood may have an impact on reported life events.

**Project:** An exploration of how young Australian women cope with depressive symptoms  
**PhD Candidate:** Ms Kate France (Research Centre for Gender and Health, University of Newcastle)  
**Supervisors:** Professor Christina Lee & Dr Sue Outram  
**Funding Source:** Australian Postgraduate Award, University of Newcastle  
**Expected Completion:** September 2005

It has been predicted that by 2020, depression will present the second greatest burden of illness in the world. There is evidence that prevalence in the general population declines with age with highest prevalence being found amongst younger people.

Analysis of the data from the second survey of younger women taking part in the ALSWH indicates that over 30% women are suffering from depressive symptoms, as measured by the CES-D 10. After adjusting for age and area of residence, the demographic variables which were significantly related to depressive symptoms included income level, unemployment history, and living arrangements. Those health-related variables which were significantly related to depression included number of GP visits, number of visits to medical specialists, number of diagnoses and number of symptoms experienced. More illicit drug use, higher use of cigarettes and alcohol, and lower exercise status were also significantly associated with depressive symptoms.

Much research has concentrated on psychological ill-health rather than positive wellbeing. This study aims to examine the coping strategies of two groups who reported high levels of depression at the second survey: young women whose scores remain high on the CES-D 10 for the second and third surveys; and those who no longer have high scores for the third survey. Coping strategies will be separated into those which focus on the troubling issues and those which take the focus away from the problem. Short and long term strategies will be examined, as well as the respondents' recommendations for women who are depressed. Women's attitudes towards antidepressant medication will also be looked at, perhaps along with measures of resilience. This substudy is planned for 2004, followed by indepth telephone interviews for a small number of women.

**Project:** Reducing cigarette smoking among young women  
**PhD Candidate:** Ms Liane McDermott (School of Population Health, University of Queensland)  
**Supervisors:** Professor Annette Dobson & Professor Neville Owen  
**Funding Source:** National Health & Medical Research Council Public Health Postgraduate Research scholarship

**Expected Completion:** March 2006

While most female smokers start cigarette smoking in adolescence, prevalence of smoking increases through to the mid to late twenties, reaching a peak of approximately 35%, after which time it declines. A great deal is known about the socio-demographic and psychological characteristics of smokers in general, however, there is less understanding of the factors influencing the increase of smoking prevalence among women in young adulthood. Survey data from ALSWH found three significant influences on smoking behaviour among young women: alcohol binge drinking, marital status and pregnancy.

This project aims to identify the determinants of cigarette smoking among young women aged 18 to 30 years, and to use this information to explore intervention strategies for prevention of cigarette smoking and smoking cessation.

The project uses the framework of life stage transitions for researching shifts in attitudes and beliefs about cigarette smoking and smoking behaviour as young women experience events such as leaving home, employment or post-secondary study, romantic relationships and marriage, and parenthood.

Data collected from a sub-study examining the influence of life stage transitions on the adoption of cigarette smoking, maintenance of smoking and smoking cessation are currently being transcribed and analysed. Predictors of smoking behaviour will then be compared with the ALSWH survey data and further qualitative research undertaken to identify intervention strategies which have the greatest potential for reducing cigarette smoking among young women.

**Project:** Understanding Young Women's Decision-making Regarding Employment whilst Pregnant  
**PhD Candidate:** Ms Sheree Gregory (Key Centre for Women's Health in Society, University of Melbourne)  
**Supervisors:** Associate Professor Jill Astbury & Dr Penny Warner-Smith  
**Funding Source:** None  
**Expected Completion:** 25<sup>th</sup> Feb 2009

This project will investigate factors contributing to the decision-making among young Australian women regarding their employment whilst pregnant, by exploring how women decide to cease, limit or continue employment during pregnancy. It will enhance current understandings of the significance of social, cultural, economic and psychological factors in this decision, and will consider the implications for public policy implementation.

***The key question this project addresses is:*** How do younger women in contemporary Australian society approach the decision whether to cease, continue or limit their employment whilst pregnant? This involves asking who, and what factors, play a key role in developing work restrictions and influencing employment outcomes for women.

***This study seeks to:***

- Explore and determine the key influences on women's decisions.
- Examine in detail how women reach these decisions.
- Advance our understanding of how social processes, changing family obligations, public policies, gender roles, health care and labour market patterns are instrumental in informing women's decisions, and in affecting wellbeing and employment outcomes for women.

**Method:** A substudy of the Younger cohort, using both quantitative (survey) and qualitative (in-depth interviewing/ focus groups) methods, is in the early planning stages.

**The research gap:** Insufficient scholarly attention has been paid to what factors influence women's decisions and employment outcomes while pregnant. The specific research question addresses how such factors are *personally* experienced and understood by *different* women when deciding upon matters regarding their employment and pregnancy. This narrow focus will provide new insights into how women's decisions are negotiated in relation to career, personal and health goals.

**Project:** Are cardiac conditions in older women managed appropriately?  
**PhD Candidate:** Ms Lindy Humphreys-Reid (School of Population Health, University of Queensland)  
**Supervisors:** Professor Annette Dobson and Professor Andrew Wilson  
**Funding Source:** National Health & Medical Research Council Public Health Postgraduate Research Scholarship  
**Expected Completion:** December 2006

The first part of this study, developing and validating a survey instrument to record women's symptoms, investigation and treatment, is in the planning stage. It will be conducted at the Prince Charles Hospital in Brisbane and general practices. Later the survey will be sent to ALSWH participants who have already indicated they have heart disease.

### 1.3 RESEARCH SYNTHESSES

A major activity in the reporting period has been the preparation of five research syntheses - overviews focusing on current policy issues for the Commonwealth Department of Health and Ageing (DoHA). These grew out of discussion with DoHA staff, who suggested that specific reports should be prepared to provide information from the study that is directly relevant to current policy issues. A series of meetings have been held with DoHA staff, and as a result five reports have been prepared for specific sections and divisions of the Department. This section summarises the findings of those five reports, which have been provided separately to the Department.

#### 1.3.1 Mental Health

Mental health has been identified as one of Australia's National Health Priorities, in recognition of the considerable burden of morbidity associated with poor mental health. The World Health Organization has identified depression in particular as the second largest cause of disability-adjusted life years lost worldwide. The cost of depression, and of other mental health problems, is high in personal, social, health care and economic terms.

There is considerable evidence on the effects of clinically diagnosed depression at an individual level, and on effective forms of treatment for severe depression. There are also valuable initiatives at a policy level focusing on the issue of youth suicide, particularly among young rural men. This report argues that these are valuable directions that should be maintained, but that it may be more effective at a population level to develop policies and practices that involve identifying, treating and preventing milder but more widespread mental health problems, with the aim of avoiding these more extreme problems. While it is the case that 6% of the population will meet criteria for clinical depression at least once in any year, it is notable that *at any one time* around 20% of the population is experiencing sub-clinical depression or emotional distress at a level which interferes with work activities, family responsibilities, leisure pursuits and general quality of life. While the majority of Australians do not seek help for this mild to moderate distress, and the effects in terms of lost productivity and social dysfunction may be seen as relatively minor in most cases, the high

prevalence of these minor conditions makes their combined impact significant. Further, mild to moderate depression of this nature is a strong precursor of clinical levels of depression, with all the economic, health-care and personal costs that that entails.

Thus, we argue that a population-level approach, that aims at prevention and early intervention, is compatible with existing policy directions such as the National Action Plan for Depression and the more general National Mental Health Strategy, and is also consistent with a cost-effective approach to maintaining good mental health in the entire community.

This report arose from a series of discussions between members of the ALSWH research team and members of the Department of Health and Ageing. These discussions resulted in the development of a series of policy-relevant questions which ALSWH is able to address. Reports were prepared in response to these questions, and these were discussed in further collaborative meetings before this final technical report, and the associated Summary Report, were prepared.

The questions which arose from the initial discussion were:

1. What are the patterns of consistency and change in mental health across time? In particular, who changes, what are the correlates and predictors of change, and what are the patterns of help-seeking associated with poor mental health?
2. What does depression look like from the perspective of women experiencing depression?
3. How might ALSWH data intersect with other data sources such as the National Health Survey and the National Survey of Mental Health and Wellbeing?

The technical report begins with a brief description of ALSWH, before providing details on the ways in which depression and other aspects of mental health have been assessed in the project, and some descriptive evidence on rates of a number of indicators of poor mental health. While depression is by no means the only mental health problem that has an impact on the health of the population, the remainder of the report is consistent with current policy concerns in focusing largely on depression. Data on anxiety, other psychiatric disorders, stress, disordered eating, and the psychological impact of distressing life events such as the experience of abuse or of bereavement, are beyond the scope of this specific report but are available to DoHA when requested.

After providing this background information, the report goes on to address Question 1 above. It covers correlates and predictors of depression, including both cross-sectional and longitudinal analysis of data from the younger and mid-age cohorts of ALSWH. In particular, it focuses on identifying those women whose level of mental health has improved significantly between surveys, seeking to understand what might have prompted this change. Question 2 is addressed through a summary of research involving interviews with women experiencing poor mental health, and identifies clear mismatches between those women's experiences and felt needs and their evaluations of the health services available to them. Finally, Question 3 is addressed through a discussion of the methods and measures used in a number of major Australian surveys with a mental health focus.

The report is written with the aim of providing policy-relevant data to the Department, and suggestions for further analysis or interpretation are welcomed by the research team.

The data presented in the report demonstrate that:

- Around 12% of women have been diagnosed with mental health conditions, but over 20% report indications of poor mental health. Women with poor mental health are high users of health services.

Women with poor mental health tend to be:

- Single
  - In financial difficulties
  - In poor physical health
  - Cigarette smokers
  - Sedentary
- 
- Illicit drug use is common
  - It may be self limiting
  - Cannabis use precedes use of other illicit drugs and tobacco
  - Use is lower in non-urban areas
  - Use is weakly associated with poorer mental health but it is not yet possible from this study to determine any cause or effect relationship.
- 
- Poor mental health seems to be part of a complex and reciprocally interacting set of factors. Cause and effect are not straightforward, as poor mental health causes and maintains social and personal problems, which in turn cause and maintain poor mental health.

Most women with poor mental health:

- Have not sought medical help and do not expect it to be useful
  - Do not consider that they have a medical disorder
  - Ascribe their distress to family and situational circumstances
  - Do not want drug treatment
  - Want to be listened to and understood
- 
- Health services for poor mental health do not match the expectations and wishes of women with these conditions.

### 1.3.2. Rural Health

For the last thirty years, Australia's rural communities have been experiencing profound economic and social changes. Rural production is no longer as important to Australia as it was thirty years ago: '...it is just another industry struggling to survive in a world of globalised production relations'.<sup>1</sup> As farm populations and incomes and the incomes of those who service the agricultural industries diminish, people are moving away to larger centres in search of education or employment. Because it is the young people who move away, the proportion of older people in the rural population is increasing at a rate faster than other parts of Australia, introducing particular emphases to health service provision.<sup>2</sup>

Population decline is predominantly a small town phenomenon, with around 92 per cent of declining communities having a resident population of less than 5000. Rural growth is commonly occurring around metropolitan commuter belts and in coastal and scenic regions.<sup>3</sup> Kilpatrick and Bell<sup>4</sup> point to similarities between Australia and the United States in terms of the 'gaps' between

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<sup>1</sup> Lawrence G & Gray I. The myths of modern agriculture: Australian rural production in the 21<sup>st</sup> century, in B Pritchard & P McManus, eds., *Land of Discontent: The Dynamics of Change in Rural and Regional Australia* (Sydney: University of New South Wales Press 2000).

<sup>2</sup> Steinberg M & Nichols A. Developing a "functional model" for rural aged care, in *Proceedings of the National Rural Public Health Forum, Adelaide, October 1997* (Canberra: National Rural Health Alliance 1997).

<sup>3</sup> Tonts M. The restructuring of Australia's rural communities, in B Pritchard & P McManus, eds., *Land of Discontent: The Dynamics of Change in Rural and Regional Australia* (Sydney: University of New South Wales Press 2000).

<sup>4</sup> Kilpatrick S & Bell R. *Small business and networks: aspects of social capital in a small rural town* (Launceston: Centre for Research and Learning in Regional Australia, University of Tasmania 2000).

urban and rural areas where there is 'higher unemployment, higher suicide rates, lower standards of health care, education and telecommunication services, and lower life expectancy'.<sup>5</sup>

In Australia, almost one third of the population lives outside the major metropolitan centres, in areas which are serviced by less than one quarter of general practitioners<sup>6</sup>, health service use and related behaviours among rural people tend to be influenced by distance and availability of services.<sup>7</sup> Health-selective migration has been implicated as one of the mechanisms by which socio-spatial disadvantage is created and maintained, and there is a growing literature on the links between chronic ill health, social disadvantage and place.<sup>8</sup>

The welfare of Australian rural communities is likely to be dependent on support provided from the community itself<sup>9</sup>, and there is an increasing body of research documenting the multiple roles of rural women and the (undervalued) contribution these women make to their families, communities and the economy.<sup>10</sup> Dempsey<sup>11</sup> has shown how the dominant male culture and men's greater economic power in small Australian towns serves to disadvantage women. National data indicate that the median gross weekly income of rural women in 1996 was \$A198. This compares with \$A352 for rural men and \$A226 for urban women.<sup>12</sup>

There are important health policy implications associated with the socio-cultural context and demographic changes described above, and they are particularly relevant to women, who are greater users of the health care system, both as patients and carers, than are men. However a distinction must be made between apparent levels of *satisfaction* with health services, and *responsiveness* in relation to delivery of services which takes account of expectations.

Considerable effort has been made at a policy level focusing on strengthening the provision of rural health services, notably in relation to primary care. The attraction and retention of more GPs in rural areas has been the particular target of many policy initiatives. As the data presented in this report indicate, there have also been some markedly successful programs implemented, such as with mammography screening.

These are valuable directions that should be maintained, but there are also continuing concerns in relation to women's access to specialist medical services. In particular, given the earlier motherhood of young rural women, obstetric and paediatric specialists are needed. Other issues include access to counselling services and to female general practitioners. At issue also are the greater rates of violence against women in rural and remote areas, increasing levels of overweight in women outside urban areas, with implications for the prevalence of diabetes particularly in remote areas, the relative paucity of nursing homes and respite care services, and the higher incidence of gynaecological surgery.

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<sup>5</sup> Ibid. p.4.

<sup>6</sup> Department of Health and Family Services. Commonwealth Department of Health and Family Services General Practice in Australia: General Practice Branch 1996.

<sup>7</sup> Elliott-Schmidt R & Strong J. The concept of well-being in a rural setting: understanding health and illness. *Australian Journal of Rural Health*, 1997; 5:59-63.

<sup>8</sup> Larson A, Bell M & Young A. Relation between mobility and women's health, in *the 11<sup>th</sup> Biennial Conference of the Australian Population Association*, Sydney, New South Wales, Australia, 2-4 October 2002.

<sup>9</sup> Teather E. The double bind: being female and being rural: a comparative study of Australia, New Zealand and Canada. *Rural Society*, 1998; 8(3): 209-221.

<sup>10</sup> Alston M. *Australian Rural Women Towards 2000*, edited collection of papers presented at the Rural Australia: Towards 2000 conference (Wagga Wagga, New South Wales: Centre for Rural Social Research, Charles Stuart University 1998).

<sup>11</sup> Dempsey K. *A man's town: Inquiry between women and men in rural Australia* (Melbourne: Oxford University Press 1992).

<sup>12</sup> Office of the Status of Women (OSW). *Women in Australia* (Canberra: OSW 1999).

The questions which arose from discussions between members of the ALSWH research team and members of the Rural Health Division of the Commonwealth Department of Health and Ageing were:

- What is the ‘big picture’ in regard to the health of rural women? What are the frequencies of the top ten health conditions, symptoms and health behaviours identified by rural and remote women in all three age cohorts? What is the incidence of Pap tests and of mammography screening?
- What are the rural/urban differences in help-seeking for depression, violence, and other significant conditions?
- Are there any particular issues of concern to women which are expressed in their qualitative comments?
- What are rural and remote women’s perceptions of, and attitudes towards, palliative care services and nursing homes?

The technical report begins with a brief description of ALSWH. It then sketches ‘the big picture’, drawing on a range of indicators and data on health behaviours and generational lifestyle issues. The next two sections of the report discuss the most common conditions and procedures reported by women in rural and remote areas, and their perceptions and usage of health services. In the final section, studies of rural women’s experiences of seeking help for violence and psychological distress are reviewed.

The data presented in the report demonstrate that:

- 1 There are few differences in physical health among women living in different parts of Australia.
- 2 The prevalence of overweight and obesity is increasing over time in all age groups of Australian women, but Younger and Mid-age women in rural and remote areas are more likely to be overweight or obese than urban women of the same age. This is of concern in regard to a higher incidence of diabetes particularly in remote areas.
- 3 Rates of smoking are higher among women in rural and remote areas in all age groups.
- 4 Rates of moderate to high risk alcohol consumption are higher among Younger than Mid-age women, but are highest for women in remote areas in both age groups. Levels of unsafe drinking are very low among Older women, regardless of area of residence.
- 5 There are lifestyle issues specific to each age cohort of rural women which have implications for their health and well-being:
  - Younger rural women marry earlier, have their children at an earlier age, and want larger families. They are thus more likely to require access to GP and specialist obstetric and gynaecological services. Marriage and motherhood are also associated with weight gain and decline in physical activity.
  - Mid-age rural women are more likely than urban women to provide care to ageing relatives as well as providing childcare for their grandchildren. Mid-age caregivers have poorer health and are also more likely to spend time out of the paid workforce, thus prejudicing their economic wellbeing.
  - Older rural women both give and receive care, but there is a lack of nursing homes, respite care and hospices in rural areas. Older women who move from rural to more urban areas experience better access to health services, but a decline in social support.



- 6 Women in large rural areas rated their access to after hours care better than women in urban areas. Women in large rural areas and urban areas were more satisfied with their access to a hospital than women in small rural and remote areas. However, satisfaction with access to medical specialists declined with distance from an urban centre.
- 7 Mammographic screening is a success story, with approximately 80 per cent of Mid-age women in all areas having had a mammogram in the previous two years.
- 8 Frequency of use of GPs did not vary across areas of residence. However, choice of GP, access to a female GP, and cost of last GP visit were rated less positively according to distance from an urban centre.
- 9 Experiences of abuse were higher among women in rural and remote areas. Barriers perceived by women seeking help for emotional distress in rural and remote areas included difficulties in accessing a GP, a lack of confidentiality in small towns, the difficulty of obtaining specialist mental health care services, and poor access to counselling services.

### **1.3.3. Chronic Disease and Health Service Use**

This report presents information from the ALSWH on women's access and satisfaction with a range of health services; it also investigates the questions which arose from discussions with staff of the Department of Health and Ageing were:

1. How do Australian women evaluate their access to, and satisfaction with, health care services? In particular, what are differences and similarities among women in different age groups; women living in rural versus urban areas; women with different levels of socio-economic status? How do perceptions of access and satisfaction vary depending on major health problems, including diabetes, heart disease, asthma, cancer, poor mental health, and arthritis/joint problems?
2. What are the health care experiences of Australian women with diabetes?
3. What can existing work tell us about the experiences and help-seeking of women with asthma?
4. What can existing work tell us about the experiences and help-seeking of women with heart disease?
5. What can ALSWH tell us about the assessment of socio-economic inequalities in women in three age groups, and what are the associations with health?
6. What is known about the use of Enhanced Primary Care items among older Australian women?

The technical report begins with a brief description of ALSWH, before addressing Questions 1 and 5 above. This section begins by looking at the use of health services by women in disadvantaged groups: women living in rural or remote areas compared with urban women; women who do not speak English at home compared with women who do; women with lower SES compared with more advantaged women; and widows and single women compared with women who are married or in a de facto relationship. The following indicators are used: frequent general practitioner (GP) visits; visits to specialists and hospital doctors; hospital admissions. This is followed by a look at the same indicators of health service use by women with conditions in the national health priority areas.

Questions 1, 3, 4 and 5 are addressed further by examining the responsiveness of the health system to the needs of women – their access to services and their satisfaction with their most recent visit to

a GP, for example. The questions are extended by looking at out-of-pocket costs, indicators of continuity of care and preference for a female GP.

In the final sections the report focuses on four of the national priority conditions: heart disease, diabetes, asthma and musculoskeletal conditions. (Question 6 about the uptake of Enhanced Primary Care items is described in a companion report in this series on Healthy Ageing).

The overall findings of the report include the following:

- Women in rural areas are disadvantaged with respect to health services, especially access and costs. ALSWH will be able to monitor changes in these indicators in response to major policy initiatives to improve health services for people in rural and outer metropolitan areas.
- Women who do not speak English at home report lower levels of access to and satisfaction with the health services than women who do speak English at home – with the differences being comparable to the urban-rural differences in many cases. While this may be due to less ability to “navigate” the health system, this is a topic that requires further work to understand the reasons for the inequities.
- Although women with chronic conditions are high users of health services, their levels of access to and satisfaction with these services are similar to those of women without these health problems.
- Women with lower socio-economic status (SES) are relatively high users of health services and they rate their access and satisfaction with services lower than other women. As lower SES is often associated with living in rural (and outer urban) areas, initiatives to improve services in these locations may reduce SES differentials.
- Younger women are less likely to be satisfied with services than Mid-aged women, and Older women are most satisfied. This may not indicate that the services they receive are objectively poorer, but rather that their expectations are higher.
- Overall GP services are well regarded by most women, with high ratings given for the personal manner of the doctor and doctors’ explanations. The most common complaints relating to the time spent in the waiting room and time spent with the doctor.

#### **1.3.4. Healthy Ageing**

The ageing of the population has substantial implications for women of all generations. Older women are affected because they live longer than men and therefore have a greater probability of experiencing old age-related health effects, and they provide a substantial proportion of formal and informal care for other older people.

Middle aged women are affected because of their increasing levels of labour force participation, and changing retirement patterns, as well as their roles in caring for parents and older husbands. Labour force participation by these women is important in two regards. Firstly, increasing workforce participation will be necessary to sustain national productivity within an ageing population. Secondly, there is evidence that employed women have better health than not-employed women. Presently, around 70% of women aged 45-50 years are in the paid workforce. It is important to understand the factors that influence these women’s continued participation in the work force, the impact on their health, and the impact on the availability of informal caregiving over the next 20 years.

Young women are affected because they are the focus of policy aimed at increasing fertility rates. What are the implications for these young women for education and work, and for achieving equal social standing with men? At present, many women in Australia delay childbearing until they have established themselves financially and vocationally, and may have fewer children as a result of this

delay. In contrast, in other countries where social policies promote a combination of work and parenthood, fertility rates have been maintained at higher levels.

Women are also affected by increasing reliance on private financing of retirement and aged care: women commonly have had less full-time employment, and less superannuation than their male counterparts.

These issues are amenable to exploration using data from the ALSWH. This technical report presents data from these three cohorts of women as they relate to issues of chronological and population ageing.

The questions addressed in the report include:

- What are Younger women's aspirations for work and childbearing?
- What are the factors relating to workforce participation and withdrawal in Mid-aged women, including their socioeconomic status, financial situation, marital status, husband's workforce status, social roles (especially caregiving), health, and health-related behaviours?
- Is the Healthy ageing agenda supported by Older women's behaviours and health status?
- What is the importance of social support in maintaining health for Older women?
- What are the implications of ageing for vulnerable groups?
- To what extent are women taking up opportunities for health assessments under the Enhanced Primary Care Initiative?
- What are the major causes of morbidity among Older women?
- What are the characteristics of family caregivers in the Mid-aged and Older women?

The data presented in the report demonstrate that:

1 Ageing is an issue for women at all life stages:

- Younger women in the Australian Longitudinal Study on Women's Health (ALSWH) mostly aspire to a combination of paid work and motherhood. However, there are regional differences in these aspirations, with Younger rural women aiming to have more children and to becoming mothers at a younger age.
- Mid-age women are not 'retiring' but appear to be increasing the amount of their paid work. These workforce transitions will be further investigated through ALSWH. There is some evidence that employment is linked to better health for women.
- Older women have high self-rated health. They have poorer physical health-related quality of life, but better mental health-related quality of life than Younger and Mid-age ALSWH women.

2 In relation to the healthy ageing agenda, ALSWH data indicate that:

- Many Older women are at high risk of poor nutrition. Women with good nutritional status had better physical and mental health and lower health service use.
- Older women who adopted or maintained some physical activity had better mental health scores than those who didn't.

- The use of medications for "nerves" and "to sleep" among Older women is widespread and often long-term. The use of sleeping medication is associated with poorer health-related quality of life, increased risk of falls and accidents, and with more GP visits.
- 3 Older women are more likely to be caring for someone than being cared for.
  - 4 Health differentials associated with being widowed are transient, with "recovery" for most women occurring within 12-24 months.
  - 5 In regard to common health conditions and procedures reported by Older women:
    - The prevalence of osteoporosis among Older women increased markedly over time. Having osteoporosis was associated with needing help with daily tasks, and with higher use of health services.
    - Incontinence is common and many women do not know how to address this problem.
    - Skin surgery (~30%) and endoscopy (~20%) were the most commonly reported procedures but skin surgery was more prevalent among Older women living in remote areas. Rates of diagnosed mental health conditions were higher in urban than in rural areas. Depression (~7%) was the most commonly reported mental health diagnosis.
  - 6 Data linkage between ALSWH and HIC data indicate that there is slow uptake of Health Assessments by Older women. Less than one third of ALSWH Older women had an assessment but there were very few differences between women who had health assessments and those who did not, either in regard to social factors such as where they lived, or in regard to their health.

### **1.3.5. Physical Activity and Obesity**

Physical activity (PA) and the maintenance of healthy body weight have significant effects on the prevention and management of chronic disease. A recently published joint WHO/FAO report found that there is *convincing* evidence relating (1) regular physical activity to the prevention of obesity, type 2 diabetes, cardiovascular disease, some cancers and osteoporosis, (2) overweight and obesity to the development of type 2 diabetes and some cancers, and (3) low body weight to the development of osteoporosis. Physical activity and weight loss (in those already overweight) are also implicated in the management of many of these chronic diseases.

The Australian Longitudinal Study on Women's Health offers the first opportunity in Australia to explore the relationships between PA and weight and the development and progression of chronic disease in three cohorts of Australian women. The study also provides the opportunity to track changes in PA and Body Mass Index (BMI) through natural life-stages, and to document the individual and social factors which are associated with changes in these variables across the adult life-span.

The report presents data from three cohorts of women who have been participating in the ALSWH since 1996. The report is based on discussions between members of the ALSWH research team and staff from the Division of Population Health in the DoHA, which aimed to identify a number of policy-relevant issues that the ALSWH is able to explore.

The issues addressed include:

- The descriptive epidemiology of PA and BMI and the complementary role of these data to those from other national surveys.
- Issues relating to the measurement of PA, specifically as they relate to inclusion of work-related activity and to the establishment of 'thresholds' for PA guidelines.
- Relationships between PA and BMI with well-being and symptoms at different life stages.
- Relationships between occupation and employment status with PA and BMI
- Changes in PA and BMI over time and the social context of these changes
- Relationships between PA and BMI, and between PA, BMI and health in the three age cohorts.
- Relationships between sitting time, PA and BMI

The overall findings of the report include the following:

- 1 The ALSWH provides the first opportunity in Australia to track changes in patterns of physical activity and BMI, in adult women from diverse socioeconomic, geographic and cultural backgrounds.
- 2 There is potential for the data from this study to shed light on the complex interactions between socio-demographic characteristics and PA and BMI as behavioural risk factors for a multitude of chronic health problems and conditions that affect women at different stages of their lives.
- 3 The addition of food intake data in the third wave of surveys will provide an opportunity to further explore the underlying determinants of overweight and obesity in women.
- 4 The data will be valuable in terms of informing policy and practice in health promotion and preventive health care. Specifically the study will be able to:
  - Provide population data to evaluate competing proposals about the amount of PA which is associated with optimal health (150 or 420 minutes per week).
  - Provide population data on time spent sitting, which will provide further insight into the causes of increasing levels of overweight and obesity.
  - Provide population data which will help to inform the relative importance of PA and BMI on health outcomes. (ie Is it better to be fat and active than thin and inactive?).
  - Assist with evaluation of State and Federal initiatives to promote increased levels of physical activity.

## 2 CONDUCT OF SURVEYS

### 2.1 MAIN COHORTS

#### 2.1.1 Older Cohort Survey 3 (final stages)

Survey 3 of the Older cohort was carried out in 2002, when the women were aged between 76 and 81. The development, piloting and progress were described in Reports 16, 17, 18 and 19. Table 2.1 outlines the final response rates to Survey 3 of the Older cohort.

**Table 2.1. Response Rates for Older Survey 3 (at 12<sup>th</sup> May 2003)**

	N	%
Completed Surveys	8,640	83.4%
Deceased	92	0.9%
Withdrawn	558	5.4%
Will not do survey this time	879	8.5%
No contact to date	79	0.8%
Lost to follow-up	115	1.1%
<b>TOTAL</b>	<b>10,363</b>	

#### 2.1.2. Younger Survey 3 (in progress)

Following the process of development and piloting described in Reports 18 and 19, Survey 3 for the Younger cohort was finalized in December 2002. The letter to participants, survey, reminders and change of details card are included in Appendix 2. These were approved by the University of Newcastle Human Research Ethics Committee, and NCS was selected following the tender process to print, pack, mail and scan the materials.

Table 2.2 summarizes the timetable for Survey 3 of the Younger Cohort, and Table 2.3 the response rates at 12th May 2003.

**Table 2.2 Timetable for Younger Survey 3 (at 23<sup>rd</sup> May 2003)**

Date	Mailout	Items	Number
11 March 2003	Mailout 1	Package mailed including survey, reply-paid envelope, letter of invitation and change of details card	12,796 mailed
7 April 2003	Mailout 2	Thank you/reminder leaflet mailed to all in Mailout 1, except recent withdrawals	12,285 mailed
12 May 2002	Mailout 3	Reminder leaflet to all non-responders	6,008 mailed
June and July 2003	Extra mailouts	Packages will be mailed (as Mailout 1) to: <ul style="list-style-type: none"> <li>• those previously not sent surveys because of no current contact details, who have since given new contact details;</li> <li>• those who elected to have telephone interviews;</li> <li>• those who rang to say they received a reminder but did not receive the first survey;</li> <li>• those who have been tracked following return-to-sender</li> </ul>	As required
June – October 2003	Phone reminder	Reminder phone calls to all non-respondents will be carried out	Approx 5,000

**Table 2.3 Response Rates for Younger Survey 3 (at 23<sup>rd</sup> May 2003)**

	N	%
Completed Surveys	6426	49.4%
Deceased	1	
Withdrawn	15	
Overseas – will not do	10	} 0.2%
Not this time	13	
No contact to date	6548	50.3%
<b>TOTAL</b>	<b>13,013</b>	

Survey 3 of the Younger Cohort is progressing smoothly. While Younger women have been difficult to track in previous years, they are now slightly older (age in 2003 is between 25 and 30) and many appear to be leading somewhat more stable lives. The number who are changing their surnames is still considerably higher than in the Mid-age and Older cohorts, but the Younger women are now much more likely than they were in the past to be listed in Electronic White Pages and Electoral Rolls. Further, many of those who have been travelling overseas have now returned to Australia. There is still a substantial number working and travelling overseas, and once again we have been able to provide a British maildrop for the high proportion of overseas women who have permanent or semi-permanent British addresses. These women are invited to return their surveys to Dr Janice Muir at the University of Cardiff in Wales, who then returns the surveys to the ALSWH office in Newcastle.

### **2.1.3. Mid-age Survey 4 (in development stages)**

Preparation for the fourth survey of the Mid-age cohort, which is scheduled to take place from March 2004, began in March 2003. The Mid-age women will be aged between 53 and 58. The research team is currently identifying questions which may be excluded from Survey 4 of the Mid-age cohort because the information will not have changed; questions which need modification; and questions which might usefully be added. Restrictions on modification include the necessity of maintaining consistency for longitudinal analysis; a perception that a longer survey might be unacceptable to many respondents; additional costs for printing and postage of a longer survey; and the need to pay copyright holders for some materials.

A meeting on the research team is scheduled for 12<sup>th</sup> June 2003 in order to finalize the content of Mid-age Survey 4. This will be submitted to University of Newcastle Human Research Ethics Committee in July, and piloted during August to October. Analysis of pilot responses will include assessment of overall response rates; identification of questions with high rates of missing data, those with no or negligible variance, and those identified by pilot respondents as problematic. Revision of the survey and ethics clearance are scheduled for November, with calls for tenders to go out in December.

## **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 2.4 provides details of substudies and other participant contact activities in the first half of 2003.



**Table 2.4 Substudies underway during the reporting period**

Topic	Student/Collaborator	Funding Source	Research Method	Participant Numbers	Progress to Date (27/5/03)
Violence and Cosmetic Surgery	Assoc Prof Margot Schofield, University of New England	UNE small ARC grant	Phone Interviews	27 mid-age women	In progress. 18 interviews remain to be conducted.
Negotiating Leisure in Couple Relationships	Dr Penny Warner Smith and Em Prof Lois Bryson, Research Centre for Gender & Health Prof Peter Brown, Griffith University Prof Duncan Ironmonger, University of NSW	ARC grant	Focus groups plus event sampling	100 mid age women 100 younger women	Ethics clearance obtained, focus groups being set up
Cardiovascular Disease among Older Women	Prof Annette Dobson & Prof Andrew Wilson University of Queensland	NHMRC grant	Hospital survey plus mailed survey	Phase 1 will use women in hospitals in Brisbane (not cohort members). Survey to be conducted in 2004.	Ethics applications in preparation
Caregiving in Neurodegenerative Conditions	Prof Annette Dobson, Prof Andrew Wilson, Assoc Prof Gerard Byrne, Dr Leigh Tooth, University of Queensland Prof Christina Lee, Research Centre for Gender & Health	NHMRC grant	Focus groups plus mailed survey	500 Mid-age and Older women	Ethics clearance obtained, focus groups being conducted
Contraceptive failure	Dr Edith Weisberg, FPA Health Prof Christina Lee, Research Centre for Gender & Health	FPA Health funds	Mailed survey	1,000 Mid-age women	Ethics clearance obtained, pilot in progress
Risk of Elder Abuse	Assoc Prof Margot Schofield, University of New England	UNE small ARC grant	Phone Interviews	30 Older women	Pilot with non-ALSWH women to be conducted.
Retirement Plans	Dr Christine Everingham, School of Social Sciences, University of Newcastle	Univ Newcastle small ARC grant	Focus Group	12 mid-age women from Newcastle area	Completed
Cigarette Smoking	Ms Liane McDermott, PhD student, School of Population Health, University of Queensland	School of Population Health, University of Qld	Phone Interviews	80 young women smoking adopters, quitters, never-smokers, and always-smokers (on basis of Surveys 1 and 2)	Completed.

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

#### **3.1. TRANSITION VARIABLES**

As Survey 3 is completed and planning begins for Survey 4, methodological and analytical work is increasingly concentrating on the measurement of change. For categorical and ordinal variables, such as smoking status, marital status, and alcohol consumption, it is necessary to define and develop transition variables. In many cases, the questions used to assess these variables have changed between surveys in order to reflect current best practice. This is one of several reasons why the definition of transition variables is complex. Appendix 3 includes definitions of the following transition variables for the Younger cohort between Surveys 1 and 2:

Appendix 3.1 Smoking Transition – Younger Cohort, Surveys 1 & 2

Appendix 3.2. Marital Status Transition – Younger Cohort, Surveys 1 & 2

Appendix 3.3: Transition in Alcohol Consumption – Younger Cohort, Surveys 1 & 2

Appendix 3.4: Transition in Alcohol Binge Frequency, Younger Cohort, Surveys 1 & 2

Appendix 3.5: Transition in Living with Parents – Younger Cohort, Surveys 1 & 2

Appendix 3.6: Transition in Living with Partner – Younger Cohort, Surveys 1 & 2

Appendix 3.7: Transition to Parenthood - Younger Cohort, Surveys 1 & 2

Appendix 3.8: Transition in Qualifications – Younger Cohort, Surveys 1 & 2

Appendix 3.9: Work Status Transition – Younger Cohort, Surveys 1 & 2

#### **3.2. ASSESSMENT OF SOCIOECONOMIC STATUS AMONG YOUNGER WOMEN**

While it is well established that health behaviours, health service use, and health outcomes are strongly influenced by socio-economic status (SES), the measurement of socio-economic status for the majority of the population is problematic. With the exception of full-time employed men in traditional families, there is little consensus about how best to measure socio-economic status. This section focuses on the assessment of SES among the Younger cohort of women. Issues for these women include the relative importance of the family of origin versus the current living situation; the question of categorising women who are currently without income or in low-status part-time jobs while studying for high-status occupations; the effects of motherhood on involvement in education and employment; and the role of partners' income.

This section, prepared by Nadine Smith, reports on a series of analyses which suggest that a single measure of SES is less appropriate than a multi-factorial model of SES, although work on this project is continuing.

##### **3.2.1. Measures**

Women who completed the full versions of both Survey 1 and 2 were included in the analysis (n=9600). Twenty-seven items were included in the initial factor analysis (see Table 3.1). Age left school, country of birth, and language spoken at home were from Survey 1 (these variables were considered unlikely to change with time) with all other variables from Survey 2. For some items, categories were collapsed due to small numbers of women in some categories.

**Table 3.1. Variables used in SES factor analysis of the Younger cohort (N=9600)**

Variable	Variable name in SAS program	Code used in factor analysis	N	%	% miss
<b>Survey 1</b>					
Age left school	y1agesch	1=Less than 17	1433	15.0%	0.4%
		2=17-18 yrs	6313	66.1%	
		3=19 or older	1812	19.0%	
Country of birth	y1cob	0=Other	683	7.2%	0.6%
		1=Australia	8856	92.8%	
Language spoken at home	y1lanhom	0=Other	677	7.1%	1.0%
		1=English	8829	92.9%	
<b>Survey 2</b>					
Educational qualifications (self)	y2educs	1=No formal/Year 10	1043	11.3%	3.6%
		2=Year 12	2230	24.1%	
		3=Trade/apprenticeship/certificate/diploma	2244	24.3%	
		4=University degree	3734	40.4%	
Main current occupation (self)	y2occups	0=No paid job	1520	15.8%	0.0%
		1=Elementary clerical/ labourer	885	9.2%	
		2=Intermediate clerical/ transport/production	1430	14.9%	
		3=Associate-professional/ trade/advanced clerical	2084	21.7%	
		4=Manager/professional	3681	38.3%	
Average weekly income (self)	y2incom	1=\$0-\$119/wk, don't know or want to answer, missing	1734	18.1%	0.0%
		2=\$120-\$499/wk	3498	36.4%	
		3=\$500-699/wk	2704	28.2%	
		4=\$700 or more/wk	1664	17.3%	
Hours of paid work (includes F/T, P/T, casual and work without pay)	y2hrspd	0= None	1399	14.7%	1.1%
		1=1-15	950	10.0%	
		2=16-24	725	7.6%	
		3=25-34	818	8.6%	
		4=35-40	2660	28.0%	
		5=41-48	1790	18.9%	
Employment status- work only	y2worko	0=No work, study only	1466	15.3%	0.4%
		1=Work, work/study	8096	84.7%	
Employment status- study, study/work	y2study	0=No study, work only	6869	71.8%	0.4%
		1=Study, study/work	2693	28.2%	

<b>Variable</b>	<b>Variable name in SAS program</b>	<b>Code used in factor analysis</b>	<b>N</b>	<b>%</b>	<b>% miss</b>
Shift work	y2shiftw	0=No	8051	85.3%	1.6%
		1=Yes	1392	14.7%	
Night work	y2nightw	0=No	8263	87.5%	1.6%
		1=Yes	1180	12.5%	
Work from home	y2homew	0=No	9122	96.6%	1.6%
		1=Yes	321	3.4%	
Own business	y2ownbus	0=No	8925	94.5%	1.6%
		1=Yes	518	5.5%	
Marital status	y2marit	1= Married/defacto	4311	45.1%	0.5%
		0= Never married, separated, widowed, divorced	5241	54.9%	
Area of residence	y2resid	1=Remote	387	4.2%	3.9%
		2=Small rural	2319	25.1%	
		3=Large rural	939	10.2%	
		4=Urban	5583	60.5%	
Health care card	y2hcard	0=Yes	2070	22.4%	3.7%
		1=No	7171	77.6%	
Private hospital insurance	y2hosins	0=No	6612	69.4%	0.8%
		1=Yes	2912	32.5%	
Private ancillary insurance	y2ancins	0=No	6432	67.5%	0.7%
		1=Yes	3097	32.5%	
Live with partner/spouse	y2lwpart	0=No	4660	49.6%	2.1%
		1=Yes	4736	50.4%	
Live with children	y2lwchil	1=No	7523	80.1%	2.1%
		0=Yes	1873	19.9%	
Live with parents	y2lwpare	1=No	7001	74.5%	2.1%
		0=Yes	2395	25.5%	
Live with other family	y2lwofam	1=No	7388	78.6%	2.1%
		0=Yes	2008	21.4%	
Live with non family	y2lwnfam	0=No	7656	81.5%	2.1%
		1=Yes	1740	18.5%	
Main current occupation (Mother)	y2occupm	0=No paid job, don't know, NA, missing	2726	28.4%	0.0%
		1=Elementary clerical/ labourer	1675	17.5%	
		2=Intermediate clerical/ transport/production	1410	14.7%	
		3=Associate-professional/ trade/advanced clerical	1491	15.5%	
		4=Manager/professional	2298	23.9%	

Variable	Variable name in SAS program	Code used in factor analysis	N	%	% miss
Main current occupation (Father)	y2occupf	0=No paid job, don't know, NA, missing	1315	13.7%	0.0%
		1=Elementary clerical/ labourer	1286	13.4%	
		2=Intermediate clerical/ transport/production	864	9.0%	
		3=Associate-professional/ trade/advanced clerical	2736	28.5%	
		4=Manager/professional	3399	35.4%	
Educational qualifications (Mother)	y2educm	0=Don't know/ NA	1236	13.2%	2.3%
		1= No formal/Year 10	3811	40.6%	
		2= Year 12	1380	14.7%	
		3=Trade/apprenticeship/ certificate/diploma	1610	17.2%	
		4=University degree	1340	14.3%	
Educational qualifications (Father)	y2educf	0=Don't know/ NA	1553	16.8%	3.4%
		1= No formal/yr 10	2726	29.4%	
		2= Yr 12	874	9.4%	
		3=Trade/apprenticeship/ certificate/diploma	2515	27.1%	
		4=University degree	1601	17.3%	

### 3.2.2. Statistical analysis

The factor analysis method used followed that of Mishra et al.<sup>13</sup> All demographic and socio-economic variables were considered as ordinal. For each item, response options were arranged in ascending order with respect to expected SES (see Table 3.1). Exploratory factor analysis was conducted using the method of principal components with varimax rotation on the 27 items (including a new work variable, which dichotomised women into those with, and those without, paid employment, regardless of student status). Items which had loadings of 0.5 or lower on all factors or cross-loaded on several factors were subsequently eliminated. Each factor identified was then assessed using the same method used by Anne Russell for SES of the Mid-age and Older cohorts.

#### *Selecting items for inclusion in final factor structure*

Exploratory factor analysis was conducted on three data sets, which dealt with “missing” or “don’t know” responses in three different ways. Each of these data sets resulted in the same factor structure with loadings approximately the same. Since inclusion of “missing” and “don’t know” responses did not alter the results, and in order to maximise sample size, the results of the factor analysis including these categories are presented.

**Step 1.** Exploratory factor analysis was conducted using the method of principal components with varimax rotation on the 27 items. This resulted in area of residence loading less than 0.5 on all factors. This item was removed and factor analysis re-run.

<sup>13</sup> 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 Behavioural Medicine*, 2002; 9(3): 263-285.

**Step 2.** The remaining 26 items resulted in 9 factors being extracted (using Kaiser's Eigenvalue > 1 rule). Four of these factors contained only two related items. Sets of items loading on one factor each were:

- country of birth, language spoken at home
- shift work, night work
- work from home, own business
- private hospital insurance, private ancillary insurance

The factor analysis was re-run with four new variables, each a combination of one of these pairs (country of birth /language; insurance hospital/ancillary; night/shift work; own business/work at home). For example, insurance variable was coded 0=No insurance, 1=Hospital and/or ancillary insurance. This new variable coding still resulted in country of birth/language; insurance hospital/ancillary; night/shift work; own business/work at home being four single item factors not loading greater than 0.3 on any other factor. Further, removing one item from a pair and re-running the factor analysis produced the same result.

All eight variables were eliminated and the factor analysis re-run.

**Step 3.** The remaining 18 items produced 5 factors (using Kaiser's Eigenvalue > 1 rule). Two of these factors reflected living arrangements and/or marital status and cross-loaded strongly with each other. The 'living with non-family members' item cross-loaded most highly with the two factors reflecting living arrangements/marital status, and thus this item was eliminated and the factor analysis re-run.

**Step 4.** Using the remaining 17 items, Kaiser's Eigenvalue > 1 rule and the parallel analysis method suggested 4 factors, while Velicer's MAP test suggested 3 factors. It was decided to extract 4 factors and subject each factor to careful scrutiny.

- Factor 1- SES self
- Factor 2- Live with
- Factor 3- SES parents
- Factor 4- Education

Occupation (self) loaded on both factor 1 (0.524) and factor 4 (0.511). It was decided to include occupation (self) in the sum scores for both SES self and Education.

Factor scores could be calculated for 8259 Younger women; 14% of the 9600 who completed Survey 1 and 2 had missing factor scores. Details of the final factor analysis are presented in Tables 3.2 and 3.3.

**Table 3.2. Results of SES factor analysis of the Younger cohort**

Factor	Eigenvalue	Difference	Proportion	Cumulative
1	4.03	1.47	0.24	0.24
2	2.56	0.59	0.15	0.39
3	1.97	0.85	0.12	0.50
4	1.12	0.16	0.07	0.57
5	0.96	0.07	0.06	0.63
6	0.89	0.10	0.05	0.68
7	0.79	0.08	0.05	0.73
8	0.71	0.02	0.04	0.77
9	0.69	0.02	0.04	0.81
10	0.67	0.11	0.04	0.85
11	0.55	0.05	0.03	0.88
12	0.50	0.07	0.03	0.91
13	0.43	0.03	0.03	0.93
14	0.40	0.04	0.02	0.96
15	0.36	0.12	0.02	0.98
16	0.24	0.13	0.01	0.99
17	0.11		0.01	1.00

**Table 3.3. Factor loadings from unrotated and rotated factor analysis – Younger SES**

Factor	Unrotated				Rotated			
	1	2	3	4	1	2	3	4
Hours of paid work	<b>0.64</b>	0.29	-0.49	-0.23	<b>0.88</b>	-0.06	0.02	-0.05
Work status	<b>0.60</b>	0.21	-0.42	-0.17	<b>0.77</b>	-0.10	0.03	0.00
Average weekly income (self)	<b>0.62</b>	0.31	-0.26	-0.03	<b>0.71</b>	0.03	0.12	0.16
Health care card	<b>0.41</b>	0.39	-0.28	-0.13	<b>0.63</b>	0.15	0.06	-0.02
Live with children	<b>0.67</b>	-0.07	-0.22	0.06	<b>0.57</b>	-0.31	0.10	0.30
Main current occupation (self)	<b>0.72</b>	0.17	0.00	0.25	<b>0.52</b>	-0.05	0.26	<b>0.51</b>
Live with partner/spouse	-0.40	<b>0.78</b>	0.05	0.09	-0.03	<b>0.87</b>	-0.07	-0.12
Marital status	-0.42	<b>0.76</b>	0.06	0.08	-0.05	<b>0.85</b>	-0.08	-0.14
Live with parents	-0.24	<b>0.71</b>	0.14	0.11	0.01	<b>0.76</b>	0.05	-0.01
Live with other family	-0.22	<b>0.60</b>	0.10	0.13	-0.01	<b>0.66</b>	0.01	0.01
Educational qualifications (Mother)	0.44	0.09	<b>0.63</b>	-0.21	0.04	-0.02	<b>0.79</b>	0.10
Educational qualifications (Father)	0.45	0.06	<b>0.56</b>	-0.20	0.07	-0.06	<b>0.73</b>	0.10
Main current occupation (Mother)	0.36	0.11	<b>0.54</b>	-0.23	0.04	0.00	<b>0.69</b>	0.04
Main current occupation (Father)	0.43	0.14	<b>0.48</b>	-0.20	0.13	0.01	<b>0.67</b>	0.08
Age left school	0.37	-0.02	0.04	<b>0.60</b>	0.12	-0.02	-0.02	<b>0.70</b>
Educational qualifications (self)	<b>0.65</b>	0.11	0.15	0.40	0.34	-0.03	0.29	<b>0.64</b>
Study	0.20	-0.23	0.27	<b>0.46</b>	-0.19	-0.15	0.11	<b>0.56</b>

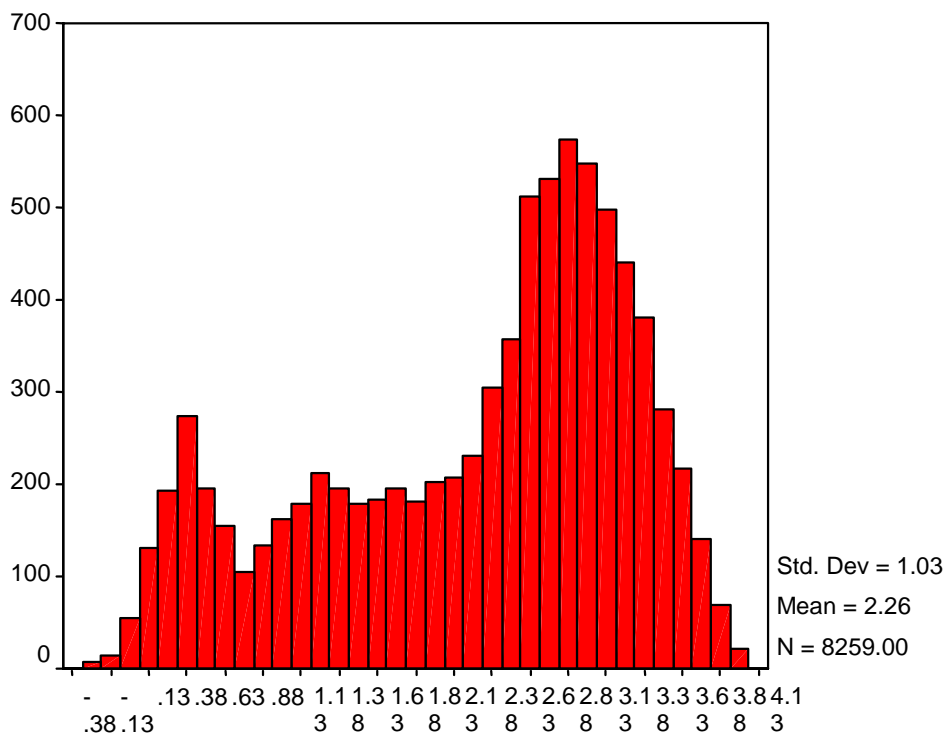
### Factor 1 - SES Self

Items loading onto factor 1 (SES self) were:

- Main current occupation (self)
- Average weekly income (self)
- Hours of paid work
- Live with children
- Health care card
- Work Status

Factor scores for SES self did not have a unimodal distribution and were grouped into three categories (see Figure 3.1). Group 1 included factor scores  $\leq 0.7$ , groups 2 included factor scores  $\leq 2.7$  and groups 3- factor score  $> 2.7$ . Factor score categories were compared to items loading high on the factor (see Table 3.4). Hours of paid work distinguished women in each factor category, with the lowest category comprising mostly those who had no hours of paid work, the second category comprised mostly those with 0-40 hours paid work and the third category comprised mostly those with 35 or more hours.

**Figure 3.1. Histogram of factor scores for SES self – Younger cohort**





**Table 3.4. Factor scores by high loading items for 'SES self' factor**

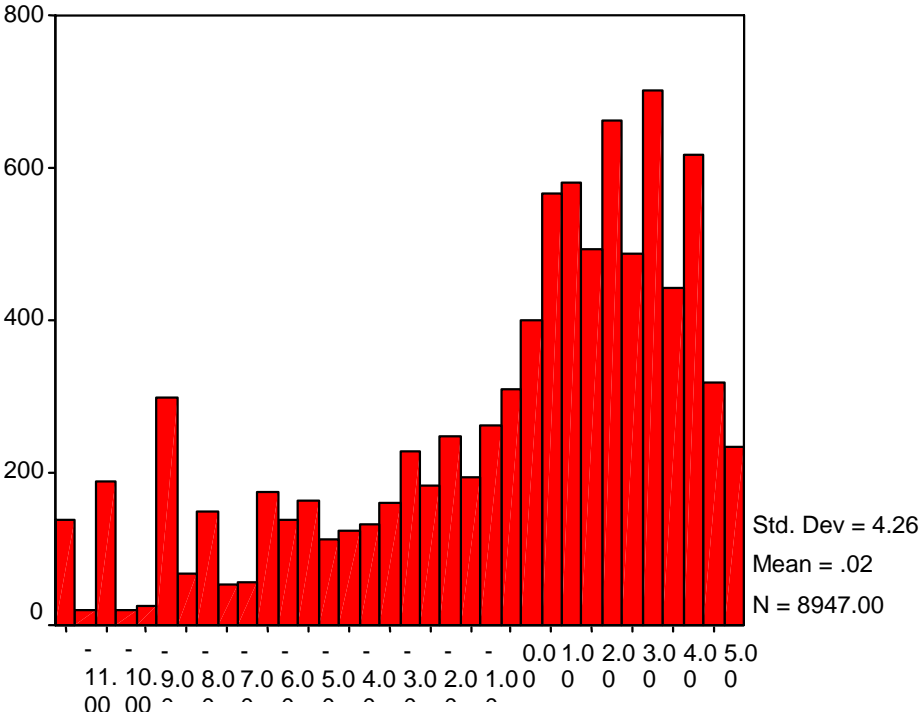
	Factor scores		
	Low	Medium	High
	(<=0.7)	(<=2.7)	(>2.7)
<b>Percent of 8259</b>	12.5	43.3	44.2
	<i>Percent of Low-High</i>		
Hours of paid work			
0= None	96.8	5.8	0.0
1=1-15	3.1	22.4	0.0
2=16-24	0.1	17.7	0.0
3=25-34	0.0	18.8	1.2
4=35-40	0.0	30.3	34.4
5=41-48	0.0	4.2	38.0
6=49+	0.0	0.9	26.3
Employment status- work only			
0=No work, study only	96.8	5.8	0.0
1=Work, work/study	3.2	94.2	100.0
Average weekly income (self)			
1=\$0-\$119/wk, don't know or want to answer, missing	62.1	20.0	2.0
2=\$120-\$499/wk	37.4	59.6	12.9
3=\$500-699/wk	0.5	17.2	47.8
4=\$700 or more/wk	0.0	3.2	37.3
Health care card			
0=Yes	62.8	28.2	4.0
1=No	37.3	71.8	96.0
Live with children			
1=No	33.5	78.7	96.1
0=Yes	66.5	21.3	3.9
Main current occupation (self)			
0=No paid job	69.9	12.0	2.3
1=Elementary clerical/ labourer	7.0	15.8	3.4
2=Intermediate clerical/ transport/production	5.9	21.2	10.7
3=Associate-professional/ trade/advanced clerical	5.4	18.0	30.5
4=Manager/professional	11.7	32.9	58.2

A summed score for SES self was derived as the unweighted sum of codes for the six items loading most strongly on the SES self factor, calculated for all young women with non-missing values for all six items. This score correlated highly with factor scores ( $r=0.956$ ) and was available for 8947 women (6.8% missing of the 9600), compared with 8259 for the factor score.

The Cronbach's alpha coefficient was acceptable (raw alpha= 0.700, standardised alpha=0.805). The difference between the raw and the standardised alpha suggests the standardised variables would produce a slightly more reliable measure.

A summed score for SES self was derived as the unweighted sum of standardized items (mean=0, SD=1) for the six items loading most strongly on the SES self factor, calculated for all young women with non-missing values for all six items (see Figure 3.2). This score correlated highly with factor scores ( $r=0.930$ ) and was available for 8947 women (6.8% missing of the 9600) compared with 8259 for the factor score.

**Figure 3.2. Histogram of sum score of standardised items in SES self factor**



It is recommended that the categorization of hours of paid work as shown in Table 3.5 be used for analyses of this aspect of Younger women’s SES.

**Table 3.5. Categories based on hours of paid work (n=9495, 1.1% missing)**

Category		
Hours of paid work	Number	Percent
None	1399	14.7
1-34 hours per week	2493	26.3
35-40 hours per week	2660	28.0
41 or more hours per week	2943	31.0

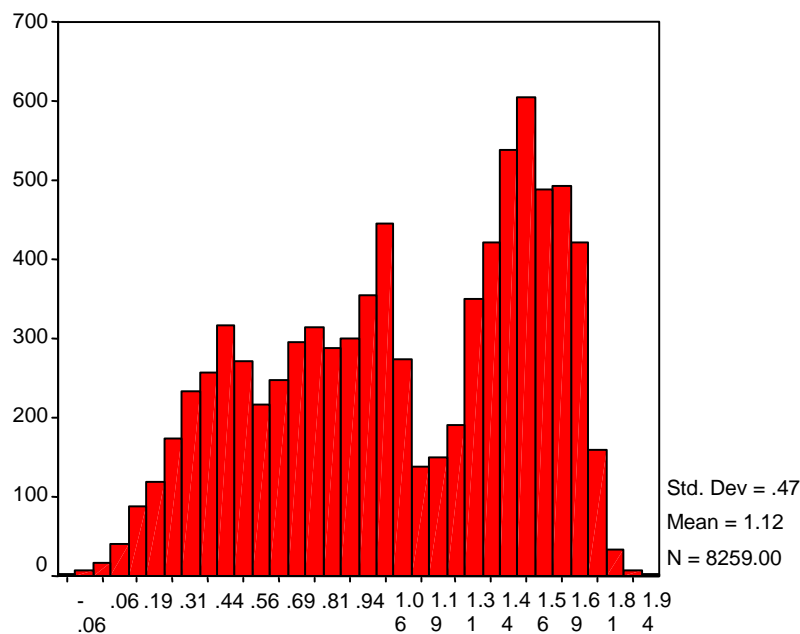
**Factor 2 - Live with**

Items loading onto factor 2 (Live with) were:

- Live with partner/spouse
- Live with parents
- Marital status
- Live with other family

Factor scores for Live With were multi-modal (see Figure 3.3). Four categories based on these modes were created and compared to items loading high on the factor. Group 1 included factor scores  $\leq 0.7$ , groups 2 included factor scores  $\leq 1.2$ , group 3- factor score  $\leq 1.56$  and group 4- factor score  $> 1.56$ . Factor score categories were compared to items loading high on the factor (see Table 3.6).

**Figure 3.3. Histogram of factor scores for Live with**



**Table 3.6. Factor scores by high loading items for 'Live With' factor**

	Factor scores			
	Low ( $\leq 0.7$ )	Medium-Low ( $\leq 1.2$ )	Medium-High ( $\leq 1.56$ )	High ( $> 1.56$ )
<b>Percent of 8259</b>	23.1	29.8	23.6	23.5
	<i>Percent of Low-High</i>			
Live with partner/spouse				
0=No	99.1	88.9	1.4	0.0
1=Yes	0.9	11.1	98.6	100.0
Marital status				
0= Never married, separated, widowed, divorced	99.8	95.3	14.3	0.0
1=Married/Defacto	0.2	4.7	85.7	100.0
Live with parents				
1=No	12.4	86.0	97.6	100.0
0=Yes	87.6	14.0	2.4	0.0
Live with other family				
1=No	30.9	88.2	93.5	99.9
0=Yes	69.1	11.8	6.5	0.1

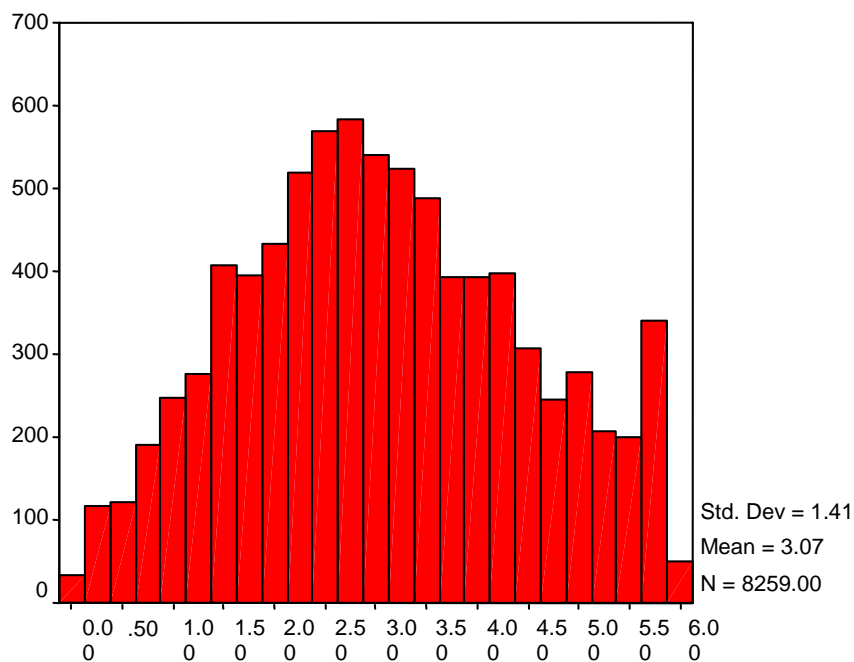
### Factor 3 - SES parents

Items loading onto factor 3 (SES parents) were:

- Main current occupation (Mother)
- Main current occupation (Father)
- Educational qualifications (Mother)
- Educational qualifications (Father)

Factor scores for SES parents were recommended as tertiles, as the factor scores had a unimodal distribution (see Figure 3.4). Tertiles were compared to items loading high on the factor (see Table 3.7). No individual items could easily distinguish women in each tertile.

**Figure 3.4. Histogram of factor scores for SES parents – Younger cohort**



**Table 3.7. Factor scores by high loading items for 'SES parents' factor**

	Factor scores		
	Low (tertile 1)	Medium (tertile 2)	High (tertile 3)
<b>Percent of 8259</b>	33.3	33.3	33.3
	<i>Percent of Low-High</i>		
<b>Educational qualifications (Mother)</b>			
0=Don't know/ NA	32.8	6.1	0.4
1= No formal/Year 10	55.1	55.0	10.3
2= Year 12	8.8	22.8	12.8
3=Trade/apprenticeship/ certificate/diploma	3.0	12.3	37.1
4=University degree	0.3	3.8	39.5
<b>Educational qualifications (Father)</b>			
0=Don't know/ NA	40.4	7.5	1.3
1= No formal/yr 10	45.1	32.8	10.0
2= Yr 12	6.5	13.8	7.9
3=Trade/apprenticeship/ certificate/diploma	7.1	38.3	39.9
4=University degree	0.9	7.6	43.8
<b>Main current occupation (Mother)</b>			
0=No paid job, don't know, NA, missing	51.6	25.5	5.6
1=Elementary clerical/ labourer	29.9	19.9	2.5
2=Intermediate clerical/ transport/production	12.4	23.5	9.5
3=Associate-professional/ trade/advanced clerical	4.8	19.9	22.3
4=Manager/professional	1.3	11.2	60.0
<b>Main current occupation (Father)</b>			
0=No paid job, don't know, NA, missing	29.9	5.7	1.2
1=Elementary clerical/ labourer	30.4	7.0	2.5
2=Intermediate clerical/ transport/production	15.2	9.7	2.8
3=Associate-professional/ trade/advanced clerical	17.0	45.0	24.9
4=Manager/professional	7.5	32.7	68.6

A summed score for SES parents was derived as the unweighted sum of codes for the four items loading most strongly on the SES parents factor, calculated for all Younger women with non-missing values for all four items. This score correlated highly with factor scores ( $r=0.995$ ) and was available for 9196 women (4.2% missing of the 9600) compared with 8259 for the factor score.

The Cronbach's alpha coefficient was acceptable (raw alpha= 0.708, standardized alpha=0.714). The categorization of the raw sum scores as shown in Table 3.8 is recommended for use in any analysis where SES of parents is of interest.

**Table 3.8. Categories based on sum scores for 'SES parents' (n=9196, 4.2% missing at least one item included in sum score)**

Category		
Score	Number	Percent
Low (sum score 2-8)	3221	35.0
Medium (sum score 9-12)	3178	34.6
High (sum score 13-18)	2797	30.4

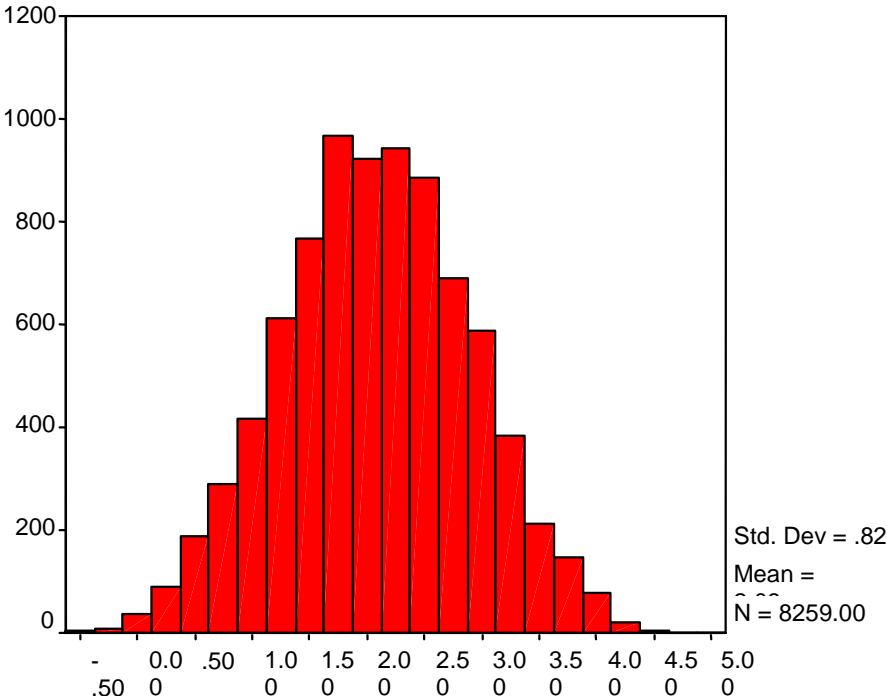
**Factor 4 - Education**

Items loading onto factor 4 (Education) were:

- Age left school
- Study
- Educational qualifications (self)
- Occupation (self)

Factor scores for Education were recommended as tertiles as the factor scores had a unimodal distribution (see Figure 3.5). Tertiles were compared to items loading high on the factor (see Table 3.9). No individual items could easily distinguish women in each tertile.

**Figure 3.5. Histogram of factor scores for Education**



**Table 3.9. Factor scores by high loading items for 'Education' factor**

	Factor scores		
	Low (tertile 1)	Medium (tertile 2)	High (tertile 3)
<b>Percent of 8259</b>	33.3	33.3	33.3
	<i>Percent of Low-High</i>		
Age left school			
1=Less than 17	34.4	7.2	1.7
2=17-18 yrs	62.2	79.4	57.3
3=19 or older	3.4	13.4	41.0
Educational qualifications (self)			
1=No formal/Year 10	30.4	1.9	0.1
2=Year 12	40.0	24.0	8.4
3=Trade/apprenticeship/ certificate/diploma	23.8	32.3	16.8
4=University degree	6.0	41.9	74.7
Employment status- study, study/work			
0=No study, work only	89.5	77.5	48.6
1=Study, study/work	10.5	22.5	51.4
Main current occupation (self)			
0=No paid job	28.1	12.8	3.9
1=Elementary clerical/ labourer	20.1	6.4	1.2
2=Intermediate clerical/ transport/production	22.9	15.6	5.4
3=Associate-professional/ trade/advanced clerical	23.3	28.8	14.0
4=Manager/professional	5.7	36.4	75.6

A summed score for Education was derived as the unweighted sum of codes for the four items loading most strongly on the Education factor, calculated for all Younger women with non-missing values for all four items. This score correlated moderately with factor scores ( $r=0.806$ ) and was available for 9176 women (4.4% missing of the 9600) compared with 8259 for the factor score.

The Cronbach's alpha coefficient was only moderate (raw alpha= 0.582, standardised alpha=0.586). Categorization of the raw sum scores is shown in Table 3.10.

Since the correlation between factor scores and sum scores is not very high (i.e  $<0.9$ ) and since the Cronbach's alpha coefficient is fairly low, sum scores are not appropriate for this factor and it is recommended that factor or sum scores of education not be used. Any of the four items in this factor could be used separately, if appropriate to a specific analysis.

**Table 3.10. Categories based on sum scores for 'Education' (n=9176, 4.4% missing at least one item in sum score)**

Category		
Score	Number	Percent
Low (sum score 3-7)	2773	30.2
Medium (sum score 8-10)	3169	34.5
High (sum score 11-13)	3234	35.2

### **3.3. WORK FORCE PARTICIPATION VARIABLES IN THE MID-AGE COHORT - SURVEYS 1, 2 & 3**

Another major task which has arisen from the needs of the research syntheses has been the definition of labour force participation, and labour force transitions, for the Mid-age women across all three surveys. As for SES, standard definitions and methods of assessment are based on a traditional male model of engagement with the labour force. Women's relationships with paid labour are often more variable than men's, and women without paid work are more difficult to categorise as they tend to be more heterogeneous than men (more likely to be engaged in unpaid family work at home, or voluntary work, and less likely to categorise themselves as "unemployed"). The following section, prepared by Jess Ford and Anne Russell, summarises the processes involved in defining these variables.

#### **3.3.1. Labour Force Definitions**

The ABS framework for labour force participation has been used as a basis for definitions. According to this framework, members of the population are classified into one of three mutually exclusive categories of **labour force participation**:

- In the labour force – Employed (works for pay, profit or commission; or works in a family business or on a farm)
- In the labour force – Unemployed (Both looking for and available for work)
- Not in the labour force (includes home duties, retired, voluntarily inactive, unable to work, persons in institution, unpaid voluntary work)

Employed persons can be further categorised with respect to payment for work:

- Paid workers are in full-time, part-time or casual paid employment;
- Unpaid workers are employed without pay in a family business or on a farm (known as contributing family workers in the ABS framework).

Employed persons can also be categorised with respect to the number of hours worked:

- 1-34 hours (consistent with part-time work)
- 35 hours or more (consistent with full-time work)



### 3.3.2. Derived Variables

#### *Surveys 1, 2 & 3*

Based on the ABS framework, three variables have been created from each survey of the mid-age cohort to describe employment:

- Labour force participation: M1LabF, M2LabF and M3LabF;
- Payment for work: M1Paid, M2Paid and M3Paid
- Hours worked: M1Hrs, M2Hrs and M3Hrs.

The survey items used to define labour force participation and payment for work were available for women completing Survey 1, the full and short versions of Survey 2 and the full version only of Survey 3. These items appear in Appendix 3.11.

Classification for labour force participation at Survey 1 was based on a single item concerning main current employment, and at Survey 2 on a similar item including both main and secondary occupation. At Survey 3, the 7 items in question 71 recorded the hours spent in various occupational activities. Women were defined as being involved in any activity if they reported 1 or more hours spent on that activity. The number and percent of women in each category of labour force participation and payment for work is shown in Table 3.11.

**Table 3.11. Number and percent of women in each category of labour force participation and payment for work.**

	Mid-age Survey 1		Mid-age Survey 2		Mid-age Survey 3	
	N	%	N	%	N	%
<b>Surveys for which items are available</b>	Full		Full & short		Full	
<b>Total completing surveys</b>	<b>14 099</b>		<b>12 338</b>		<b>11 196</b>	
Not classified	181		210		73	
<b>Classified for the variable:</b>	M1LabF		M2Labf		M3Labf	
Not in the labour force	3 406	24.5	2 414	19.9	2 396	21.5
In the labour force- Employed	10 251	73.6	9 531	78.6	8 580	77.1
In the labour force- Unemployed	261	1.9	183	1.5	147	1.3
<b>Total classified</b>	<b>13 918</b>	<b>100.0</b>	<b>12 128</b>	<b>100.0</b>	<b>11 123</b>	<b>100.0</b>
<b>Classified for the variable:</b>	M1Paid		M2Paid		M3Paid	
Employed – Paid	9 173	65.9	8 592	70.8	7 309	65.7
Employed - Not paid	1 078	7.7	939	7.7	1 271	11.4
Not in the labour force or unemployed	3 667	26.4	2 597	21.4	2 543	22.9
<b>Total classified</b>	<b>13 918</b>	<b>100.0</b>	<b>12 128</b>	<b>99.9</b>	<b>11 123</b>	<b>100.0</b>

The survey items used to define the number of hours worked were available for women completing Survey 1 and the full version of Surveys 2 and 3. Classification for hours worked was based on a single item at Surveys 1 and 2. At Survey 3, hours worked was calculated as the total time reported for 4 activities

- full-time paid work (M3Q71a)
- permanent part-time paid work (M3Q71b)
- casual paid work (M3Q71c)
- work without pay, eg. family business (M3Q71e)

Responses for each activity were assigned an estimated number of hours (mostly the median for the response class) and a total calculated. The total was categorized according to the response categories for individual items.

The number and percent of women in each category of hours worked are shown in Table 3.12. Differences between surveys have resulted in higher rates of missing data at Surveys 1 and 2 than at Survey 3, mainly because of lack of information on the number of hours worked without payment in the first two surveys.

**Table 3.12. Number and percent of women in each category for number of hour worked (Full survey data for Surveys 1, 2 & 3)**

	Mid 1		Mid 2		Mid 3	
	N	%	N	%	N	%
<b>Surveys for which relevant items are available</b>	Full		Full		Full	
<b>Total completing surveys</b>	<b>14 099</b>		<b>11 648</b>		<b>11 196</b>	
Not classified	1 306	9.3	1 005	7.5	73	0.7
<b>Classified for the variable:</b>	M1HrsWork		M2HrsWork		M3HrsWork	
1-15 hours	1 337	10.5	1 140	10.7	1 364	12.3
16-24 hours	1 497	11.7	1 260	11.8	1 296	11.6
25-34 hours	1 587	12.4	1 492	14.0	1 312	11.8
35-40 hours	2 733	21.4	2 336	22.0	2 192	19.7
41-48 hours	1 250	9.8	1 175	11.0	1 179	10.6
49 hours or more	722	5.6	776	7.3	1 237	11.1
Not in the labour force or unemployed	3 667	28.9	2 464	23.2	2 543	22.9
<b>Total classified</b>	<b>12 793</b>	<b>100.0</b>	<b>10 643</b>	<b>100.0</b>	<b>11 123</b>	<b>100.0</b>

These tables are summarised in tree diagrams in Appendix 3.11.

Table 3.13 shows of rates of missing data among employed women who are paid and those who are not. There were no unpaid, employed women who could be classified for hours worked at Survey 1, while 69% were classified at Survey 2 and 100% were classified at Survey 3.

**Table 3.13. Number and percent of women in paid and unpaid employment who were classified for number of hour worked (Full survey data for Surveys 1, 2 & 3)**

Hours of work		Mid 1		Mid 2		Mid 3	
		Not paid	Paid	Not paid	Paid	Not paid	Paid
Not classified	N	1 078	47	617	180	0	0
	%	100.0	0.5	69.2	2.2	0.0	0.0
Classified	N	0	9 126	275	7 904	1 271	7 309
	%	0.0	99.5	30.8	97.8	100.0	100.0
<b>Total</b>	<b>N</b>	<b>1 078</b>	<b>9 173</b>	<b>892</b>	<b>8 084</b>	<b>1 271</b>	<b>7 309</b>

Other areas in which differences between surveys may have affected responses are described here.

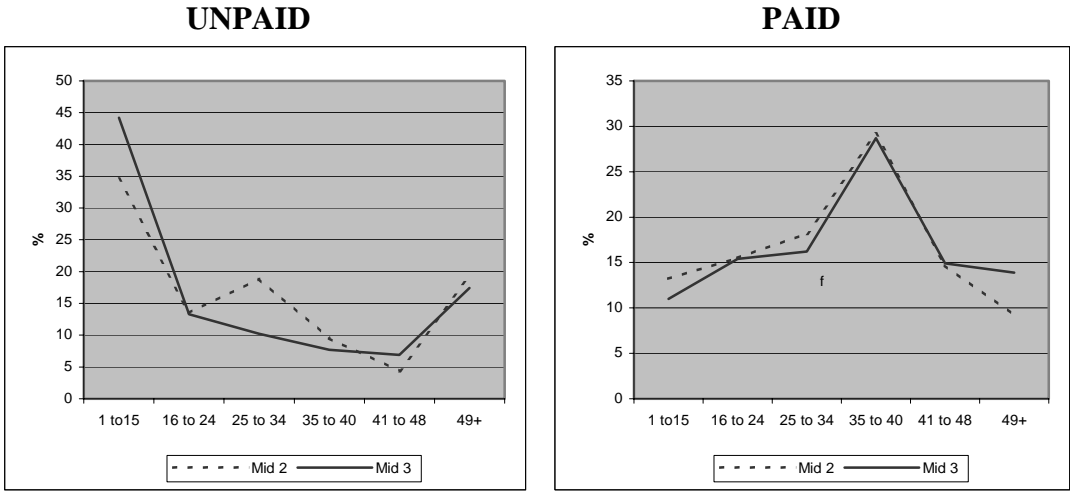
At Surveys 2 and 3, when women could report more than one activity, women were classified as being in paid employment if they reported any paid activity; only women reporting unpaid activity only are classified as unpaid. Thus, the ‘paid’ category includes women in paid employment only and those in both paid and unpaid employment. At Survey 2, 8% (448/7 904) of women classed as in paid employment also reported work without pay. At Survey 3, 21% (1 532/7 309) of women classed as in paid employment also reported work without pay. This may reflect real change between surveys, or methodological differences resulting from differences in wording. It may be preferable to consider women with a mixed work pattern (i.e. both paid and unpaid work) as a separate group.

The pattern of hours worked was significantly different for women in paid and unpaid work at Surveys 2 and 3 ( $p < 0.0001$  both surveys, Table 3.14), although the pattern for each group was similar at both surveys (Figure 3.6).

**Table 3.14. Percent of women in paid and unpaid employment working various hours**

Hours worked	Mid 2		Mid 3	
	Not paid	Paid	Not paid	Paid
1 to 15 hours	34.6	13.2	44.2	11.0
16 to 24 hours	13.5	15.5	13.3	15.4
25 to 34 hours	18.9	18.2	10.2	16.2
35 to 40 hours	9.5	29.2	7.7	28.7
41 to 48 hours	4.4	14.7	6.9	14.9
49 hours or more	19.3	9.2	17.4	13.9

**Figure 3.6. Percent of women in unpaid and paid employment working various hours**



Generally, analysis of payment for work and hours worked will be restricted to employed women, and hours worked will be further collapsed to two categories 1 to 34 hours or 35 hours or more. Percentages for these summary variables are shown in Table 3.15.

**Table 3.15. Number and percent of employed women - summary employment variables**

	Mid 1		Mid 2		Mid 3	
	N	%	N	%	N	%
<b>'Employed' women</b>	<b>10 251</b>		<b>9 531</b>		<b>8 580</b>	
<b>Payment for work</b>						
Employed - Paid	9 173	89.5	8 592	90.1	7 309	85.2
Employed - Not paid	1 078	10.5	939	9.9	1 271	14.8
<b>Total</b>	<b>10 251</b>	<b>100.0</b>	<b>9 531</b>	<b>100.0</b>	<b>8 580</b>	<b>100.0</b>
<b>Hours worked</b>						
1-15 hours	1 337	14.7	1 140	13.9	1 364	15.9
16-24 hours	1 497	16.4	1 260	15.4	1 296	15.1
25-34 hours	1 587	17.4	1 492	18.2	1 312	15.3
35-40 hours	2 733	29.9	2 336	28.6	2 192	25.5
41-48 hours	1 250	13.7	1 175	14.3	1 179	13.7
49 hours or more	722	7.9	776	9.5	1 237	14.4
1 to 34 hours (part-time)	4 421	48.4	3 892	47.6	3 972	46.3
35 hours or more (full-time)	4 705	51.6	4 287	52.4	4 608	53.7
<b>Total</b>	<b>9 126</b>	<b>100.0</b>	<b>8 179</b>	<b>100.0</b>	<b>8 580</b>	<b>100.0</b>

### 3.3.3. Employment Transition

Categories for employment transition between Surveys 1 and 2 were developed for women with valid data for hours worked at both Survey 1 and Survey 2 (n = 9,961, see Table 3.16). Similarly, categories for employment transition between Surveys 2 and 3 were developed for women with valid data for hours worked at both Survey 2 and Survey 3 (n = 9 467, see Table 3.17). The most common transition category between Survey 1 and Survey 2, and Survey 2 and Survey 3, was to maintain full-time employment.

**Table 3.16. Number and percent in each category of employment transition between Surveys 1 and 2 (Mid-age cohort).**

Code	Employment transition	N	%
<b>Mid 1 Part-time</b>			
1	▪ Mid 2 same hours	1 692	17.0
2	▪ Mid 2 more hours (full- or part-time)	1 203	12.1
3	▪ Mid 2 fewer hours	394	4.0
<b>Mid 1 Full-time</b>			
4	▪ Mid 2 same hours	2 224	22.3
5	▪ Mid 2 more hours	568	5.7
6	▪ Mid 2 fewer (full- or part-time)	894	9.0
<b>Mid 1 Full- or part-time</b>			
9	▪ Mid 2 Not in the labour force or unemployed	489	4.9
<b>Mid 1 Not in the labour force or unemployed</b>			
7	▪ Mid 2 Not in the labour force or unemployed	1 790	18.0
8	▪ Mid 2 Part/full-time	707	7.1

**Table 3.17: Number and percent in each category of employment transition between Surveys 2 and 3 (Mid-age cohort).**

Code	Employment transition	N	%
<b>Mid 2 Part-time</b>			
1	▪ Mid 3 same hours	1 119	11.8
2	▪ Mid 3 more hours (full- or part-time)	1 505	15.9
3	▪ Mid 3 fewer hours	473	5.0
<b>Mid 2 Full-time</b>			
4	▪ Mid 3 same hours	1 673	17.7
5	▪ Mid 3 more hours	1 095	11.6
6	▪ Mid 3 fewer (full- or part-time)	1 069	11.3
<b>Mid 2 Full- or part-time</b>			
9	▪ Mid 3 Not in the labour force or unemployed	422	4.5
<b>Mid 2 Not in the labour force or unemployed</b>			
7	▪ Mid 3 Not in the labour force or unemployed	1 391	14.7
8	▪ Mid 3 Part/full-time	720	7.6

### 3.4. MOS SOCIAL SUPPORT SCALE: VALIDATION ANALYSES

This section reports on work by Anne Russell and Nadine Smith, on the use of the MOS Social Support Scale in the Younger and Mid-age cohorts.

#### 3.4.1. Background

Research on measuring social support has focussed on two dimensions, functional and structural support. The perceived availability of functional support is believed to be the most essential component, with structural support making a lesser contribution to well-being.

*Functional support* is the degree to which interpersonal relationships serve particular functions. Functions most often identified are:

- Emotional support – the expression of positive affect, empathic understanding, the encouragement of expressions of feelings;
- Informational support – the offering of advice, information, guidance or feedback that can provide a solution to a problem;
- Tangible (instrumental) support – the offering of material aid or behavioural assistance;
- Positive social interaction – companionship or the availability of other persons to share leisure and recreational activities;
- Appraisal support – the provision of information relevant to self-evaluation; and
- Affectionate support – expressions of love and affection.

*Structural support* refers to the quantity, rather than the quality, of interpersonal relationships. Aspects of structural support are:

- The existence and number of social relationships, such as a partner, friend or group membership; and
- The degree of interconnectedness in social relationships/networks.

#### 3.4.2. The MOS Social Support Index

The MOS social support index<sup>14</sup> measures functional support and is derived from a 19-item, multi-dimensional, self-administered survey. Results of multi-trait scaling analysis supported an overall index based on 19 items making up four functional support subscales: emotional/informational support (8 items); tangible support (4 items); affectionate support (3 items); and positive social interaction (3 items); plus one additional item not included in subscales. The index was developed among 2,987 patients aged 19 to 98 years, with common, treatable chronic conditions (hypertension, diabetes, coronary heart disease and depression).

##### *Source items*

Table 3.18 shows the 19 items, grouped to show subscale membership. The item order used in ALSWH surveys is indicated with alphabetic notation. Response options are shown in Table 3.19.

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<sup>14</sup> Sherbourne CD & Stewart AL. The MOS Social Support Survey. *Social Science & Medicine*, 1991; 32(6): 705-714.

**Table 3.18 Items forming the MOS Social Support Index – 19 items that form the full index and 6 items chosen as a subset**

<b>People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kind of support available to you if you need it</b> <i>(Mark one circle on each line)</i>		
<b>6 Items<sup>a</sup></b>	<b>19 Items<sup>b</sup></b>	
<b><i>Tangible Support Subscale (TAN)</i></b>		
a	a	Someone to help you if you are confined to bed
b	d	Someone to take you to the doctor if you need it
	k	Someone to prepare your meals if you are unable to do it yourself
	n	Someone to help with daily chores if you are sick
<b><i>Affectionate Support Subscale (AFF)</i></b>		
	e	Someone who shows you love and affection
	i	Someone who hugs you
f	s	Someone to love and make you feel wanted
<b><i>Positive Social Interaction Subscale (POS)</i></b>		
	f	Someone to have a good time with
	j	Someone to get together with for relaxation
e	q	Someone to do something enjoyable with
<b><i>Emotional/Informational Support Subscale (EMI)</i></b>		
	b	Someone you can count on to listen to you when you need to talk
	h	Someone to confide in or talk to about yourself or your problems
c	o	Someone to share your most private worries and fears with
	r	Someone who understands your problems
	c	Someone to give you good advice about a crisis
	g	Someone to give you information to help you understand a situation
	l	Someone whose advice you really want
d	p	Someone to turn to for suggestions about how to deal with a personal problem
<b><i>Included in Index but not subscales</i></b>		
	m	Someone to do things with to help you get your mind off things

Notes: (a) Young cohort-Survey 2, question 89

(b) Mid-age cohort Survey 2, question 82

**Table 3.19 Response options and scoring for MOS Social Support Scale**

<b>Response option</b>	<b>None of the time</b>	<b>A little of the time</b>	<b>Some of the time</b>	<b>Most of the time times</b>	<b>All of the time</b>
<i>Score</i>	1	2	3	4	5

*Subscale and Index Calculations*

A complete description of subscale and index scoring used by Sherbourne and Stewart can be found at [www.rand.org/health/surveys/mos.descrip.html](http://www.rand.org/health/surveys/mos.descrip.html). Briefly, the subscale scores and overall index are calculated as the means of the relevant items. To compare with means published by Sherbourne and Stewart, subscale scores should be transformed to a 0 - 100 scale. Higher scores indicate more support.

**3.4.3. Analysis of 19 Items from MOS Social Support Index included in Survey 2 of the Mid-Age Cohort**

The distribution of responses to the 19 MOS Social Support Index items included as question 82 of Survey 2 for the mid-age cohort is shown in Table 3.20. Women reported high levels of support for all items, with support available ‘all the time’ between 28% for item m and 56% for item e. Mean scores for individual items ranged from 3.5 (item a) to 4.2 (item e). The highest mean scores were mostly from items of the Affectionate Support and Positive Social Interaction subscales.

**Table 3.20 Distribution (%) and mean (SD) of responses, and percent missing, for 19 MOS social support items Mid-age Survey 2, full survey only (N= 11 648)**

Availability of someone to:	Time that support is available					Mean (SD)	Percent Missing
	None	Little	Some	Most	All		
<b><i>Tangible Support</i></b>							
a Help you if you are confined to bed	12.4	13.2	15.5	28.4	30.5	3.5 (1.4)	2.6
d Take you to the doctor if you need it	5.5	7.6	10.2	30.6	46.2	4.0 (1.2)	1.9
k Prepare your meals if you are unable to do it yourself	8.4	12.6	15.2	27.0	36.7	3.7 (1.3)	1.8
n Help with daily chores if you are sick	8.5	15.0	16.8	27.8	31.9	3.6 (1.3)	1.8
<b><i>Affectionate Support</i></b>							
e Show you love and affection	2.7	6.5	10.2	24.9	55.8	4.2 (1.0)	2.0
i Hug you	5.4	9.4	13.8	23.6	47.9	4.0 (1.2)	2.2
s Love and make you feel wanted	5.5	8.0	11.7	24.8	50.0	4.1 (1.2)	1.5
<b><i>Positive Social Interaction</i></b>							
f Have a good time with	3.2	8.4	15.8	29.9	42.7	4.0 (1.1)	1.8



Availability of someone to:	Time that support is available					Mean (SD)	Percent Missing
	None	Little	Some	Most	All		
j Get together with for relaxation	4.0	9.9	18.1	29.9	38.2	3.9 (1.1)	1.6
q Do something enjoyable with	3.0	9.2	17.4	32.4	38.1	3.9 (1.1)	1.9
<b><i>Emotional/Informational Support</i></b>							
b Count on to listen to you when you need to talk	4.2	10.7	15.5	32.6	37.1	3.9 (1.1)	1.6
c Give you good advice about a crisis	7.3	10.7	18.1	33.5	30.5	3.7 (1.2)	2.5
g Give you information to help you understand a situation	4.8	9.1	19.2	37.0	30.0	3.8 (1.1)	1.8
h Confide in or talk to about yourself or your problems	5.7	10.7	15.8	32.0	35.8	3.8 (1.2)	1.6
l Advice you really want	7.8	12.1	18.6	31.6	29.9	3.6 (1.2)	2.1
o Share your most private worries and fears with	10.5	12.6	13.8	27.2	35.9	3.7 (1.4)	1.7
p Turn to for suggestions about how to deal with a personal problem	7.1	13.3	16.8	30.5	32.3	3.7 (1.2)	1.7
r Understand your problems	6.0	11.8	18.8	32.2	31.2	3.7 (1.2)	1.6
Not Included in a Subscale							
m Do things with to help you get your mind off things	6.0	13.1	21.5	31.0	28.4	3.6 (1.2)	2.0

There were low levels of missing data for all items. The maximum percent missing was 2.6% (item a) and most women completed all items (Table 3.21).

**Table 3.21 Number and percent of 19 social support items missing – Mid-age Survey 2**

Number of missing items	Number	Percent	Cumulative Number	Cumulative Percent
0	10 617	91.2	10 617	91.2
1	643	5.5	11 260	96.7
2	134	1.2	11 394	97.8
3	41	0.4	11 435	98.2
4	22	0.2	11 457	98.4
5	10	0.1	11 467	98.5
6-18	60	5.2	11 527	99.0
19	121	1.0	11 648	100

Factor analysis was performed on responses from 10 617 mid-age women completing all 19 items. Inter-item correlations are shown in Appendix 3.11, Table A1. The strong internal consistency for the 19 items (Cronbach's alpha 0.97) may indicate redundancy of some items. High correlations with item totals were also observed (Table 3.22).

**Table 3.22 Item-total correlations and Cronbach's alpha for standardized variables with deletion of individual items**

Deleted Item	Correlation with Total	Cronbach's Alpha
None		<b>0.971</b>
<i>Tangible Support</i>		
a	0.625	0.972
d	0.703	0.971
k	0.743	0.971
n	0.763	0.971
<i>Affectionate Support</i>		
e	0.766	0.970
i	0.749	0.971
s	0.774	0.970
<i>Positive Social Interaction</i>		
f	0.824	0.970
j	0.833	0.970
q	0.849	0.970
<i>Emotional/Informational Support</i>		
b	0.767	0.970
c	0.768	0.970
g	0.809	0.970
h	0.820	0.970
l	0.836	0.970
o	0.840	0.970
p	0.850	0.970
r	0.854	0.969
<i>Not Included in a Subscale</i>		
m	0.849	0.970

The number of factors supported by the data was tested by the eigenvalues-greater-than-one rule, parallel analysis and Velicer's MAP test. There were 3 factors with eigenvalues greater than one (Table 3.23) and they explained approximately 67%, 7% and 6% of the variance respectively. Three factors were also suggested by parallel analysis, which retains factors with observed eigenvalues greater than the corresponding simulated values. A strict interpretation of the MAP test, based on minimum average squared correlation, suggests 5 factors, however 3 or 4 factors are equally plausible with only small differences for these 3 steps.

**Table 3.23 Results of Factor Analysis – social support items, Mid Survey 2**

Factor	Eigenvalue	Difference	Proportion	Simulated Eigenvalue <sup>a</sup>		Average <sup>b</sup>
				Mean	95 <sup>th</sup> Percentile	Squared Correlation
1	<b>12.649</b>	11.333	<b>0.666</b>	1.073	<b>1.086</b>	0.0493
2	<b>1.316</b>	0.171	<b>0.069</b>	1.061	<b>1.070</b>	0.0355
3	<b>1.145</b>	0.558	<b>0.060</b>	1.052	<b>1.059</b>	0.0268
4	0.586	0.145	0.031	1.043	1.049	0.0251
5	0.442	0.087	0.023	1.035	1.043	<b>0.0250</b>
6	0.355	0.026	0.019	1.027	1.034	0.0311
7	0.329	0.041	0.017	1.020	1.028	0.0429
8	0.288	0.037	0.015	1.013	1.019	0.0533
9	0.251	0.022	0.013	1.006	1.013	0.0602
10	0.229	0.031	0.012	1.000	1.005	0.0740
11	0.198	0.003	0.010	0.993	0.999	0.0933
12	0.195	0.021	0.010	0.986	0.991	0.1170
13	0.174	0.017	0.009	0.979	0.985	0.1472
14	0.158	0.004	0.008	0.973	0.978	0.1801
15	0.153	0.005	0.008	0.965	0.971	0.2670
16	0.148	0.006	0.008	0.957	0.964	0.3644
17	0.142	0.012	0.008	0.949	0.956	0.5382
18	0.131	0.021	0.007	0.939	0.948	1
19	0.110	0.006	1	0.928	0.939	

<sup>a</sup> Parallel Analysis

<sup>b</sup> Velicer's MAP test

For the principal components solution, loadings on the second and third factor were weak (<0.4) for almost all items (Table 3.24). Factor loadings from varimax (orthogonal) and promax (oblique) rotations more strongly suggest three factors, with the oblique solution showing the lowest levels of cross-loading. Correlations between factors are: 1&2: 0.65; 1 & 3: 0.58; 2&3: 0.56.

The factors extracted are generally consistent with the findings of Sherbourne and Stewart, although the data from these middle aged women support the combination of two of the original subscales. All 8 items from emotional/informational support subscale load strongly (>0.7) onto factor 1 and weakly onto the other 2 factors. Six items, 3 each from the affectionate support and positive social interaction subscales, load strongly onto factor 2 and weakly onto factor 3, with some cross-loading of items q and j onto factor 1. The 4 tangible support items load strongly onto factor 3 and weakly on to the other 2 factors. Item m (not a component of any subscale in the Sherbourne and Stewart analysis) loads most strongly onto the first factor.

**Table 3.24. Factor loadings from rotated and un-rotated analyses**

Item	Un-Rotated			Varimax			Promax			Community Estimates
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3	
<i>Emotional/Informational Support</i>										
h	<b>0.845</b>	-0.348	-0.075	<b>0.831</b>	0.325	0.212	<b>0.903</b>	0.061	-0.048	0.840
p	<b>0.873</b>	-0.288	-0.095	<b>0.807</b>	0.389	0.226	<b>0.844</b>	0.149	-0.040	0.853
c	<b>0.794</b>	-0.391	0.137	<b>0.806</b>	0.158	0.356	<b>0.896</b>	-0.183	0.178	0.802
b	<b>0.794</b>	-0.340	0.145	<b>0.767</b>	0.184	0.378	<b>0.828</b>	-0.139	0.208	0.765
r	<b>0.876</b>	-0.221	-0.136	<b>0.764</b>	0.454	0.212	<b>0.767</b>	0.253	-0.062	0.835
o	<b>0.863</b>	-0.194	-0.138	<b>0.736</b>	0.463	0.213	<b>0.725</b>	0.276	-0.056	0.801
l	<b>0.859</b>	-0.208	-0.034	<b>0.733</b>	0.398	0.294	<b>0.724</b>	0.172	0.062	0.782
g	<b>0.833</b>	-0.198	0.002	<b>0.704</b>	0.370	0.316	<b>0.691</b>	0.140	0.104	0.733
<i>Not in a subscale</i>										
m	<b>0.870</b>	-0.048	-0.039	<b>0.623</b>	<b>0.505</b>	0.342	<b>0.525</b>	0.340	0.123	0.760
<i>Affectionate Support</i>										
s	<b>0.798</b>	0.367	-0.254	0.292	<b>0.830</b>	0.251	-0.009	<b>0.909</b>	0.021	0.808
i	<b>0.776</b>	0.381	-0.237	0.265	<b>0.816</b>	0.259	-0.041	<b>0.899</b>	0.041	0.812
e	<b>0.790</b>	0.370	-0.171	0.276	<b>0.783</b>	0.317	-0.031	<b>0.837</b>	0.119	0.777
<i>Positive Social Interaction</i>										
f	<b>0.846</b>	0.217	-0.211	0.430	<b>0.741</b>	0.264	0.202	<b>0.742</b>	0.021	0.808
q	<b>0.869</b>	0.146	-0.186	0.496	<b>0.701</b>	0.274	0.302	<b>0.659</b>	0.026	0.812
j	<b>0.855</b>	0.106	-0.185	<b>0.515</b>	<b>0.667</b>	0.257	0.344	<b>0.613</b>	0.009	0.777
<i>Tangible Support</i>										
a	<b>0.651</b>	0.148	<b>0.595</b>	0.268	0.162	<b>0.837</b>	0.054	-0.095	<b>0.913</b>	0.800
d	<b>0.727</b>	0.118	0.432	0.357	0.275	<b>0.725</b>	0.159	0.046	<b>0.723</b>	0.728
n	<b>0.783</b>	0.239	0.359	0.314	0.420	<b>0.724</b>	0.046	0.251	<b>0.698</b>	0.800
k	<b>0.765</b>	0.287	0.342	0.268	0.448	<b>0.716</b>	-0.022	0.306	<b>0.693</b>	0.785
<b>Total</b>										<b>15.110</b>

### **Recommendation –Number of Factors**

Based on project criteria, the 19 MOS social support items in the Mid-age cohort data from Survey 2 comprise 3 factors. These criteria are:

- High factor loadings - all exceed 0.7 (criterion: >0.5)
- High item-to-total correlation - all exceed 0.6 (criterion: 0.5)
- Cronbach's alpha - high at 0.97 (criterion: 0.6)
- Communalities - all exceed 0.7 (criterion: 0.5).

The properties of factor scores and summed scores were investigated for women with complete data. Three factor scores were calculated for each rotation method as the total of item scores, weighted by the standardised scoring coefficients from the factor analysis. Factors were labelled as emotional/informational support, tangible support and affectionate support/positive social interaction. Summed scores were calculated as the mean of unweighted item scores for each of the 4 subscales identified by Sherbourne and Stewart, for the 19-item Index, for the 6-item abbreviated index and for the combined affectionate support and positive social interaction subscales. The transformed scores derived by Sherbourne and Stewart and described previously (range 0-100) were calculated for the 4 subscales and the 19-item Social Support Index. All scores were highly skewed and none conformed to a normal distribution. Mean scores ranged 1 to 5 and there was a strong ceiling effect, with between 11% and 42% of women scoring 5 (support available 'all of the time' for all items). The transformed mean scores are similar to those reported by Sherbourne and Stewart (Table 3.25).

**Table 3.25 Transformed social support scores for the mid-age WHA cohort and subjects with chronic conditions assessed by Sherbourne and Stewart**

Transformed Mean Score	WHA – Mid 2			Sherbourne & Stewart	
	Mean	SD	Median	Mean	SD
Emotional/informational support	68.9	26.8	75.00	69.6	25.5
Affectionate support	78.0	26.7	91.67	73.3	28.3
Positive social interaction	74.2	25.9	75.00	69.8	26.0
Tangible support	68.6	27.9	75.00	69.8	28.5
Social Support Index - Full	71.0	24.2	75.00	70.1	24.2

### **Recommendation - Scoring**

Since the correlations between mean scores and the factor scores from the promax rotation were high (>0.7) for all factors (Table 3.26), and since unweighted sum-based scores are more readily compared with other populations, the use of mean scores on these four scales is recommended. The use of the tangible support subscale is not recommended.

**Table 3.26 Correlation of factor scores and mean scores**

<b>Mean Score</b>	<b>Correlation with Varimax Factor Score</b>	<b>Correlation with Promax Factor Score</b>
	<i>Emotional/informational support factor</i>	
Emotional/informational support	0.866	0.904
	<i>Affectionate support/positive social interaction factor</i>	
Affectionate support/positive social interaction	0.819	0.985
Affectionate support	0.844	0.960
Positive social interaction	0.716	0.916
	<i>Tangible support factor</i>	
Tangible support	0.489	0.985

However, the non-normality of the mean score distributions suggests these variables need to be categorised before statistical analysis. Categories have been defined to reflect the original item scoring (Table 3.27).

**Table 3.27 Score categories and codes**

<b>Time that support is available</b>	<b>Mean Scores</b>	<b>Code</b>
All of the time (Reference category)	> 4 and ≤5	1
Most of the time	> 3 and ≤4	2
Some of the time	> 2 and ≤3	3
None or a little of the time	≤ 2	4

Finally, the abbreviated index appears to provide an adequate overall measure of social support. Among the women responding to all items, there is a strong correlation (0.98) between the mean of 19 items and the mean of 6 items and there was strong agreement for the categorical variable (kappa: 0.80, 95% CI: 0.79-0.81; weighted kappa: 0.86, 95% CI: 0.86-0.87). The table for agreement is in Appendix Table A4.

*Recommendation – Variables for Mid-age Survey 2*

Categorical variables based on mean scores are recommended for:

- emotional/informational support
- tangible support
- affectionate support/positive social interaction and
- the abbreviated social support index.

### 3.4.4. Analysis of 6 items from MOS Social Support Index included in Survey 2 of the Younger Cohort

#### *Item Responses*

The distribution of responses to the six MOS Social Support Index items included as question 89 on Survey 2 for the younger cohort is shown in Table 3.28. Women reported high levels of support for all items, with support available ‘all the time’ reported by 36% for item a, up to 56% for item f. Means for individual items were similar for items b to f, but lower for item a.

**Table 3.28** Distribution of responses to 6 social support items, among women from the younger cohort completing the full Survey 2 (9 598)

Availability of someone to:	Time that support is available					% Missing	Mean (SD)
	None	Little	Some	Most	All		
a Help you if you are confined to bed (TAN)	9	11	14	30	36	2.1	3.7 (1.3)
b Take you to the doctor if you need it (TAN)	5	9	11	31	44	1.2	4.0 (1.2)
c Share worries and fears with (EMI)	4	10	12	27	47	0.8	4.0 (1.2)
d Turn to for suggestions about how to deal with a personal problem (EMI)	3	9	13	28	48	0.7	4.1 (1.1)
e Do something enjoyable with (POS)	1	6	14	34	45	0.6	4.1 (1.0)
f Love and make you feel wanted (AFF)	4	8	11	22	56	0.8	4.2 (1.1)

There were low levels of missing data for all items (Table 3.29); the highest percent missing was 2.1% for item a.

**Table 3.29** Number and percent of items missing from 6 social support items

Number of missing items	Number	Percent	Cumulative Number	Cumulative Percent
0	9 316	97.1	9 316	97.1
1	160	1.7	9 476	98.7
2	60	0.6	9 536	99.4
3	15	0.2	9 551	99.5
4	9	0.1	9 560	99.6
5	4	0.0	9 564	99.7
6	34	0.4	9 598	100.0

Factor analysis was performed on responses from 9 316 young women completing all 6 items. There was strong internal consistency for the 6 items (Cronbach's alpha 0.89) and high correlation with item totals with the deletion of individual items. The factor analysis for the 6 items (Table 3.30) suggests a one-factor solution, with that factor explaining 64% of the variance. However, the second factor has an eigenvalue close to 1 and a 2-factor solution was also investigated. Factor loadings for an analysis forcing 2 factors, with and without rotation, are shown in Table 3.31.

<b>Factor</b>	<b>Eigenvalue</b>	<b>Difference</b>	<b>Proportion</b>	<b>Cumulative</b>
<b>1</b>	<b>3.83</b>	2.86	<b>0.637</b>	0.637
2	0.97	0.46	0.161	0.799
3	0.51	0.19	0.085	0.885
4	0.33	0.11	0.054	0.939
5	0.22	0.08	0.037	0.976
6	0.14	0.02		

**Table 3.31 Factor loadings from analysis forcing 2 factors- varimax rotated and unrotated solutions**

Item	Un-rotated		Varimax	
	Factor 1	Factor 2	Factor 1	Factor 2
d	0.86	-0.26	0.87	0.27
c	0.86	-0.28	0.86	0.25
e	0.82	-0.23	0.81	0.27
f	0.77	-0.27	0.79	0.21
b	0.75	0.56	0.24	0.89
a	0.72	0.62	0.31	0.91

The analysis without rotation suggests a single factor, with high loadings for all items. In this analysis items c, d, e and f have weak negative loadings onto the second factor and items a and b have strong loadings onto the second factor, although these latter items load less strongly onto the second than the first factor. The varimax rotation strongly suggest a 2-factor solution, with items c, d, e and f forming the first factor and items a and b forming the second. The amplification of factor 2 on rotation may be caused by the underlying distribution of item responses, with a strong preference in all items for the responses indicating regular access to support. While these items load onto different factors when all 19 items are included, when responses to only 6 items are available a single factor is preferable.



Table 3.32 contains a summary of the 1-factor solution, including communality estimates and scoring coefficients.

**Table 3.32 Summary of the 1-Factor Solution**

<b>Item</b>	<b>Communality Estimates</b>	<b>Factor Loading</b>	<b>Standardized Scoring Coefficients</b>
d	0.741	0.860	0.225
c	0.739	0.859	0.225
e	0.675	0.821	0.215
f	0.590	0.768	0.201
b	0.569	0.754	0.197
a	0.512	0.715	0.187

*Recommendation – Number of Factors*

Based on project criteria for derived factors, the 6 items would seem to be acceptable as a single factor in the Younger cohort data.

- High factor loadings – all exceed 0.7 (criterion: >0.5)
- Item-to-total correlation - all exceed 0.6 (criterion: 0.5)
- Cronbach’s alpha - high at 0.9 (criterion: 0.6)
- Communalities - all exceed the criterion, 0.50

For each woman with complete data, a composite factor score and a summed score were calculated. The factor score is the total of item scores, weighted by the standardised scoring coefficients from the factor analysis. The summed score was the total of the unweighted item scores. Mean substitution for missing values was not considered appropriate as the mean for item a was lower than for other items. The correlation between the factor score and the summed score was 0.99 and the plot of the scores showed a strong linear relationship. Since the summed score was demonstrated to be valid, it was selected in preference to the factor score because it can be more readily transferred to other populations. The summed score ranged from 6 to 30, with mean 24.2 and standard deviation 5.4. There was a strong ceiling effect, with 20% (1,859) of women who completed all items having the maximal score of 30 (support available ‘All of the time’ for all 6 items). This continuous variable was divided into five roughly equal categories. An alternative based on mean score is also shown. This approach has the advantage that it reflects the original response categories, and better separates those with low and high levels of support. Tables 3.33a and 3.33b show the distribution of both scores.

**Table 3.33a Distribution of Total scores**

<b>Code</b>	<b>Category</b>	<b>Total scores</b>	<b>Number</b>	<b>Percent</b>
1	Quintile 1	Less than 20 (6 to19)	1 808	19.4
2	Quintile 2	20 to 23	1 605	17.2
3	Quintile 3	24 to 26	1 945	20.9
4	Quintile 4	27 to 29	2 099	22.5
5	Quintile 5	30	1 859	20.0

**Table 3.33b Distribution of Mean scores**

<b>Code</b>	<b>Category</b>	<b>Mean Scores</b>	<b>Number</b>	<b>Percent</b>
1	All of the time (Reference)	> 4 and ≤5	5 175	55.6
2	Most of the time	> 3 and ≤4	2 639	28.3
3	Some of the time	> 2 and ≤3	1 136	12.2
4	None or a little of the time	≤ 2	366	3.9

*Recommendation – Scoring and Variable for Younger age Survey 2*

An ordinal variable based on mean score is recommended as the most appropriate form for statistical analysis. Support available ‘all the time’ is proposed as the reference category.

**3.4.5. Comparison of Survey 2 Responses to the 6 MOS Social Support Index Items asked of both the Mid-Age and Younger Cohorts**

The full 19 item MOS Social Support Index was included in Survey 2 of the Mid-age cohort. Six of these items were also included in Survey 2 of the Younger cohort. This comparison is based on responses from 9 316 young women and 11 135 mid-age women completing all 6 of these items.

*Item Responses*

There were statistically significant differences between the two age cohorts in the response distributions of all 6 items ( $p < 0.0001$ ). Generally, Mid-age women reported lower levels of support, although responses were strongly skewed towards high levels of support in both age groups (Table 3.34).

All aspects of the factor analysis of these 6 items were similar for both age groups (Tables 3.35 and 3.36). Both factor analyses support a single factor, explaining 64% and 67% of the variance in the younger and mid-age cohorts respectively (Table 3.35).

**Table 3.34 Distribution (%) and mean (SD) of responses to 6 social support items included in Survey 2 of the Younger and Mid-age cohorts.**

Availability of someone to:	Item and Cohort	Time that support is available					Mean (SD)
		None	Little	Some	Most	All	
Help you if you are confined to bed	a) Younger	9	11	14	30	36	3.7 (1.3)
	a) Mid-age	12	13	16	29	31	3.5 (1.4)
Take you to the doctor if you need it	b) Younger	5	9	11	31	44	4.0 (1.2)
	d) Mid-age	5	8	10	31	46	4.0 (1.2)
Share worries and fears with	c) Younger	4	10	12	27	48	4.0 (1.2)
	o) Mid-age	10	13	14	27	36	3.7 (1.3)
Turn to for suggestions about how to deal with a personal problem	d) Younger	3	9	13	28	48	4.1 (1.1)
	p) Mid-age	7	13	17	31	32	3.7 (1.2)
Do something enjoyable with	e) Younger	1	6	14	34	45	4.2 (1.0)
	q) Mid-age	3	9	17	32	38	3.9 (1.1)
Love and make you feel wanted	f) Younger	4	8	11	22	56	4.2 (1.1)
	s) Mid-age	5	8	12	25	50	4.1 (1.2)

**Table 3.35 Results of Factor Analysis**

Factor	Younger		Mid-age	
	Eigenvalue	Proportion	Eigenvalue	Proportion
1	3.83	0.637	4.04	0.673
2	0.97	0.161	0.81	0.136
3	0.51	0.085	0.46	0.077
4	0.33	0.054	0.33	0.055
5	0.22	0.037	0.23	0.039
6	0.14	1	0.12	1

**Table 3.36 Summary of Un-rotated Factor Solution**

Item		Communality Estimates		Factor Loading		Standardized Scoring Coefficients	
		Y	M	Y	M	Y	M
d	p	0.741	0.766	0.860	0.875	0.225	0.217
c	o	0.739	0.771	0.859	0.878	0.225	0.217
e	q	0.675	0.763	0.821	0.874	0.215	0.216
f	s	0.590	0.664	0.768	0.815	0.201	0.202
b	d	0.569	0.590	0.754	0.768	0.197	0.190
a	a	0.512	0.484	0.715	0.696	0.187	0.172

## **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 at Newcastle 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. Increasingly we are finding email addresses to be useful, especially among the younger women. While in previous years, email addresses seemed to be fairly short-lived and unstable, it now appears that individuals are likely to keep the same email address for many years.

## **5. DISSEMINATION OF STUDY FINDINGS**

### **5.1 WEB SITE**

The Study web site is maintained at the University of Newcastle. In 2003 we have appointed a communications graduate, Rachael Gill, on a part-time basis to concentrate on developing and updating the web site. Rachael has revised, updated and (where necessary) re-formatted and re-named all files and directories associated with the web site, and is now working on updating the information provided in those files so that the web site reflects all aspects of the current project. Once all material has been updated, we plan to provide more information and links to activities at the University of Queensland and elsewhere, as well as to install a password-protected section for work in progress, internal reports, minutes, agendas, and other internal information.

### **5.2. PUBLICATIONS**

#### **5.2.1 Papers Published**

**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*, 2002; 26(6): 563-570.**

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.

**Ball K, Brown W & Crawford D. Who does not gain weight? Prevalence and predictors of weight maintenance in young women. *International Journal of Obesity*, 2002; 26: 1570-1578.**

**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 (e.g., 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.

**Parker G & Lee C. Violence and Abuse: An assessment of mid-aged Australian women's experiences. *Australian Psychologist*, 2002; 37(2): 142-148**

Little systematic research has been conducted in Australia to develop a picture of women's experiences of violence and abuse across their lifetimes. The present study was designed to address this deficiency by assessing the prevalence of different types of abuse, the situations in which they occur, how women have coped, and the effect of abusive encounters on general health and well-being. Using self-report questionnaires, data were obtained from 1159 women aged 48-53, previously recruited in the Women's Health Australia longitudinal project. Measures included descriptors of the abuse and help-seeking behaviours, and measures of general well-being and depression. The most frequently reported forms of abuse were emotional, physical and sexual. These overwhelmingly occurred in the home, and across all life stages, but mostly in adulthood, and most commonly on an occasional or weekly basis. Perpetrators were usually persons known to the victim. Most abusive encounters were not recent but, when experienced, had persisted over time and had regularly affected mental and physical health. The majority of women had discussed their circumstances with close relatives, friends, or professional persons. One-third of respondents had reported abusive episodes to the police, and almost half of these had found it helpful to do so. The data show that abuse is a fact of life for many Australian women, and demonstrate a continuing need for appropriate prevention and intervention strategies.

**Warner-Smith P & Mishra G. 'Happy hours': Women's wellbeing and their satisfaction with hours of paid work. *Health Sociology Review*, 2002; 11(1&2): 39-48**

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.

**Young AF & Dobson AJ. The decline in bulk billing and increase in out-of-pocket costs for general practice consultations in rural areas of Australia, 1995-2001. *Medical Journal of Australia*, 2003; 178: 122-126.**

**Objective:** To describe the changes in bulk billing and out-of-pocket costs for general practice consultations, in 1995 – 2001.

**Design:** Analysis of survey data 1996-2001 from the Australian Longitudinal Study on Women's Health, linked with Medicare and Department of Veterans' Affairs data on general practice consultations, 1995-2001.

**Participants:** 22,633 women in the longitudinal study who gave consent to record linkage. In 1996, women in the young cohort were 18-23 years (n=6,219), the mid age cohort were 45-50 years (n=8,883) and the older cohort were 70-75 years (n=7,531).

**Outcome measures:** Individual out-of-pocket costs for general practice consultations by calendar year, urban/rural area of residence, age, frequency of attendance, self-rated health and education.

**Results:** For each age group and year studied, the use of bulk billing was lower in rural areas than in urban areas. For example, in 2000 the percentage of women in rural and urban areas who had all their GP consultations bulk billed was: young women 31% vs 52%, mid age women 24% vs 45%, older women 58% vs 79%. There has been a steady decline in bulk billing for general practice consultations in rural areas since 1995. The average out-of-pocket cost per consultation for women in rural areas was higher and continuing to increase, compared to women living in urban areas. These regional differences persist even for women in poor health and lower socioeconomic status. After adjusting for age, health and socioeconomic factors, women living in urban areas were more than twice as likely to have all

their consultations bulk billed as women living in rural areas (young: OR 2.4 (95% CI: 2.1,2.7); mid age: OR 2.5 (2.3,2.8); older age: OR 2.6 (2.3,2.9)).

**Conclusions:** The geographic inequity in costs of general practice consultations in Australia is worsening. Policy changes are required to enable women in rural and remote areas to have access to affordable health care services.

**Schofield MJ & Mishra GD. Validity of self-report screening scale for elder abuse: Women's Health Australia study. *The Gerontologist*, 2003; 43(1): 110-120.**

**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.

**Miller YD, Brown WJ, Smith N & Chiarelli P. Managing urinary incontinence across the lifespan. *International Journal of Behavioral Medicine*, 2003; 10(2): 143-161.**

**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.

**Bell S & Lee C. Perceived stress revisited: the Women's Health Australia project young cohort. *Psychology, Health and Medicine*; 2003; 8(3): 343-353.**

The Perceived Stress Questionnaire for Young Women (PSQYW) was assessed for internal reliability and validity, for longitudinal changes, and for relationships with health and health behaviours. Participants in the Young cohort of the Women's Health Australia project completed the questionnaire as part of a wide-ranging survey on health and well-being in both 1996 and 2000. The 9,683 women were aged between 18 and 23 years at Survey 1, and 22 and 27 years at Survey 2. The PSQYW was shown to have reproducible internal reliability and validity. Overall stress levels increased across the four years. For individual items the largest increase in stress was in the life domain of relationship with partner/spouse, whilst the largest decrease was in the life domain of study. Higher levels of stress were associated with current smoking, and weekly alcohol bingeing. Of the health outcomes, mental health was found to have the strongest relationship with stress, with a measure of symptoms contributing some unique explanation, and physical health having only a minimal relationship. As this cohort is in the midst of the transition to adulthood future research should include the contextual factor of life course position, with another key area for future research being the causal relationship between stress and health over time.

### **5.2.2. Papers Accepted**

**Miller YD, Brown WJ, Chiarelli P & Russell A. Urinary incontinence across the lifespan. *Neurourology and Urodynamics*.**

The objectives of the current study were (1) to measure type and severity of urinary leakage and (2) to investigate the association between these factors and age-related life events and conditions in three groups of Australian women with a history of urinary leakage. Five-hundred participants were randomly selected from women in the young (aged 18-22 in 1996), mid-age (aged 45-50) and older (70-75) cohorts of the Australian Longitudinal Study of Women's Health (ALSWH) who had reported leaking urine in the 1996 baseline survey. Details about leaking urine (frequency, severity, situations) and associated factors (pregnancy, childbirth, Body Mass Index) were sought through self-report mailed follow-up surveys in 1999. Response rates were 50%, 83%, and 80% in the young, mid-age and older women respectively. Most women confirmed that they had leaked urine in the last month, and the majority of these were cases of 'mixed' incontinence. 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 heavy smoking in young women, past or present use of hormone replacement therapy in older women, and BMI and history of hysterectomy in mid-age women.

**Lee C & Russell A. Effects of physical activity on emotional well-being among older Australian women: cross-sectional and longitudinal analyses. *Journal of Psychosomatic Research*.**



**Objective:** To explore relationships between physical activity and mental health, cross-sectionally and longitudinally, in a large cohort of older Australian women.

**Method:** Women in their 70s participating in the Australian Longitudinal Study on Women's Health responded in 1996 (aged 70-75) and in 1999 (aged 73-78). Cross-sectional data were analyzed for 10,063 women and longitudinal data for 6,472. Self-reports were used to categorize women into four categories of physical activity at each time point, as well as to define four physical activity transition categories across the three-year period. Outcome variables for the cross-sectional analyses were the mental health component score, and mental health subscales, of the SF-36. The longitudinal analyses focused on changes in these variables. Confounders included the physical health component scale of the SF-36, marital status, body mass index, and life events. Adjustment for baseline scores was included for the longitudinal analyses.

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

**Conclusion:** Physical activity is associated with emotional well-being among a population cohort of older women both cross-sectionally and longitudinally, supporting the need for the promotion of appropriate physical activity in this age group.

**Mishra GD, Brown WJ & Dobson AJ. Physical and mental health 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.

**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.

**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 diagnosis 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.

**Young AF, Russell A & Powers JR. The sense of belonging to a neighbourhood: can it be measured and is it related to health and well being in older women? *Social Science and Medicine*.**

This study investigates the sense of belonging to a neighbourhood among 9,445 women aged 73-78 years participating in the Australian Longitudinal Study on Women's Health. Thirteen items designed to measure sense of neighbourhood were included in the survey of the older women in 1999. Survey data provided a range of measures of demographic, social and health-related factors to assess scale construct validity. Factor analysis showed that seven of the items loaded on one factor that had good face validity and construct validity as a measure of the sense of neighbourhood. Two of the remaining items related to neighbourhood safety and comprised a factor. A better sense of neighbourhood was associated with better physical and mental health, lower stress, better social support and being physically active. Women who had lived longer at their present address had a better sense of belonging to their neighbourhood, as did women living in non-urban areas and who were better able to manage on their income. Feeling safe in the neighbourhood was least likely in urban areas, increased in rural townships, and was most likely in rural and remote areas. Older women living alone felt less safe, as did women who were less able to manage on their income. This study has identified two sets of items that form valid measures of aspects of the social environment of older women, namely the sense of neighbourhood and feelings of safety. These findings make a contribution to our understanding of the relationship between feelings of belonging to a neighbourhood and health in older women.

**Guillemin M. Understanding illness: Using drawings as research method. *Qualitative Health Research*.**

Until recently, the use of visual methodologies was restricted to the use of photographic studies in anthropological research. In the last decade, visual methodologies are becoming more evident in social research. These methodologies encompass various visual media, including film, video, still photography, electronic visual media, and material artefacts. In this article, I examine the use of drawings as a research tool and suggest it is most effectively used as an adjunct to other social research methods. Using examples from two studies, I illustrate

how drawings can be used to explore the ways that people understand illness conditions. Drawings are both visual products and processes of meaning making. I argue that the act of drawing necessitates knowledge production, with a visual product as its outcome. Although the examples presented in this article are limited to illness conditions, I argue that drawings offer a rich and insightful research method to explore how people make sense of their world.

**Brown WJ & Trost SG. Life transitions and changing physical activity patterns in young women. *American Journal of Preventive Medicine*.**

**Background:** Physical activity patterns are likely to change in young adulthood in line with the changes to lifestyle which occur in the transition from adolescence to adulthood. The aim of this study was to ascertain whether key life events experienced by young women in their early twenties are associated with physical activity.

**Methods:** Four year follow-up of 7,281 participants in the Australian Longitudinal Study of Women's Health who were aged 18-23 at baseline, with self reported measures of physical activity, life events, BMI and socio-demographic variables.

**Results:** The cross-sectional data indicated little change in physical activity between baseline (57% 'active') and follow-up (56% 'active'). However, for almost 40% of the sample, physical activity category changed between baseline and follow-up, with approximately 20% of the women changing from being 'active' to 'inactive' and another 20% changing from being 'inactive' to 'active'. After adjustment for age, other socio-demographic variables, BMI and physical activity at baseline, women who reported being married, having a first or subsequent child or beginning paid work were more likely to be inactive at follow-up than those who did not report these events. Those who reported returning to study or changed work conditions (unspecified) were less likely to be inactive at follow-up.

**Conclusions:** The results suggest that life events such as getting married, having children and starting work are associated with decreased levels of physical activity in young adult women. Strategies are needed to promote maintenance of activity at the time when most women experience these key life-stage transitions.

**Mishra GD, Ball K, Dobson AJ & Byles JE. Do socio-economic gradients in women's health widen over time or with age? *Social Science and Medicine*.**

**Objective:** To investigate changes over time in women's well-being and health service use by socio-economic status and whether these varied by age.

**Design:** Longitudinal study with two years follow-up for mid-age cohort and three years for older cohort.

**Participants:** 12,328 mid-age women (aged 45-50 years in 1996) and 10,430 older women (aged 70-75 years) from the Australian Longitudinal Study on Women's Health.

**Main outcome measures:** Changes in the eight dimensions of the Short Form General Health Survey (SF-36) adjusted for baseline scores, lifestyle and behavioural factors; health care utilisation at Survey 2; and rate of deaths (older cohort only).

**Results:** Cross-sectional analyses showed clear socioeconomic differentials in well-being for both cohorts. Differential changes in health across tertiles of socioeconomic status (SES) were more evident in the mid-age cohort than in the older cohort. For the mid-aged women in the low SES tertile, declines in physical functioning (adjusted mean change of -2.4, standard error (SE) 1.1) and general health perceptions (-1.5, SE 1.1) were larger than the high SES group (physical functioning -0.8 SE 1.1, general health perceptions -0.8 SE 1.2). In the older cohort, changes in SF-36 scores over time were similar for all SES groups but women in the

high SES group had lower death rates than women in the low SES group (relative risk: 0.79, 95% confidence interval 0.64 to 0.98).

**Conclusions:** In Australia, SES differentials in physical health seem to widen during women's mid-adult years but narrow in older age. Nevertheless, SES remains an important predictor of health, health service use and mortality in older women.

**Sibbritt D, Adams J, Easthope G & Young A. Complementary and alternative medicine (CAM) use among elderly Australian women who have cancer. *Supportive Care in Cancer*.**

The use of Complementary and Alternative Medicine (CAM) in the general population has grown considerably in recent years. However, little is known about the prevalence of CAM use amongst women with cancer. Our research provides the first step in addressing this gap in knowledge by reporting on a survey of 9375 Australian women aged 73-78. We found that, for all cancers combined, 14.5% of women with cancer consulted an alternative practitioner. However, this percentage varied, depending on the type of cancer: skin cancer (15.0%); breast cancer (11.5); bowel cancer (8.8%); and other cancer (16.5%). Our findings suggest that CAM is now a significant practice issue for those delivering cancer patient care and management.

**Keywords:** Complementary and alternative medicine, cancer patients

### **5.3. CONFERENCE SYMPOSIA AND SPECIAL EVENTS**

#### **5.3.1. 7<sup>th</sup> National Rural Health Conference, Hobart, 1<sup>st</sup> – 4<sup>th</sup> March 2003.**

Australian Longitudinal Study on Women's Health symposium, featuring qualitative research on women and mental health in rural areas.

#### **Lee C. What Women's Health Australia can tell us about women's well-being in the bush.**

Women's Health Australia (WHA) is a large-scale longitudinal project funded by the Commonwealth Department of Health and Ageing to provide a population-wide evidence base for the development of appropriate policy and practice in women's health. It consists of a 20-year longitudinal survey of the health of Australia's women, with a strong emphasis on the needs of women in rural and remote areas. The survey began in 1996 and the research team are currently collecting our third wave of data from women across Australia.

The project involves three cohorts of women, randomly selected from the Medicare database, to represent young (aged 18-23 in 1996), mid-age (45-50), and older women (70-75). Over-sampling of women in rural and remote areas allows an examination of geographical variations in health and in access to health care. More than 41,000 women responded to mailed baseline surveys in 1996, and over 50% have also agreed to linkage with their Medicare data. Women participating in the survey complete a "main" survey every three years, addressing aspects of their physical and mental health, use of health services, health-related behaviour, sociodemographics, time use, and major life events. They may also be invited to participate in smaller targeted substudies that address particular diseases such as diabetes or life experiences such as partner violence.

This paper provides an overview of the project, and then goes on to present descriptive data on measures of mental health and coping in all three age cohorts. A consistent pattern emerges, showing that older women have the best mental health and younger women the

worst, but that rural women have equivalent levels of mental health to city women. This effect is despite evidence that rural women have poorer access to a range of services than their city counterparts. The older rural women report high levels of neighbourhood satisfaction and access to social and practical support, but the mid-age and younger rural women do not appear to have these community advantages over urban women. The data suggest that strategies to support and maintain a sense of community in rural areas are essential to the continued maintenance of good emotional health among women in the bush.

**Loxton D, Hussain R & Schofield M. Women's experiences of domestic abuse in rural and remote Australia.**

In the Women's Health Australia (WHA) study, women from rural and remote areas were more likely than women from urban areas to have ever lived with a violent partner or spouse. Women who had ever experienced domestic violence were significantly less physically and psychologically healthy than women who had never experienced domestic violence. To elaborate on the health and psychosocial impacts of experiencing domestic violence, a qualitative interview study was conducted using a sub-sample of mid-aged women from WHA who had experienced domestic abuse while living in small rural communities, or on isolated properties and who had since left the violent relationship. Of the 28 women who took part, 17 had lived in a rural or remote community for at least a proportion of the violent relationship. The semi-structured telephone interviews focussed on the impact of domestic abuse on health, and psychosocial factors that were perceived to improve or harm health. Results of the qualitative interviews indicate that most women experienced a decline in their physical health, and all of them experienced decreased emotional well-being. The major themes that emerged for women from rural and remote areas included:

- Privacy and confidentiality
- 'Small town gossip'
- Poor access to confidential services, particularly counselling services
- Responses of health workers
- Poor access to friends/family
- Isolation
- Demanding responsibilities related to working on a property

**Conclusions:** Issues of privacy and confidentiality are key issues for abused women in rural and remote communities. All of the women said that the one thing that would have helped them during their abusive relationship would have been having someone to talk to, supporting abundant research on the importance of social support. However, women who have lived with an abusive partner often have difficulty with trusting people, and assurances of confidentiality were disbelieved by some of the women. Therefore, it is recommended that providing access to confidential counselling and mental health services in rural and remote areas is a pressing issue. To address privacy and confidentiality concerns, the feasibility of providing counselling services by people who do not live in the towns that they service should be investigated.

**Outram S. Midlife women's experiences of seeking help for psychological distress in rural Australia: An overview.**

A multi-disciplinary perspective and qualitative methods were used to explore psychological distress in midlife Australian women, in particular their experiences of seeking help for their difficulties. The initial data came from the cross-sectional baseline survey of the Australian

Longitudinal Study on Women's Health (n=14 000) and was followed by a more detailed sub-study of 322 women with low mental health scores.

When controlled for other factors, geographical area was not significantly associated with poor mental health. Unemployment and lower socioeconomic status were more significant predictors; women who were unemployed engaged only in home duties (rates higher in rural areas) and unable to work due to sickness had 1.5 to three times the odds of having poor mental health than women who were in employment.

The 322 semi-structured telephone interviews were equally distributed between women living in rural and urban areas. Women's perceptions of the causes of psychological distress, their help-seeking behaviour, and attitudes toward and experiences of, seeking help were explored. Barriers to seeking help for mental health problems were perceived to be mainly attitudinal and structural factors such as transport, opening hours and costs were less important. Surprisingly there was no difference in the consultation rate (GP's and mental health professionals) for rural compared with urban women, although more rural women voiced discontent with GP's. One of their main complaints was about lack of confidentiality in health services in country towns. The stigma felt by those suffering from mental health problems, and their families, was an underlying theme.

One woman's story will be presented to illustrate themes typical of midlife rural women with psychological distress.

**Conclusions:** Although rural women consulted a variety of health practitioners, the GP was the most frequently consulted and could provide a service that did not automatically stigmatise mental health problems. However improvements are needed in GP services at both an individual practitioner level (attitudes, knowledge and communication skills) and at a structural level (lack of access because of shortages of GPs). Additionally, the effects on women's mental health as a consequence of the downturn in the economy of the Australian farming sector and associated rural towns should be monitored.

### **Warner-Smith P & Brown P. 'It's time to play a bit': Mid-age rural women's leisure and wellbeing.**

This paper focuses on links between women's leisure and well-being. Access to leisure time and the opportunity for freely chosen leisure activities contribute to the health and well-being of both men and women. Patterns of leisure activity in Australia are often highly traditional and differentiated according to gender, class, age, ethnic background, and geographical location. A growing body of research is taking into account the gendered nature of place, and documenting the multiple roles of rural women and the (undervalued) contribution these women make to their families, communities and the economy.

The research reported here arises from a broader study of women, leisure and health that is designed to examine the role and meaning of leisure in the lives of Australian women, with particular reference to geographical location; and also to examine leisure patterns, aspirations and health consequences of leisure choices in two cohorts/generations of Australian women.

In this paper we use quantitative data from the main Women's Health Australia (WHA) study, and qualitative information from focus groups and time diaries, to examine the leisure patterns and constraints of mid-age rural women. Access to leisure time is strongly associated

with both physical and mental health, but women identify a range of constraints on their access to leisure. These include financial constraints, distance to cultural or social events, and time constraints imposed by work and family responsibilities, all of which are greater for rural women than for urban women. And while many rural women appear to have strong support networks, there are others who seem to be quite isolated. By contrast, some rural women describe a positive lifestyle that does include time for leisure, and describe strategies for maximising their leisure opportunities within these constraints.

Certainly there are constraints associated with the leisure of women in rural communities, and the impact of economic restructuring, isolation, conservative gender expectations, and family fragmentation cannot be underestimated. Lifestyle is also implicated in the pressures women feel as partners, mothers and carers: contemporary women in midlife may experience a sense of freedom, particularly when their children leave home. However, it is equally clear that it is erroneous to position all women as victims of structural constraints. The lives of the small group of women who were interviewed point to their capacity to make choices and negotiations which optimise their well-being. Initiatives to improve the health of rural people should take a broad social approach to the concept of health recognising the importance of leisure time and choice in promoting positive well-being.

### **5.3.2. Office for the Status of Women WomenSpeak Conference, 30<sup>th</sup> March – 1<sup>st</sup> April 2003.**

Members of the research team were invited to present a workshop on the project and its relevance to social issues that impact on women.

### **Warner-Smith P, Bryson L & Taft A. Women's Health Australia: What Can the Big Picture Tell Us About The Context of Women's Lives?**

The Australian Longitudinal Study on Women's Health (also known as Women's Health Australia) is a large population-based survey of the health of Australia's women, funded by the Commonwealth Department of Health and Ageing. Over 40,000 women in three age cohorts are being followed for 20 years, in order to provide input into policy development. The project, which is now in its eighth year, takes a strongly social view of women's health, placing health in the broad context of women's lives and incorporating concepts of work-life balance and of positive wellness. The workshop provides an overview of the project and its findings, and is divided into three sections. The first section provides an overview of the project design, measures, themes and progress. The second covers issues of work-life balance, including paid and unpaid work, multiple roles, and the importance of leisure in women's lives. The third section focuses on a specific analysis commissioned by the Office for the Status of Women, examining the relationships among abuse and violence on the one hand, and reproductive health on the other, among younger Australian women.

## **5.4. CONFERENCE PRESENTATIONS**

### **Brown WJ. Reducing Risks and Big Fat Lies: global and local perspectives on weighty issues. Keynote, Australian Conference on Behavioural Health and Medicine. Brisbane, Queensland, Australia, 13<sup>th</sup>-15<sup>th</sup> February 2003.**

The World Health Report "Reducing Risks, Promoting Healthy Life" measures the amount of disease, disability and death in the world that is attributed to the most important risks to human health. A stark contrast in this report is that in poor countries there are almost 170



million underweight children, while at least 300 million adults worldwide are overweight or obese. The report states clearly that overweight and obesity are risks to health because they cause increases in blood pressure, adversely affect lipid profiles, increase insulin-resistance, and in the long term result in increased risk of coronary heart disease, stroke, diabetes and many forms of cancer. In contrast, in his book "Big Fat Lies" (which has recently received a great deal of publicity in the Australian press), Dr Glenn Gaesser suggests conventional wisdom about the health risks of fat is a grotesque distortion of a far more complicated story.

Using these two contrasting views, this presentation will use data from the Australian Longitudinal Study of Women's Health (ALSWH), and other sources, to demonstrate just how complicated the 'weight story' is. Data from the young cohort of the ALSWH suggest that, even in a developed country like Australia, underweight can be a risk to health. It is clear however, that the health risks of overweight and obesity, which begin to appear in early adulthood, are likely to be more enduring, serious and certainly not 'a big fat lie.'

Understanding the social, economic and behavioural determinants of weight gain is essential for the development of cost-effective preventive measures. Early longitudinal data suggest that the transition from underweight and healthy weight in early adulthood to overweight and obesity in mid-life is associated with key life events and behaviours such as marriage, having children, and changing work patterns. It is no coincidence that these factors are also associated with reductions in physical activity in early adulthood. Dieting and restrictive eating appear to exacerbate the problem of weight gain. Hence Gaesser may be correct in his view that, in order to do something about this problem, we need to refocus our attention from people's waistlines to their levels of activity. This presentation will conclude with an overview of the "10,000 steps project" as an example of how we are attempting to do this in one regional Australian city.

**Bryson L. Australian Longitudinal Women's Health Study – selected findings and relevance to rural and regional women. *Regional Women's Health Conference 2003: 'Responding to the Evidence'*. Bendigo, Victoria, Australia. 3-4 March 2003.**

*The paper is organised around the following headings:*

- Generation and general health
- Evidence relating to services
- Evidence relating to Social Support Issues
- Selected age related issues

***Issues of generation and general health : The three worlds of women's health***

The data from the three cohorts of women suggest that they have very different experiences of life. To recognise that age and generation are important in this way is hardly a new insight, but the evidence emphasises a somewhat different issue. The data suggest that we are confronting a number of segments of the population who, because they have been born into different eras, have had very different cultural experiences. This can be referred to as the 'three worlds of women's health'. In dealing with young, mid-aged and older women as they grow older, we are not just confronting three generations in the sense of their age, but we are also effectively confronting three different social worlds.

***In summary:*** The Women's Health Australia project adds to data already available on variations and similarity in the health profiles and access to services of women according to

their place of residence. At a general health level, as evidenced by the SF 36 self-assessment health scale, differences are slight, though those living outside urban areas have slightly higher mental health scores. There are some specific differences in conditions suffered and procedures undertaken that require vigilant monitoring, especially in view of the possibility that lower diagnosed levels may be because of problems of access to appropriate services.

In relation to access to services, non-urban dwellers have less choice and are less likely to have access to bulk billing. A concerning problem for some respondents in rural and remote areas was the difficulty of ensuring confidentiality because of the confined social circumstances in small communities. This presents a complex problem which will require creative approaches if residents are to have real equal access to services.

Australian governments over recent years have become more concerned about service availability, with the Commonwealth government focusing on a number of aspects, including attempts to improve the availability of GPs and more recently, the issue of bulk billing. The importance of government effort and the potential to address unmet needs, is underscored by the data on the higher rate of mammographical screening found among women in rural and remote areas. As the WHA project proceeds, the success of such efforts can be monitored and gaps indicated.

**Bryson L. The Women's Health Australia project and issues of motherhood. *Regional Women's Health Conference 2003: 'Responding to the Evidence'*. Bendigo, Victoria, Australia. 3-4 March 2003.**

Despite falling birth rates, evidence from the Women's Health Australia Study shows that the vast majority of young women aspire to motherhood, with most (68%) wanting one or two children. Data from the study will be discussed in order to cast light on young women's family aspirations and the problems that can be associated with optimal control over fertility. These will be discussed in relation to access to appropriate information and services in respect to contraception, reproductive health and the negotiation of sexual relationships. Problems in these areas are especially felt by young women in rural and regional Australia. Given current anxieties about the ageing of the population issues relating to motherhood are of heightened relevance for health policy affecting women.

**Williams L, Brown W & Young A. Weight gain in mid-aged women: The Women's Health Australia study. *Dietitians Association of Australia 21<sup>st</sup> National Conference, Evolution, Evidence, Enterprise*. Cairns, Australia, 8-10 May 2003.**

**Introduction:** Weight gain in women is most marked during the menopausal years (45-55), and the NH&MRC have targeted this group for prevention of weight increase. This research explored patterns of weight change in women during the menopausal years through a sub-study of the Women's Health Australia study, a large, well established, national sample of Australian women completing successive health surveys.

**Findings:** 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  $1.0 \pm 4.7$  kg. The cohort began with a mean BMI of  $25.5 \pm 5.0$  that increased to  $25.9 \pm 5.1$  by survey two. One third of the cohort gained 2.25 kg 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 4.5 kg or more. Fifteen percent decreased weight by 2.25 kg or more. Only half the cohort maintained their weight within the range of  $\pm 2.25$  kg (~5 lb).

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 three 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 (pre-menopause to post-menopause) in the two year period experienced the highest mean weight gain (1.5 kg), followed by those going through stage two (peri-menopause to post-menopause) (1.1 kg) after controlling for age, height, weight, geographic location, smoking and exercise at baseline. Women who maintained pre-menopausal status or those who progressed from pre-menopause to peri-menopause had the lowest mean weight gain (0.9 kg).

**Conclusions:** Longitudinal analysis of the weight data for participants aged 45-50 in the Women's Health Australia study reinforces that mid-age is a time of weight gain for Australian women. These findings have implications for prevention of weight gain during the menopause transition.

## 5.5. OTHER PRESENTATIONS

Young A. The Australian Longitudinal Study on Women's Health. Division of Public Health Sciences, Fred Hutchinson Cancer Research Center. Seattle, USA. 16th December 2002.

Lee C. Women's Health Australia. Guest speaker, *Newcastle City Council Women's Forum*, Newcastle Town Hall, 5<sup>th</sup> February 2003.

Young A. The Australian Longitudinal Study on Women's Health. *Collaborative Health Studies Coordinating Centre*. University of Washington, USA. 28<sup>th</sup> March 2003.

Young A. Statistical challenges in the Australian Longitudinal Study on Women's Health. *Department of Biostatistics*. University of Washington, USA. 3<sup>rd</sup> April 2003.

Lee C. The role of psychological factors in older women's health. School of Psychology Staff Colloquium, University of Bangor, Wales. 4th April 2003.

Dobson A. Current Evidence: Presentation and Discussion. DoHA Drug Strategy Branch for the National Expert Advisory Committee on Tobacco: Smoking and Pregnancy Workshop. Sydney, New South Wales, Australia. 4<sup>th</sup> April 2003.

Warner-Smith P. Rural Health: What Can the Australian Longitudinal Study on Women's Health Tell Us About Health and Wellbeing in the Bush? *Research Centre for Gender and Health Seminar Series: RCGH does lunch*. Newcastle, New South Wales, Australia. 7<sup>th</sup> April 2003.

Bell S. The Transition to Young Adulthood for the Women's Health Australia Young Cohort. *Research Centre for Gender and Health Seminar Series: RCGH does lunch*. Newcastle, New South Wales, Australia. 13<sup>th</sup> May 2003.

## 5.6. MEDIA

<b>Date</b>	<b>Media</b>	<b>Title</b>	<b>WHA Collaborator</b>
30/3/03	Article in Sydney Morning Herald. (Bettina Arndt)	“Young married women”	Professor Christina Lee
28/3/03	ABC Radio 2NC Newcastle	“Rural Women’s Health”	Professor Christina Lee
1/3/03	ABC Hobart	“Rural Women’s Health”	Professor Christina Lee
3/3/03	Channel 7 Tasmania	“Rural Women’s Health”	Professor Christina Lee
4/2/03	Channel 7 Mackay	“Health Services”	Professor Annette Dobson

## 6. ARCHIVING

In April 2003, the Survey 3 data for the Mid age group (collected in 2001) were archived with the Social Science Data Archives (SSDA), ACSPRI Centre for Social Research, at the Australian National University. The procedure was the same as for previous archives. Ten files were sent via a secure FTP site. The files were:

Data dictionary

Data dictionary User's Guide

WHA3MidA.txt – Level A data file, containing 490 variables for 11,204 cases

WHA3MidB.txt – Level B data file, containing 489 variables for 11,204 cases

WHA3MidFFQB.txt – Food Frequency Question data file, containing 163 variables for 11,194 cases (access level B)

Mid3FormatsB.txt – formatting information for Level B data file

Mid3FormatsFFQ.txt – formatting information for FFQ data file

Mid3LabelsB.txt – variable names for Level B data file

Mid3LabelsFFQ.txt – variable names for FFQ data file

Mid3 frequencies.txt – raw frequencies for Level B data

Mid3FFQ frequencies.txt – raw frequencies for FFQ data

WHAMid3 survey.doc – a copy of the survey completed by participants

As well as being a valuable and reliable off-site backup of all Women's Health Australia data, archiving will make the data available for future use by other researchers, subject to certain conditions. Each data item was assigned an Access level – level A or level B. Level A items include participant IDs and actual birthdays, and are not available to other researchers due to privacy issues and are archived solely as an off-site backup system. Level B items are available to all approved applicants and are de-identified for confidentiality by the removal or aggregation of several potentially identifiable variables. For this reason the data were sent as two files per survey – a level A data set and a level B data set.

## **7. FINANCIAL STATEMENT**

Expenditure January- June 2003

Based on University of Newcastle Financial Reporting System 13/5/03

Accounts 593-1029, 593-1033

The table on the following page outlines income received from the Commonwealth (including a recent variation to the contract) and expenditure associated with the conduct of the project, in the period January-June 2003. The figures are accurate but the overall picture, with a deficit of \$178,128, is somewhat misleading.

The current contract expires on 30<sup>th</sup> June 2003. A termination payment of the current contract, for \$374,040, is due on receipt of this report. The researchers are working on the assumption that a further contract will be granted and that work on the project will continue. Thus, expenditures have been made and committed on the assumption that there will be further income and further research activity in the second half of the year. The annual cycle of the project involves a somewhat higher expenditure in the first half of the year, when annual surveys are printed and mailed, and funds are committed for scanning and processing of surveys by external contractors.

INCOME			EXPENDITURE		
Source	Details	Income	Items	Actual Expenditure 1/1/03–13/5/03	Forward Estimate 14/5/03–30/6/03
DHAC	Contract	469,000			
			Shared research (Principal Investigators)	120,000	0
			Surveys & data entry	46,237	35,867a
			Newsletters	0	0
			Data linkage (AEC, HIC, CCV, NDI)	4,737	5,000b
			Computer h'ware, s'ware	32,228	0
			Equipment & maintenance	1,912	0
			Postage & freight	2,747	15,543a
			Telephone	2,837	1,045b
			Printing, stationery, office supplies	1,481	550b
			General consumables/ Repairs	1,766	700b
			Travel/ Hospitality	11,468	4,500b
			Salaries	212,962	78,500b
			On-costs	49,560	18,500b
			Annual Report		0
			University O'head charge	52,423	0
U of N	Research Contribution	50,000	Postgraduate scholarships/ fees	15,369	5,700
	Research Infrastructure	24,506	Student research costs	0	0
<b>TOTAL S</b>		<b>543,506</b>		<b>555,727</b>	<b>165,905</b>

<sup>a</sup> firm commitment

<sup>b</sup> figures are estimates

## **8. PROJECT STAFF JANUARY – JUNE 2003**

### **8.1 PROJECT STAFF: RESEARCH CENTRE FOR GENDER AND HEALTH, UNIVERSITY OF NEWCASTLE**

Project Manager:	Professor Christina Lee
Research Academic:	Dr Penny Warner-Smith
Data Manager:	Mrs Jean Ball
Statistician:	Dr Anne Young
Statistician:	Ms Jenny Powers
Research Assistants:	Mrs Lyn Adamson Ms Rosemary Brotherston Ms Jennifer Helman (part-time) Mrs Joy Goldsworthy (maternity leave)
Data Assistant:	Ms Eliza Fraser
Secretary (shared position):	Ms Penny Knight, Ms Sue James
Part-time Project Assistants:	Ms Alicia Frost Ms Rachael Gill Ms Sheree Gregory Ms Catherine Ireland Mrs Claire Johnson Mr Tim Neve Ms Ingrid O'Neill Ms Paula Setz Ms Suzanne Stevens Ms Zoe Turner Ms Jacqui Warner-Smith Ms Claire Wilkinson

### **8.2 PROJECT STAFF: SCHOOL OF POPULATION HEALTH, UNIVERSITY OF QUEENSLAND**

Senior Project Officer:	Ms Anne Russell
Part-time Research Assistants:	Ms Jess Ford Ms Natalie Grove Ms Nadine Smith



### **8.3 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, Research Centre for Gender and Health, University of Newcastle

Dr Anne Young, Research Centre for Gender and Health, University of Newcastle

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

Dr Jon Adams, Centre for Clinical Epidemiology and Biostatistics, University of Newcastle

Mr Michael Bittman, School of Sociology, University of New South Wales

Professor Peter Brown, School of Leisure Studies, Griffith University

Dr Rafat Hussain, School of Health, University of New England

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

## 8.5 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 (UNE)	Australian Postgraduate Award	1999-2003
Glennys Parker	C Lee	Research Quantum	2000-
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-
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-
Liane McDermott	A Dobson, N Owen (UQ)	NHMRC scholarship	2003-
Sheree Gregory	P Warner-Smith, J Astbury (Melbourne)	Unfunded (part-time)	2003-
Leanne Frey	P Warner-Smith, K Lyons (Newcastle)	ARC Discovery Grant Scholarship	2003-
Lindy Humphreys-Reid	A Dobson, A Wilson	NHMR Scholarship	2003-

## **APPENDICES**

## **APPENDIX 1**

### **STEERING COMMITTEE TELECONFERENCE MINUTES**

**Steering Committee Teleconference  
Tuesday 10<sup>th</sup> December 2002**

**Present:** Annette Dobson, Christina Lee, Julie Byles, Penny Warner-Smith, Wendy Brown

**Apologies:** Anne Young

**Minutes:** Penny Knight

Item No	Item	Action	By whom Due date
1	<p><b>Welcome and apologies</b> Annette welcomed members of Steering Committee</p>		
2	<p><b>Minutes and matters arising</b> All on agenda – no problems with previous minutes</p>		
3	<p><b>Strategic issues</b></p> <p><i>Research Syntheses and Research Planning Meeting</i> It was decided that a tele-conference would be held to discuss these, together with all the people involved, at 10 am Thursday 12<sup>th</sup> December, NSW time. Penny Knight to book. Format should be brief, easy to refer to, and shouldn't involve us in a great deal of extra work. If more information is required, it will incur some costs. Chris to circulate to PI's and to Jan McMahon the work completed to date, to get some feedback as to whether the format is appropriate. Less formal than the book, rather a magazine format. Wendy feels it is important to write each section specifically for the people in each department who are going to be reading it. Julie agreed. Think carefully in terms of content and message: where these people came from, what are the policy issues they are trying to understand and make a difference around, what information do we have that is useful to them in making intelligent decisions. Annette made the point that it is us educating them as to what the study can do.</p> <p>Annette queried a couple of points in the notes. Mid age women and paid work to be done by</p>	<p>Penny Knight to book conference</p> <p>Chris to circulate today</p>	<p>Penny K</p> <p>Chris</p>

Item No	Item	Action	By whom Due date
	<p>Natalie Grove, Jess Ford, Penny Warner-Smith and herself. Rosie doing family caregiving and young women's aspirations. Annette thought Julie was working on advanced primary care items. She will be working on this with Emily Anderson, with some help from Anne Young. Wendy will be interviewing a potential RA (Esther) and get her started on Sections 4 and 5 in the Obesity and Physical Activity.</p> <p><i>Timelines for syntheses</i>            Need to be done simultaneously, and have them completed as soon as possible.            Complete drafts of three of them by mid January – Rural Health, Mental Health and possibly Ageing.            Rosie Brotherston has been working for a couple of weeks, and has written a couple of chapters. Emily Anderson back in the office tomorrow. Sheree started working on Rural Health.            Syntheses should be maximum 10 pages each, and shorter if possible.</p> <p><i>Strategic Planning Meeting</i>            Feedback from staff after meeting reasonably positive.            Notes need to be written up based on the broad plan discussed at the meeting.</p> <p><i>Notes on Old 3, Young 3, substudies</i>            Aged degenerative diseases and caregiving substudy has been funded. First step is for Chris to appoint a member of staff in Newcastle to convert the qualitative data from Old 2 into computer readable form.            Other substudies for next year: Older women – has a section that will require Old 1, Old 2 and Old 3 data to be linked and then linked to HIC. Penny and Peter's grant – first step will involve WHA women but only late next year. Timeline will be defined after ethics is obtained.            Chris Everingham's focus groups to be done in January. Margot has been funded for her older woman and abuse study. Piloting must be done with women from other sources. Edith Weisberg and FPA Health have not applied for funding yet. Ethics approval by Newcastle to be started.            Liane's substudy – 10 interviews this week, another mailout in January. Heather McKay phone reminders to wait until the new year.</p>		

Item No	Item	Action	By whom Due date
	<p><i>Any other business</i> Settling in. Auditing consent drawers. Joy is leaving at the end of next week. Chris working on Budgets.</p> <p><i>Meeting dates for next six months of 2003</i> See Chris' notes. Dates suit everyone.</p> <p>No further business and conference concluded 10:50 am.</p>		

Next meeting: Monday 20 January 2003 at 9 am (Queensland time) and 10 am (NSW time)

**Steering Committee Teleconference  
Monday 20<sup>th</sup> January 2003**

**Present:** Annette Dobson, Christina Lee, Julie Byles, Penny Warner-Smith, Wendy Brown

**Apologies:** Anne Young

**Minutes:** Penny Knight

Item No	Item	Action	By whom Due date
1	<p><b>Welcome and apologies</b> Annette welcomed members of Steering Committee.</p>		
2	<p><b>Minutes and matters arising</b> All on agenda – no problems with previous minutes.</p>		
3	<p><b>Strategic issues</b></p> <p><i>Research Syntheses</i> Chris suggested that a teleconference be set up with all staff working on research syntheses, later in the week, so the up to date status of each one can be discussed and ascertained. To be set up for Friday 24<sup>th</sup> January at 12 noon NSW time. Important to create a good impression, and to be responsive to the needs of the Department in the syntheses. Joy Eshpeter to be included in the invitation to attend. Chris to co-ordinate which staff to attend which meeting, and to set up some dates for the meetings and get back to Jan. With regard to converting Old 2 qualitative data, Chris to employ RA and order software to start this process. Will be put in place this week.</p> <p><i>Management – position description and organisational structure.</i> Description written by Annette and amended by Julie looks OK at this stage. All reasonably happy with the amended description.</p> <p><i>Relationship of the study and the Centre to the structure within the University of Newcastle.</i></p>	<p>Chris to co-ordinate arrangements for meetings Chris to employ RA and purchase software</p>	<p>Chris Chris</p>



Item No	Item	Action	By whom Due date
	<p>Julie discussed several issues in this regard. First issue – option to stay in the Faculty but outside the School, or to move into the School in some way. The Faculty would find intolerable the option to stay in the Faculty but outside the School, and the outcome of a faculty discussion is that it goes into the School of Medical Practice and Population Health.</p> <p>In the School level the two main options to consider are: Whether the Centre stays as an entirely separate unit within the School, or whether it aligns itself with CCEB. In aligning itself with CCEB it does not have to lose its Centre identity and also would never lose the project identity. Julie feels this would align the Centre with a strong complementary trans-disciplinary, academic culture, with access to a lot of support units and good infrastructure.</p> <p>There are disadvantages. The Centre would be subject to school rules, the allocation of quantum is yet to be negotiated, need to compete within the school for resources. It was agreed that RCGH as a stand-alone entity is going to be problematic. Our proposal must be clearly defined before Chris takes it to the Vice-Chancellor at Newcastle.</p> <p>Chris raised the subject of the 6 month interim appointment. During this time the position will be advertised to start in 2004. Care will have to be taken with regard to Penny’s future options. Interim position appointment to be included in the proposal to the VC.</p> <p><i>Changes in Department of Health.</i> As a result of recent staff changes in the Department, it would seem that relationship building will have to start all over again. First round of research syntheses meetings very important in the light of the changes. It would be good to have a meeting with Rob Wooding, and have him participate in the sessions to the extent to which he is able.</p> <p><i>Chris’s report</i> NCS Pearson quote higher than last year, but still within budget. Add Jess Ford and Ester Cerin to list of staff working on syntheses. Annette proposing to put in a grant application for doing research on arthritis. Julie and Wendy</p>		

<b>Item No</b>	<b>Item</b>	<b>Action</b>	<b>By whom Due date</b>
	to be involved.  No further business and conference concluded 11:00 am.		

Next meeting: Monday 17 February 2003 at 9 am (Queensland time) and 10 am (NSW time)

**Steering Committee Teleconference  
Monday 17<sup>TH</sup> March 2003**

**Present:** Annette Dobson, Christina Lee, Julie Byles, Penny Warner-Smith, Wendy Brown

**Apologies:** Anne Young

**Minutes:** Penny Knight

Item No	Item	Action	By whom Due date
1	<p><b>Welcome and apologies</b> Annette welcomed members of Steering Committee.</p>		
2	<p><b>Minutes and matters arising</b> All on agenda – no problems with previous minutes.</p>		
3	<p><b>Strategic issues</b></p> <p><i>Research Syntheses</i> Meeting on Ageing synthesis tomorrow in Canberra. Data books printed this morning. Julie did draft Power Point, Annette has comments on the updated version. Chris to email to Wendy with a copy of the final report. Mental Health synthesis almost completed. Anne Russell to put tables in an appendix. Make sure with every figure, there is the correct table, plus any definitions that are required. Wendy hoping to get Physical Activity synthesis out middle of next week for comments. Still waiting on Megan Cook's response to Rural Health presentation.</p> <p><i>Management – position description and organisational structure.</i> Options are: to do a deal with Michael Hensley so that we get our RQ back in some way, or not joining the school ie keeping the status quo. Faculty will only take 8% whereas Michael Hensley would want 100% of RQ. Faculty philosophy is that all their centres should go into schools, so we might lose Faculty support if we choose to stay outside a school. Negotiations are ongoing with Michael Hensley. He could have 100% of the RQ, provided he paid the Manager's salary or something of equivalent value. No reply from him as yet but expected this week.</p>	Chris to email Wendy	Chris



<b>Item No</b>	<b>Item</b>	<b>Action</b>	<b>By whom Due date</b>
	No further business and conference concluded 11:00 am.		

Next meeting: Monday 14 April 2003 at 9 am

**Steering Committee Teleconference**  
**Monday 14<sup>th</sup> April 2003**

**Present:** Annette Dobson, Penny Warner-Smith, Wendy Brown, Lois Bryson

**Apologies:** Anne Young, Christina Lee, Julie Byles

**Minutes:** Lyn Adamson

Item No	Item	Action	By whom Due date
1	<p><b>Welcome and apologies</b>            Annette welcomed Lois Bryson and thanked her for her willingness to join the Steering Committee for the remainder of the year.</p>		
2	<p><b>Minutes and matters arising</b>            All on agenda – no problems with previous minutes.</p>		
3	<p><b>Strategic issues</b></p> <p><i>Research Syntheses</i>            All presentations are completed.</p> <p>a) Physical Activity            Main report almost completed.            Still waiting for some feedback from the Physical Activities section. Wendy has been in touch with the section and they will be in email contact with her and Jan McMahon soon.</p> <p>b) Mental Health            Main report almost completed. All text has been redone so it is consistent with the tables and illicit drug data added. Brief report is being developed.</p> <p>c) Health Services.            Some work still to be done.</p> <p>d) Ageing            Almost complete.</p> <p>e) Rural            Still work to be done.</p>		

Item No	Item	Action	By whom Due date
	<p><i>Brief Reports</i> A basic template has been developed by Penny for the Brief Reports. Each page has a particular theme. Penny to co-ordinate the development of the brief reports and work on layout and appearance.</p> <p>Need to get three quotes for printing. Current quotation is \$1,500 for 500 copies in full colour.</p> <p>We have provided Jan McMahon with 12 Powerpoint slides on each report last week, as requested.</p> <p>We are still uncertain of exact timing of any decision on the refunding of the project. Believe they may have discussed this at the last executive meeting. Annette to ring Joy Eshpeter to see if we can establish what is happening about our refunding position.</p>	<p>Penny</p> <p>Penny</p> <p>Annette</p>	<p>Asap</p> <p>Asap</p> <p>Asap</p>
3	<p><b>Departmental Seminar</b></p> <p>Scheduled for May 9<sup>th</sup>. This will consist of a seminar (presentation) to a wide variety of people from a number of different areas and a round table discussion with the Department. Annette, Wendy, Christina, Julie and Penny to attend. Annette will try to discuss data linkage the same day ie. Arrange a meeting with Rob Wooding as will still have not met him. Annette to talk to Joy Eshpeter re arranging this meeting.</p> <p>We are still uncertain of exact timing of any decision on the refunding of the project. Believe they may have discussed this at the last executive meeting.</p>	<p>Annette</p>	

Item No	Item	Action	By whom Due date
	<p>Annette to ring Joy Eshpeter to see if we can establish what is happening about our refunding position.</p> <p>It may be appropriate to request a contribution from the Office for Status of Women for assistance with core funding. Penny to look into it.</p> <p>Wendy will see if there is any interest by DVA in the project, at the next available opportunity.</p> <p><b>Report on Management Issues for 2003</b></p> <p>Lois will take over the position of Director of the Research Centre, when Christina leaves. This has been discussed with the University of Newcastle and is fully supported by all. There are many issues to discuss with regard to the movement of staff to UQ etc. This is currently in limbo.</p>	<p>Penny</p> <p>Wendy</p>	
4	<p><b>Report from UN and UQ</b></p> <p><i>UQ</i> Report will be brief. All staff have colds! There are several surnames missing from the Agenda need to be added for completeness. Penny to contact Jan McMahon and the document to be corrected. Correct names are Kerri Edwards, Cindi Gibson, Marina Kearns Nancy Pachana would like to contribute to Mid 4. She suggests we include the anxiety questions from the Goldberg Scale. Annette has looked at the distributions from the locus of control question. Looks acceptable but need to look at history etc. (Sent to Penny, copied to Nancy),</p> <p><i>UN</i> Have about 2000 surveys returned, tracking continuing, 200 more to send out following tracking.</p>		



Item No	Item	Action	By whom Due date
	<p><i>Ongoing Work</i> Margot ready to complete 18 interviews remaining from last years work.</p> <p>CVD – Have not yet applied for University of Newcastle or University of Queensland ethics yet, has been drafted.. Ethics application has gone to Prince Charles Hospital.</p> <p>MOU with VCA re FFQ is still being discussed with Graham Giles. Penny to continue discussions.</p> <p>MOU is to be drawn up with Peter Tugwell who has been working on some data concerning Musco-skeletal disorders. This is a world wide study looking at SES differences in these disorders. Need a brief agreement that if he publishes he will acknowledge WHA. Annette will deal with this. Penny to send a “blank” MOU to Annette.</p>	<p>Annette</p> <p>Penny</p> <p>Annette</p> <p>Penny</p>	

Next meeting: Monday 12<sup>th</sup> May 2003 at 9 am

**Steering Committee Teleconference  
Monday 12<sup>th</sup> May 2003**

**Present:** Annette Dobson, Penny Warner-Smith, Christina Lee, Anne Young, Lois Bryson

**Apologies:** Wendy Brown, Julie Byles

**Minutes:** Penny Knight

Item No	Item	Action	By whom Due date
1	<b>Welcome and apologies:</b> Annette welcomed everyone. Apologies from Wendy and Julie.		
2	<b>Minutes and matters arising</b> All on agenda – no problems with previous minutes.		
3	<p><b>Strategic issues</b></p> <p><i>Refunding</i> Research syntheses presentation was made last Friday, and was very favourably received. A further three opinions have been sought on the project: a consultant economist, Judith Whitworth, and Fiona Stanley. To date, two of these three have provided very positive responses for higher rate of funding. Budget is being presented this week. Jan McMahon has left and a new contact person has yet to be appointed. Existing contract is likely to be extended, hopefully for no more than three months. Provision to be made in the variation to the contract, for funds to go to UQ for the extension period.</p> <p>Brian English should be informed at the meeting on Tuesday, that the new contract will be between Newcastle, the Commonwealth and UQ, ie a three-way contract, and that funds have to be channelled to UQ and not only to Newcastle as in the past. Chris and Penny to make a list of issues to be raised with Brian English at the meeting tomorrow. Ron McDonald has asked for information with regard to Lois' new position. Job specifications to be taken to the meeting on Tuesday.</p> <p><i>HIC Linkage meeting</i> Tone was very positive. They are concerned that the reputation of the Study is not in any way</p>	Chris and Penny to compile list	Chris/Penny

Item No	Item	Action	By whom Due date
	<p>compromised, so, whilst they are sure the identified linkage is legal, it is very important that all the women in the study be informed of our intention to use the linkage. It should be explained in lay person's terms, possibly in a newsletter, ensuring them that their confidentiality is guaranteed.</p> <p>This all has to be approved by the Newcastle Ethics Committee, which may prove to be difficult. Time line is not nearly as important as getting it right – need a watertight system.</p> <p><i>Data sharing and confidentiality</i></p> <p>A recent data sharing incident has highlighted the need for guidelines and clear rules for confidentiality. Core people should sign confidentiality agreements annually. Chris has approached Sue O'Connor about ethics in general. It is felt that if UQ had ethics for the whole study and that if Newcastle was happy with the way UQ was dealing with confidentiality and privacy etc, it would make the whole procedure less complicated and lengthy.</p> <p>It was suggested that a confidential website could be used, for data sharing, rather than copying emails with attachments.</p> <p>Date to be made for a data management workshop in Queensland in addition to the Mid 4 meeting.</p>		

Next meeting: Tuesday 10<sup>th</sup> June 2003 at 9 am

## **APPENDIX 2**

### **YOUNGER SURVEY 3 – MATERIALS**

For a copy of Younger Survey 3 please visit:  
<http://www.newcastle.edu.au/centre/wha/surveys.html>

## **APPENDIX 3**

### **VARIABLES AND TRANSITIONS**

## APPENDIX 3.1 SMOKING TRANSITION – YOUNGER COHORT SURVEYS 1 & 2

<b>Derived Variable</b>	YT12Smok
<b>Definition</b>	Transition in smoking status between surveys 1 & 2
<b>Source Items</b>	Derived variables y1smokst & y2smokst
<b>Data Dictionary Index Number</b>	[To be allocated by the Data Manager]
<b>Endorsed by Data Management Group</b>	13 March 2002

### Source Items

Although the survey items concerning smoking behaviour differed between Surveys 1 and 2, women were allocated to the same categories for smoking status at both surveys.

Code	Category
1	Never smoker
2	Ex-smoker
3	Current smoker – smokes fewer than 10 cigarettes per day
4	Current smoker – smokes 10-19 cigarettes per day
5	Current smoker – smokes 20 or more cigarettes per day

The 3 categories of current smoking were aggregated for the purposes of transition.

Between Surveys 1 (1996) and 2 (2000) the ABS definition of smoking had changed by incorporating the criterion for current smoking of having ever smoked more than 100 cigarettes. This definition was adopted in Survey 2 with the inclusion of Question 55.

	Code	Response
<b>In your lifetime, would you have smoked at least 100 cigarettes (or equivalent)?</b> ( <i>Mark <u>one only</u></i> )	1	Yes
	2	No
	6	Not smoked 100
	8	Daily smoker

Responses to this item were used to resolve apparent inconsistencies in the cross-tabulation of smoking status at the 2 surveys (Table A3.1.1).

**Table A3.1.1: Re-coding of smoking status at Surveys 1 and 2 for the purpose of assignment to transition status only**

Survey data			Recoded values		
Y1 Smoking Status	Y2 Smoking Status	Ever smoked more than 100 cigarettes (Y2q55)	Y1 Smoking Status	Y2 Smoking Status	Number
Missing	Never smoked		Never smoked		267
Never smoked		Yes	Ex-smoker		253
Ex-smoker		No	Never smoked		459
Current smoker		No	Never smoked		163
	Missing	No		Never smoked	24

**Derived Variable**

Smoking transition status was determined for 9,682 women from the Younger cohort completing Survey 1 and either the full or the abbreviated version of Survey 2. Categories for transition were based on a cross-tabulation of smoking status at both surveys (Table A3.1.2) and are shown in Table A3.1.3. The SAS code deriving this variable is included in Appendix 3.1A.

**Table A3.1.2: Cross-tabulation of smoking status at Surveys 1 and 2, after re-coding**

Y1 Smoking Status	Y2 Smoking Status				Total
	Never smoker	Ex-smoker	Current Smoker	Missing	
Never smoker	5 523		238	41	5 802
Ex-smoker		752	396	51	1 199
Current smoker		520	1 722	115	2 357
Missing		104	193	28	325
<b>Total</b>	<b>5 523</b>	<b>1 376</b>	<b>2 549</b>	<b>235</b>	<b>9 683</b>

**Table A3.1.3: Smoking status transition between Surveys 1 and 2**

<b>Code</b>	<b>Smoking transition</b>	<b>Number</b>	<b>Percent</b>
1	Never smoked	5 523	60.4
2	Ex-smoker	752	8.2
3	Quitter	520	5.7
4	Re-starter	396	4.3
5	New Adopter	238	2.6
6	Continuing smoker	1 722	18.8
	<b>Total non-missing</b>	<b>9 151</b>	<b>100.0</b>
9	<i>Missing</i>	532	5.5
	<b>Total</b>	<b>9 683</b>	

All combinations of values for smoking status at each survey that were assigned to each transition category are shown in Table A3.1.4.

**Table A3.1.4: Smoking status transition between Surveys 1 and 2, including all combinations of smoking status at Surveys 1 and 2**

<b>Smoking transition</b>	<b>Y1 Smoking status</b>	<b>Y2 Smoking status</b>	<b>Number</b>
Never smoked	Never smoked	Never smoked	5 523
Ex-smoker	Ex-smoker	Ex-smoker	752
Quitter	Smoker	Never	520
Re-starter	Ex-smoker	Smoker	396
New Adopter	Never	Smoker	238
Continuing smoker	Smoker	Smoker	1 722
Missing	Missing	Missing	28
Missing	Missing	Ex-smoker	104
Missing	Missing	Smoker	193
Missing	Never	Missing	41
Missing	Ex-smoker	Missing	51
Missing	Smoker	Missing	115



## APPENDIX 3.2. MARITAL STATUS TRANSITION – YOUNGER COHORT SURVEYS 1 & 2

<b>Derived Variable</b>	YT12Marst
<b>Definition</b>	Transition in marital status between surveys 1 & 2
<b>Source Items</b>	Derived variables y1marst & y2marst
<b>Data Dictionary Index Number</b>	[To be allocated by the Data Manager]
<b>Endorsed by Data Management Group</b>	13 March 2002

### Source Items

Although the survey items concerning marital status differed between surveys 1 and 2, women were allocated to the same categories at both surveys.

Code	Category
1	Married
2	De facto
3	Separated
4	Divorced
5	Widowed
6	Never married

### Derived Variable

Transition in marital status was determined for 9,682 women from the Younger cohort completing Survey 1 and either the full or the abbreviated version of Survey 2. Categories for transition were based on a cross-tabulation of marital status at both surveys and are shown in Table A3.2.1.

**Table A3.2.1: Transition in Marital Status between Surveys 1 and 2**

Code	Transition in Marital Status	Number	Percent
1	Never married Surveys 1 & 2	4 775	49.7
2	Never married to De facto	1 470	15.3
3	Never to Married	1 166	12.1
4	Married Surveys 1 & 2	661	6.9
5	Married to Separated/Divorced/Widowed	44	0.5
6	De facto Surveys 1 & 2	425	4.4
7	De facto to Married	501	5.2
8	De facto to Never married	243	2.5
9	All other transitions	326	3.4
	<b>Total non-missing</b>	<b>9 611</b>	
99	<i>Missing</i>	72	0.7
	<b>Total</b>	<b>9 683</b>	

All combinations of values for marital status at each survey that were assigned to each transition category are shown in Table A3.2.2.

**Table A3.2.2: Marital status transition between Surveys 1 and 2, including all combinations of marital status at Surveys 1 and 2**

Marital status transition	Y1 Marital status	Y2 Marital status	Number
Never married Surveys 1 & 2	Missing	Never married	22
	Never married	Never married	4 753
Never married to De facto	Never married	De facto	1 470
Never to Married	Never married	Married	1 166
Married Surveys 1 & 2	Married	Married	661
Married to Separated/ Divorced/Widowed	Married	Separated	24
		Divorced	19
		Widowed	1
De facto Surveys 1 & 2	De facto	De facto	425
De facto to Married	De facto	Married	501
De facto to Never married	De facto	Never married	243
All other transitions	Married	De facto	72
		Never married	105
		De facto	34
		Divorced	1
		Widowed	2
	Separated	Married	11
		De facto	21
		Separated	4
		Divorced	5
		Never married	13
	Divorced	De facto	1
		Divorced	1
		Never married	1
	Widowed	Married	1
		Never married	45
		Divorced	8
		Widowed	1
Missing	Missing	Missing	1
		Married	13
		Divorced	9
		Separated	1
	Married	6	
	De facto	6	
	Never married	36	

**Variations:** In the manuscript *Life Changes And Smoking Behaviour In Young Australian Women* (McDermott, Dobson & Russell) the first marital transition category (50% of observations) was further divided on the basis of transition in living with parents (see SAS code in Appendix 3.2A).

<b>Code</b>	<b>Transition in Marital Status/Living with Parents</b>	<b>Number</b>	<b>Percent</b>
1	Never married-Not living with parents in both 1996 & 2000	1 422	15.0
2	Never married-Living with parents 1996 but not in 2000	1 110	11.7
3	Never married-Living with parents in 2000	2 090	22.1
4	Never married to De facto	1 470	15.3
5	Never to Married	1 166	12.1
6	Married Surveys 1 & 2	661	6.9
8	De facto Surveys 1 & 2	425	4.4
9	De facto to Married	501	5.2
10	De facto to Never married	243	2.5
11	All other transitions	326	3.4
	<b>Total non-missing</b>	<b>9 458</b>	
99	<i>Missing</i>	225	2.3
	<b>Total</b>	<b>9 683</b>	

### APPENDIX 3.3: TRANSITION IN ALCOHOL CONSUMPTION – YOUNGER COHORT SURVEYS 1 & 2

<b>Derived Variable</b>	YT12AlcSt
<b>Definition</b>	Transition in alcohol consumption between Surveys 1 & 2
<b>Source Items</b>	Derived variables y1AlcSt & y2AlcSt
<b>Data Dictionary Index Number</b>	ALCS <i>To be allocated by the Data Manager</i>
<b>Endorsed by Data Management Group</b>	13 March 2002

#### Source Items

Alcohol consumption was defined in the same way at surveys 1 and 2 and was based on categories of estimated risk.

Code	Category
1	Non-drinker
2	Rarely drinks
3	No-risk drinker (up to 2 drinks per day on average)
4	Low-risk drinker (up to 4 drinks per day on average)
5	Intermediate-risk drinker (up to 8 drinks per day on average)
6	High-risk drinker (an average of more than 8 drinks per day)

Categories of intermediate-risk and high-risk were aggregated for the purposes of transition.

#### Derived Variable

Transition in alcohol consumption was determined for 9 682 women from the younger cohort completing survey 1 and either the full or the abbreviated version of survey 2. Categories for transition were based on a cross-tabulation of alcohol consumption at both surveys (Table A3.3.1) and are shown in Table A3.3.2. The SAS code deriving this variable is included in Appendix 3.3A

**Table A3.3.1: Cross-tabulation of alcohol consumption at surveys 1 and 2**

Survey 1	Survey 2						Total
	Non-drinker	Rarely drinks	No risk	Low risk	Intermediate or High risk	Missing	
<b>Non-drinker</b>	428	253	85	23	5	3	<b>797</b>
<b>Rarely drinks</b>	306	1 510	1 183	219	44	19	<b>3 281</b>
<b>No risk</b>	58	564	2 191	311	35	24	<b>3 183</b>
<b>Low risk</b>	36	300	769	467	100	16	<b>1 688</b>
<b>Intermediate or High risk</b>	17	149	192	164	105	9	<b>631</b>
<b>Missing</b>	15	22	42	9	8	2	<b>98</b>
<b>Total</b>	<b>860</b>	<b>2 798</b>	<b>4 462</b>	<b>1 193</b>	<b>297</b>	<b>73</b>	<b>9 683</b>

**Table A3.3.2: Transition in Alcohol Consumption between surveys 1 and 2**

Code	Transition in Alcohol Consumption	Number	Percent
<i>No Change</i>			
1	Rarely drinks (no change)	1 510	15.9
2	Non-drinker (no change)	428	4.5
3	No risk (no change)	2 191	23.0
4	Low risk (no change)	467	4.9
5	Intermediate or High risk (no change)	105	1.1
<i>Decreased Consumption</i>			
6	Rarely drinks to non-drinker	306	3.2
7	No risk to non-drinker or rarely drinks	622	6.5
8	Low risk to less risk	1 105	11.6
9	Intermediate or high risk to less risk	522	5.5
<i>Increased Consumption</i>			
10	Non-drinker to rarely drinks	253	2.7
11	Non-drinker or rarely drinks to no risk	1 268	13.3
12	Non-drinker/rarely drinks/no risk drinker to low risk	553	5.8
13	All lower levels of risk to Intermediate or High risk	184	1.9
<b>Total non-missing</b>		<b>9 514</b>	
99	<i>Missing</i>	169	
<b>Total</b>		<b>9 683</b>	1.8

All combinations of values for alcohol consumption at each survey that were assigned to each transition category are shown in Table A3.3.3.

**Table A3.3.3: Transition in alcohol consumption between Surveys 1 and 2, including all combinations of alcohol consumption at Surveys 1 and 2**

Transition	Survey 1	Survey 2	Number
Rarely drinks (no change)	Rarely drinks	Rarely drinks	1 510
Non-drinker (no change)	Non-drinker	Non-drinker	428
No risk (no change)	No risk	No risk	2 191
Low risk (no change)	Low risk	Low risk	467
Intermediate or High risk (no change)	Intermediate risk	Intermediate risk	104
	High risk	Intermediate risk	1
Rarely drinks to non-drinker	Rarely drinks	Non-drinker	306
No risk to non-drinker or rarely drinks	No risk	Non-drinker	58
		Rarely drinks	564
Low risk to less risk	Low Risk	Non-drinker	36
		Rarely drinks	300
		No risk	769

<b>Transition</b>	<b>Survey 1</b>	<b>Survey 2</b>	<b>Number</b>	
Intermediate or high risk to less risk	Intermediate risk	Non-drinker	17	
		Rarely drinks	148	
		No risk	192	
		Low risk	161	
		High risk	Rarely drinks	1
		Low risk	3	
Non-drinker to rarely drinks	Non-drinker	Rarely drinks	253	
Non-drinker or rarely drinks to no risk	Non-drinker	No risk	85	
	Rarely drinks	No risk	1 183	
Non-drinker or rarely drinks or no risk drinker to low risk	Non-drinker	Low risk	23	
	Rarely drinks	Low risk	219	
	No risk	Low risk	311	
All lower levels of risk to intermediate or high risk	Non-drinker	Intermediate risk	5	
	Rarely drinks	Intermediate risk	44	
	No risk	Intermediate risk	35	
	Low risk	Intermediate risk	98	
		High risk	2	
Missing	Missing	Missing	2	
		Non-drinker	15	
		Rarely drinks	22	
		No risk	42	
		Low risk	9	
		Intermediate risk	8	
		Non-drinker	Missing	3
		Rarely drinks	Missing	19
		No risk	Missing	24
		Low risk	Missing	16
Intermediate risk	Missing	9		

## APPENDIX 3.4: TRANSITION IN ALCOHOL BINGE FREQUENCY, YOUNGER COHORT, SURVEYS 1 & 2

<b>Derived Variable</b>	YT12AlcBngFrq
<b>Definition</b>	Transition in alcohol consumption between surveys 1 & 2
<b>Source Items</b>	y1q37 & y2q61
<b>Data Dictionary Index Number</b>	ALCS <i>To be allocated by the Data Manager</i>
<b>Endorsed by Data Management Group</b>	13 March 2002

### Source Items

Binge drinking has been defined as having 5 or more drinks on one occasion. Binge drinking frequency was categorised in the same way at Surveys 1 and 2.

### Code Category

- 0 Non-drinker
- 1 Drinks but never binges
- 2 Binges less than once per month
- 3 Binges about once per month
- 4 Binges about once per week
- 5 Binges more than once per week

The categories of binge drinking about once per week and more than once per week were aggregated for the purposes of transition.

### Derived Variable

Transition in binge drinking was determined for 9,682 women from the younger cohort completing Survey 1 and either the full or the abbreviated version of Survey 2. Categories for transition were based on a cross-tabulation of binge drinking at both surveys (Table A3.4.1) and are shown in Table A3.4.2. The SAS code deriving this variable is included in Appendix 3.4A.

**Table A3.4.1: Cross-tabulation of binge drinking frequency at surveys 1 and 2**

<b>Survey 1</b>	<b>Survey 2</b>					<b>Missing</b>	<b>Total</b>
	<b>Never drinks</b>	<b>Drinks but never binges</b>	<b>Less than once /month</b>	<b>About once /month</b>	<b>About once /week or more</b>		
<b>Never drinks</b>	428	231	86	24	19	9	<b>797</b>
<b>Drinks but never binges</b>	210	867	569	151	53	30	<b>1 880</b>
<b>Less than once /month</b>	117	487	1 678	595	253	44	<b>3 174</b>
<b>About once /month</b>	46	162	794	638	393	15	<b>2 048</b>
<b>About once/week or more</b>	38	62	407	485	629	15	<b>1 636</b>
<b>Missing</b>	21	20	50	37	16	4	<b>148</b>
<b>Total</b>	<b>860</b>	<b>1 829</b>	<b>3 584</b>	<b>1 930</b>	<b>1 363</b>	<b>117</b>	<b>9 683</b>



**Table A3.4.2: Number and percent in categories for transition in alcohol binge frequency**

<b>Code</b>	<b>Transition in alcohol binge frequency</b>	<b>Number</b>	<b>Percent</b>
	<b>No Change</b>		
1	Drinks but never binges (no change)	867	9.2
2	Never drinks (no change)	428	4.5
3	Less than once per month (no change)	1 678	17.8
4	About once per month (no change)	638	6.8
5	About once per week or more (no change)	629	6.7
	<b>Decreased</b>		
6	Drinks but never binges to never drinks	210	2.2
7	Less than once per month to never drinks or drinks but never binges	604	6.4
8	Decreased from about once per month	1 002	10.6
9	Decreased from about once per week or more to less than once per month	507	5.4
10	Decreased from about once per week or more to about once per month	485	5.2
	<b>Increased</b>		
11	Never drinks to drinks but never binges	231	2.5
12	Never drinks or drinks but never binges to less than once per month	655	7.0
13	Never drinks or drinks but never binges to about once per month or more	247	2.6
14	Increased from less than once per month	848	9.0
15	Increased from about once per month	393	4.2
	<b>Total non-missing</b>	<b>9442</b>	
99	<i>Missing</i>	261	2.7
	<b>Total</b>	<b>9 683</b>	

All combinations of values for alcohol consumption at each survey that were assigned to each transition category are shown in Table A3.4.3.

**Variations:** In the manuscript *Life Changes And Smoking Behaviour In Young Australian Women* (McDermott, Dobson & Russell) analyses were performed on smoking-related sub-groups of the young cohort. This produced small numbers in some categories within these sub-groups, it was necessary to collapse categories 4 and 5, 7 and 8, 9 and 10, 12 and 13, and 14 and 15.

**Table A3.4.3: Transition in alcohol binge frequency categories, including all combinations of binge frequency at surveys 1 and 2**

<b>Transition</b>	<b>Survey 1</b>	<b>Survey 2</b>	<b>Number</b>
<b>No Change</b>			
Never drinks	Never drinks	Never drinks	428
Drinks but never binges	Never binges	Never binges	867
Less than once per month	Less than once per month	Less than once per month	1 678
About once per month	About once per month	About once per month	638
About once per week or more	About once per week	About once per week	460
		More than once per week	64
	More than once per week	About once per week	79
		More than once per week	26
<b>Decreased</b>			
Drinks but never binges to never drinks	Never binges	Never drinks	210
Less than once per month to never drinks or drinks but never binges	Less than once per month	Never drinks	117
		Never binges	487
Decreased from about once per month	About once per month	Never drinks	46
		Never binges	162
		Less than once per month	794
Decreased from about once per week or more to less than once per month	About once per week	Never drinks	27
		Never binges	53
		Less than once per month	356
		Never drinks	11
		Never binges	9
		Less than once per month	51
Decreased from about once per week or more to about once per month	About once per week	About once per month	433
	More than once per week	About once per month	52

<b>Transition</b>	<b>Survey 1</b>	<b>Survey 2</b>	<b>Number</b>	
<b>Increased</b>				
Never drinks to drinks but never binges	Never drinks	Never binges	231	
Never drinks or drinks but never binges to less than once per month	Never drinks	Less than once per month	86	
	Never binges	Less than once per month	569	
Never drinks or drinks but never binges to about once per month or more	Never drinks	About once per month	24	
		About once per week	17	
		More than once per week	2	
	Never binges	About once per month	151	
		About once per week	47	
		More than once per week	6	
Increased from less than once per month	Less than once per month	About once per month	595	
		About once per week	222	
		More than once per week	31	
Increased from about once per month	About once per month	About once per week	348	
		More than once per week	45	
<b>Missing</b>				
	Missing	Missing	4	
		Never drinks	21	
		Never binges	20	
		Less than once per month	50	
		About once per month	37	
		About once per week	16	
		Never drinks	Missing	9
		Never binges	Missing	30
		Less than once per month	Missing	44
		About once per month	Missing	15
		About once per week	Missing	12
		More than once per week	Missing	3

### APPENDIX 3.5: TRANSITION IN LIVING WITH PARENTS – YOUNGER COHORT, SURVEYS 1 & 2

<b>Derived Variable</b>	yt12LiveParent
<b>Definition</b>	Transition in living with parents between surveys 1 & 2
<b>Source Items</b>	Y1q67e and y2q84, parts e, f & g
<b>Data Dictionary Index Number</b>	<i>To be allocated by the Data Manager</i>
<b>Endorsed by Data Management Group</b>	13 March 2002

#### Source Items

	Survey 1 Item 67	Survey 2 Item 84	Responses and Codes	
Who lives with you?			Yes	No
Parents	<b>e</b>		1	2
Mother		<b>e</b>	1	0
Father		<b>f</b>	1	0
Step-mother/step-father		<b>g</b>	1	0

#### Derived Variable

Transition in living with parents was determined for 9,682 women from the Younger cohort completing Survey 1 and either the full or the abbreviated version of Survey 2. Categories for transition were based on a cross-tabulation of living with parents at both surveys (Table A3.5.1) and are shown in Table A3.5.2. The SAS code deriving this variable is included in Appendix 3.5A.

**Table A3.5.1: Cross-tabulation of living with parents Surveys 1 and 2**

Survey 1	Survey 2			Total
	Yes	No	Missing	
<b>Yes</b>	1 939	2 665	100	<b>4 704</b>
<b>No</b>	452	4 322	102	<b>4 876</b>
<b>Missing</b>	21	80	2	<b>103</b>
<b>Total</b>	<b>2 412</b>	<b>7 067</b>	<b>204</b>	<b>9 683</b>

**Table A3.5.2: Number and percent in categories for transition in living with parents**

<b>Code</b>	<b>Transition in living with parents</b>	<b>Number</b>	<b>Percent</b>
1	Not with parents Surveys 1 & 2	4 322	46.1
2	With parents at Survey 1, not at Survey 2	2 665	28.4
3	With parents Surveys 1 & 2	1 939	20.7
4	Not with parents Survey 1, with parents at Survey 2	452	4.8
	<b>Total non-missing</b>	<b>9378</b>	
9	<i>Missing</i>	305	3.2
	<b>Total</b>	<b>9 683</b>	

## APPENDIX 3.6: TRANSITION IN LIVING WITH PARTNER, YOUNGER COHORT – SURVEYS 1 & 2

<b>Derived Variable</b>	yt12LivePartner
<b>Definition</b>	Transition in living with a partner between Surveys 1 & 2
<b>Source Items</b>	Y1q67b and y2q84b
<b>Data Dictionary Index Number</b>	<i>To be allocated by the Data Manager</i>
<b>Endorsed by Data Management Group</b>	13 March 2002

### Source Items

	Survey 1 Item 67	Survey 2 Item 84	Responses and Codes	
Who lives with you?			Yes	No
Partner	<b>b</b>		1	2
Partner		<b>b</b>	1	0

### Derived Variable

Transition in living with a partner was determined for 9 682 women from the younger cohort completing Survey 1 and either the full or the abbreviated version of Survey 2. Categories for transition were based on a cross-tabulation of living with a partner at both Surveys (Table A3.6.1) and are shown in Table A.3.6.2. The SAS code deriving this variable is included in Appendix 3.6A.

**Table A3.6.1: Cross-tabulation of at living with a partner at Surveys 1 and 2**

Survey 1	Survey 2			Total
	Yes	No	Missing	
<b>Yes</b>	1 789	384	30	<b>2 203</b>
<b>No</b>	2 938	4 249	169	<b>7 356</b>
<b>Missing</b>	53	66	5	<b>124</b>
<b>Total</b>	<b>4 780</b>	<b>4 699</b>	<b>204</b>	<b>9 683</b>

**Table A3.6.2: Number and percent in categories for transition in living with a partner**

Code	Transition in living with parents	Number	Percent
1	Not with partner Surveys 1 & 2	4 249	45.4
2	With partner at Survey 1, not at Survey 2	384	4.1
3	With partner Surveys 1 & 2	1 789	19.1
4	Not with partner Survey 1, with partner at Survey 2	2 938	31.4
	<b>Total non-missing</b>	<b>9360</b>	
9	<i>Missing</i>	323	3.3
	<b>Total</b>	<b>9 683</b>	

## APPENDIX 3.7: TRANSITION TO PARENTHOOD: YOUNGER COHORT, SURVEYS 1 & 2

<b>Derived Variable</b>	yt12Parenthood
<b>Definition</b>	Transition to parenthood between Surveys 1 & 2
<b>Source Items</b>	Y1q21d, y2q35a and y2q35b
<b>Data Dictionary Index Number</b>	<i>To be allocated by the Data Manager</i>
<b>Endorsed by Data Management Group</b>	13 March 2002

### Source Items

#### Survey 1

**21 How many times have you:** Given birth to a child

Response	Never	Once	Twice	Three times	Four or more times	Don't want to answer
<i>Code</i>	0	1	2	3	4	5

#### Survey 2

**35 How many times have you had each of the following:** (*Mark all that apply*)

- a Live birth (more than 36 weeks)
- b Live premature birth (36 weeks or less)

Response	One	Two	Three	Four	5 or more
<i>Code</i>	1	2	3	4	5

- Responses have been edited so that if any of the 5 parts of the question 35 is marked, then all unmarked items are coded to 0.
- If no parts of the question are marked, then all parts are coded to missing.

### Derived Variable

Transition to parenthood was determined for 9,682 women from the younger cohort completing Survey 1 and either the full or the abbreviated version of Survey 2. Categories for transition were based on a cross-tabulation of parental status at both surveys (Table A3.7.1) and are shown in Table A3.7.2. The SAS code deriving this variable is included in Appendix 3.7A.

**Table A3.7.1: Cross-tabulation of parental status at Surveys 1 and 2**

<b>Survey 1</b>	<b>Survey 2</b>		<b>Total</b>
	Is a parent (i.e. had a live birth)	Not a parent (i.e. no live births)	
Is a parent (i.e. has given birth)	696	34	<b>730</b>
Not a parent (i.e. has not given birth)	1 077	7 714	<b>8 791</b>
Does not want to answer questions about birth	6	20	<b>26</b>
<b>Missing</b>	37	99	<b>136</b>
<b>Total</b>	<b>1 816</b>	<b>7 867</b>	<b>9 683</b>

**Table A3.7.2: Number and percent in categories for transition to parenthood**

<b>Code</b>	<b>Transition to Parenthood</b>	<b>Number</b>	<b>Percent</b>
1	Parent before Survey 1	730	7.6
2	Not parent at Survey 1; parent at Survey 2	1 077	11.2
3	Not a parent at Survey 2	7 833	81.3
	<b>Total non-missing</b>	<b>9 640</b>	
9	<i>Missing</i>	43	0.4
	<b>Total</b>	<b>9 683</b>	

All combinations of values for parental status at each survey that were assigned to each transition category are shown in Table A3.7.3.

**Table A3.7.3: Transition in parental status categories, including all combinations of parental status at Surveys 1 and 2**

<b>Transition</b>	<b>Survey 1</b>	<b>Survey 2</b>	<b>Number</b>
Parent before Survey 1	Is a parent	Not a parent	34
		Is a parent	696
Not parent at Survey 1; parent at Survey 2	Not a parent	Is a parent	1 077
Not a parent at Survey 2	Not a parent	Not a parent	7 714
		Missing	99
		Does not want to answer questions	20
Missing	Missing	Is a parent	37
		Does not want to answer questions	6



## APPENDIX 3.8: TRANSITION IN QUALIFICATIONS – YOUNGER COHORT, SURVEYS 1 & 2

<b>Derived Variable</b>	yt12Qual
<b>Definition</b>	Transition in formal qualifications between Surveys 1 & 2
<b>Source Items</b>	Y1q78 and y2q94
<b>Data Dictionary Index Number</b>	<i>To be allocated by the Data Manager</i>
<b>Endorsed by Data Management Group</b>	13 March 2002

### Source Items – Surveys 1 & 2

Highest formal qualifications were ascertained with the same question in Surveys 1 and 2 and responses were collapsed as below.

#### Code Category

- 1 University education
- 2 Trade/apprenticeship/certificate/diploma
- 3 Year 12 or equivalent
- 4 No formal qualifications or Year 10 or equivalent

#### Derived Variable

Transition in formal qualifications was determined for 9 682 women from the younger cohort completing Survey 1 and either the full or the abbreviated version of Survey 2.

Categories for transition were based on a cross-tabulation of formal qualifications at both surveys (Table A3.8.1) and are shown in Table A3.8.2. No transition in qualifications was assumed for young women with qualifications missing in Survey 2. The SAS code deriving this variable is included in Appendix 3.8A.

**Table A3.8.1: Cross-tabulation of formal qualifications at Surveys 1 and 2**

Survey 1	Survey 2					Total
	University	Certificate/ Diploma/ Trade	Year 12	Year 10 or less	Missing	
University	1 158	4	10	1	14	<b>1 187</b>
Certificate/ Diploma/Trade	150	1 218	155	75	108	<b>1 706</b>
Year 12	2 415	817	1 961	45	141	<b>5 379</b>
Year 10 or less	35	212	112	918	87	<b>1 364</b>
Missing	8	15	12	12	0	<b>47</b>
<b>Total</b>	<b>3 766</b>	<b>2 266</b>	<b>2 250</b>	<b>1 051</b>	<b>350</b>	<b>9 683</b>

**Table A.3.8.2: Number and percent in categories for transition in formal qualifications**

<b>Code</b>	<b>Transition in formal qualifications</b>	<b>Number</b>	<b>Percent</b>
1	University (no change)	1 172	12.2
2	Certificate/Diploma/Trade (no change)	1 326	13.8
3	Year 12 (no change)	2 102	21.8
4	Year 10 or less (no change)	1 005	10.4
5	Any other to University	2 600	27.0
6	Year 12 to Trade/apprenticeship/certificate/ diploma	817	8.5
7	Year 10 or less to Year 12/ Certificate/diploma/Trade	324	3.4
8	Any Category “to less education”	290	3.0
	<b>Total non-missing</b>	<b>9 636</b>	
9	<i>Missing</i>	47	0.5
	<b>Total</b>	<b>9 683</b>	

All combinations of values for qualifications at each survey that were assigned to each transition category are shown in Table A3.8.3.

**Table A3.8.3: Transition in qualifications categories, including all combinations of qualifications at Surveys 1 and 2**

<b>Transition</b>	<b>Survey 1</b>	<b>Survey 2</b>	<b>Number</b>
University (no change)	University	University	1 158
		Missing	14
Trade/apprenticeship/ certificate/diploma (no change)	Trade/apprenticeship/ certificate/diploma	Trade/apprenticeship/ certificate/diploma	1 218
		Missing	108
Year 12 (no change)	Year 12	Year 12	1 961
		Missing	141
Year 10 or less (no change)	Year 10 or less	Year 10 or less	918
		Missing	87
Any other to University	Trade/apprenticeship/ certificate/diploma	University	150
	Year 12 or equivalent	University	2 415
	No formal qualifications or Year 10 or equivalent	University	35
Year 12 to Trade/ apprenticeship/ certificate/diploma	Year 12	Trade/apprenticeship/ certificate/diploma	817
Year 10 or less to Year 12 or Trade/ apprenticeship/ certificate/diploma	No formal qualifications or Year 10 or equivalent	Trade/apprenticeship/ certificate/diploma	212
		Year 12 or equivalent	112
Any Category “to less education”	University education	Trade/apprenticeship/ certificate/diploma	4
		Year 12 or equivalent	10
		No formal qualifications or Year 10 or equivalent	1
	Trade/apprenticeship/ certificate/diploma	Year 12 or equivalent	155
		No formal qualifications or Year 10 or equivalent	75
	Year 12 or equivalent	No formal qualifications or Year 10 or equivalent	45
Missing	Missing	University education	8
		Trade/apprenticeship/ certificate/diploma	15
		Year 12 or equivalent	12
		No formal qualifications or Year 10 or equivalent	12

## APPENDIX 3.9: WORK STATUS TRANSITION – YOUNGER COHORT, SURVEYS 1 & 2

<b>Derived Variable</b>	yt12Work
<b>Definition</b>	Transition in work/study status between Surveys 1 & 2
<b>Source Items</b>	Derived variables y1Work & y2Work
<b>Data Dictionary Index Number</b>	<i>To be allocated by the Data Manager</i>
<b>Endorsed by Data Management Group</b>	13 March 2002

### Source Items – Surveys 1 & 2

Work/study status was defined similarly at Surveys 1 and 2 and was collapsed to the same categories for the derivation of transition.

Code	Category
1	Study only
2	Work and study
3	Work only
4	No work or study

### Derived Variable

Transition in work/study status was determined for 9 682 women from the younger cohort completing Survey 1 and either the full or the abbreviated version of Survey 2.

Categories for transition were based on a cross-tabulation of work/study status at both surveys (Table A3.9.1) and are shown in Table A3.9.2. The SAS code deriving this variable is included in Appendix 3.9A.

**Table A3.9.1: Cross-tabulation of work/study status at Surveys 1 and 2**

Survey 1	Survey 2				Missing	Total
	Study only	Work and study	Work only	No work or study		
<b>Study only</b>	164	1 047	1 822	198	15	<b>3 246</b>
<b>Work and study</b>	34	431	757	65	1	<b>1 288</b>
<b>Work only</b>	88	678	2 607	436	17	<b>3 826</b>
<b>No work or study</b>	80	143	539	381	5	<b>1 148</b>
<b>Missing</b>	6	43	92	33	1	<b>175</b>
<b>Total</b>	<b>372</b>	<b>2 342</b>	<b>5 817</b>	<b>1 113</b>	<b>39</b>	<b>9 683</b>

**Table A3.9.2: Number and percent in categories for work/study status**

<b>Code</b>	<b>Transition in work/study status</b>	<b>Number</b>	<b>Percent</b>
1	Continuing work only	2 607	27.5
2	Continuing study only	164	1.7
3	Stay at home	381	4.0
4	No longer works or studies	699	7.4
5	Study only to Work only	1 822	19.2
6	Work & study to Work only	757	8.0
7	No work or study to Work only	539	5.7
8	Study only to Work and study	1 047	11.1
9	Work with or without study to Study with or without work	1 231	13.0
10	No work or study to Study with or without work	223	2.4
	<b>Total non-missing</b>	<b>9 470</b>	<b>100.0</b>
99	<i>Missing</i>	213	2.2
	<b>Total</b>	<b>9 683</b>	

**APPENDIX 3.10: EMPLOYMENT VARIABLES AND TRANSITIONS, MID-AGE SURVEYS 1, 2 AND 3**

<b>Derived Variable</b>	M1LabF, M2LabF, M3LabF
<b>Definition</b>	Labour force participation
<b>Source Items</b>	Mid 1 Survey: Questions 66 Mid 2 Survey: Question 54 Mid 3 Survey: Question 71
<b>Data Dictionary Index Number</b>	
<b>Derived Variable</b>	M1Paid, M2 Paid, M3Paid
<b>Definition</b>	Payment for work
<b>Source Items</b>	Mid 1 Survey: Questions 66 & 67 Mid 2 Survey: Questions 54 & 55 Mid 3 Survey: Question 71
<b>Data Dictionary Index Number</b>	
<b>Derived Variable</b>	M1HrsWork, M2HrsWork, M3HrsWork
<b>Definition</b>	Hours worked
<b>Source Items</b>	Mid 1 Survey: Questions 66 & 67 Mid 2 Survey: Questions 54 & 55 Mid 3 Survey: Question 71
<b>Data Dictionary Index Number</b>	
<b>Derived Variable</b>	MT12Hrs, MT23Hrs
<b>Definition</b>	Employment transition
<b>Source Items</b>	M1HrsWork, M2HrsWork, M3HrsWork
<b>Data Dictionary Index Number</b>	
<b>Endorsed by Data Management Group</b>	

### Source items

Survey 1

**66 Which of the following best describes your main current employment status?** (Circle one number only)

<b>Response</b>	<b>Code</b>
In full time paid work	1
In part time or casual paid work	2
Work without pay (eg in a family business)	3
Home duties only - no paid work	4
Studying - no paid work	5
Unemployed - looking for work	6
Unpaid voluntary work	7
Retired	8
Unable to work due to sickness or injury	9
Other	10

**67 How many hours do you normally spend in all your PAID jobs each week?** (Circle one number only)

<i>Response</i>	<i>Code</i>
1 - 15 hours	1
16 - 24 hours	2
25 - 34 hours	3
35 - 40 hours	4
41 - 48 hours	5
49 hours or more	6
Not in paid work	7

### Survey 2

**54. Which of the following describes your MAIN and SECONDARY occupation status?** (Eg if you work part-time and do home duties, the one which takes most time would be MAIN and the other would be SECONDARY). (Mark one circle in each column)

<b>Response</b>	<i>Code</i>	
	<b>a. Main</b>	<b>b. Secondary</b>
In full time paid work	1	1
In part time or casual paid work	2	2
Work without pay (eg in a family business)	3	3
Home duties	4	4
Studying	5	5
Unemployed - looking for work	6	6
Unpaid voluntary work	7	7
Retired	8	8
Unable to work due to sickness or injury	9	9
No secondary occupation		0

**55. How many hours do you normally spend in your paid work each week?** (Mark one circle only)

<i>Response</i>	<b>Code</b>
None	1
1 - 15 hours	2
16 - 24 hours	3
25 - 34 hours	4
35 - 40 hours	5
41 - 48 hours	6
49 hours or more	7

**71. In the LAST WEEK, how much time in total did you spend doing the following things?**

(Mark one on each line)

- a) Full-time paid work
- b) Permanent part-time paid work
- c) Casual paid work
- d) Home duties (own/family home)
- e) Work without pay (eg family business)
- f) Looking for work
- g) Unpaid voluntary work
- h) Studying

<b>Response</b>	<b>Code</b>
I don't do this activity	0
1-15 hours	1
16-24 hours	2
25-34 hours	3
35-40 hours	4
41-48 hours	5
49 hours or more	6



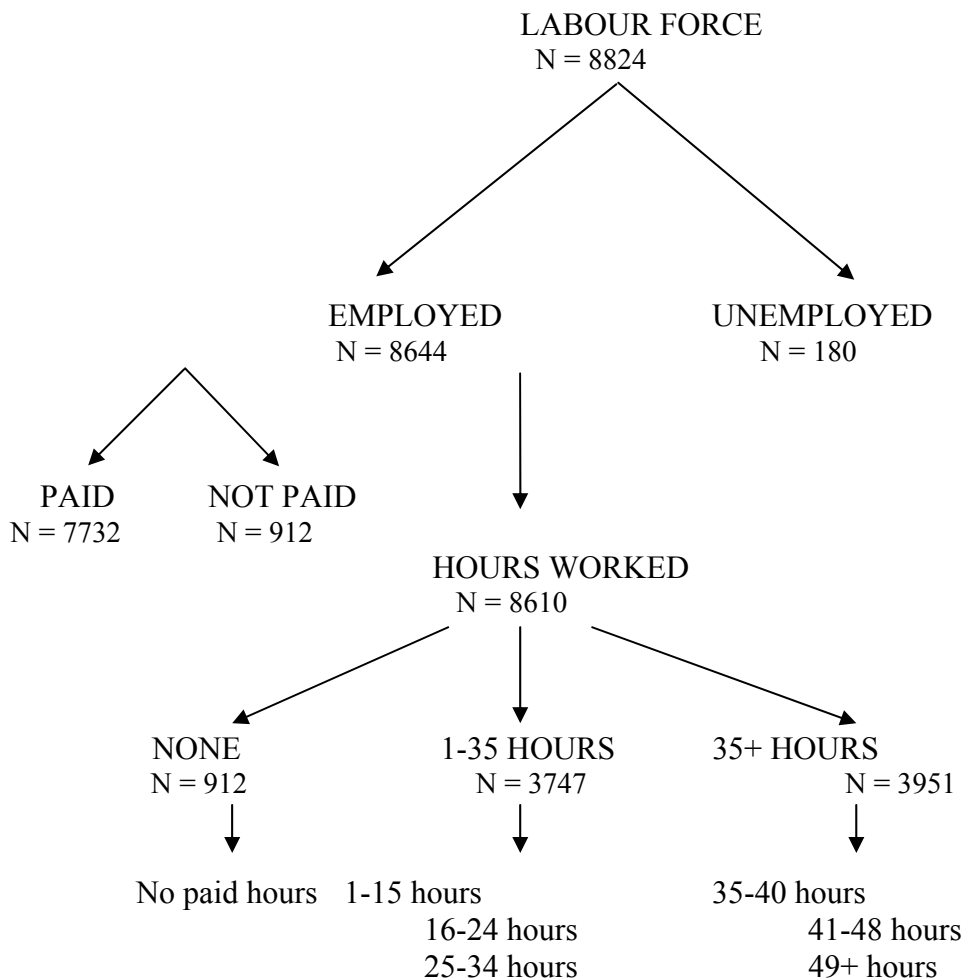
MID 1:

LABOUR FORCE

- Full time (employed) (paid)
- Part time (employed) (paid)
- Casual (employed) (paid)
- Work without pay / family worker (employed) (not paid)
  
- Unemployed (unemployed)

NOT IN LABOUR FORCE N = 2695

- Home duties: N = 1912
- Studying: N = 97
- Retired: N = 80
- Unable - sick or injured: N = 262
- Unpaid voluntary: N = 158
- Other: N = 186



MID 2:

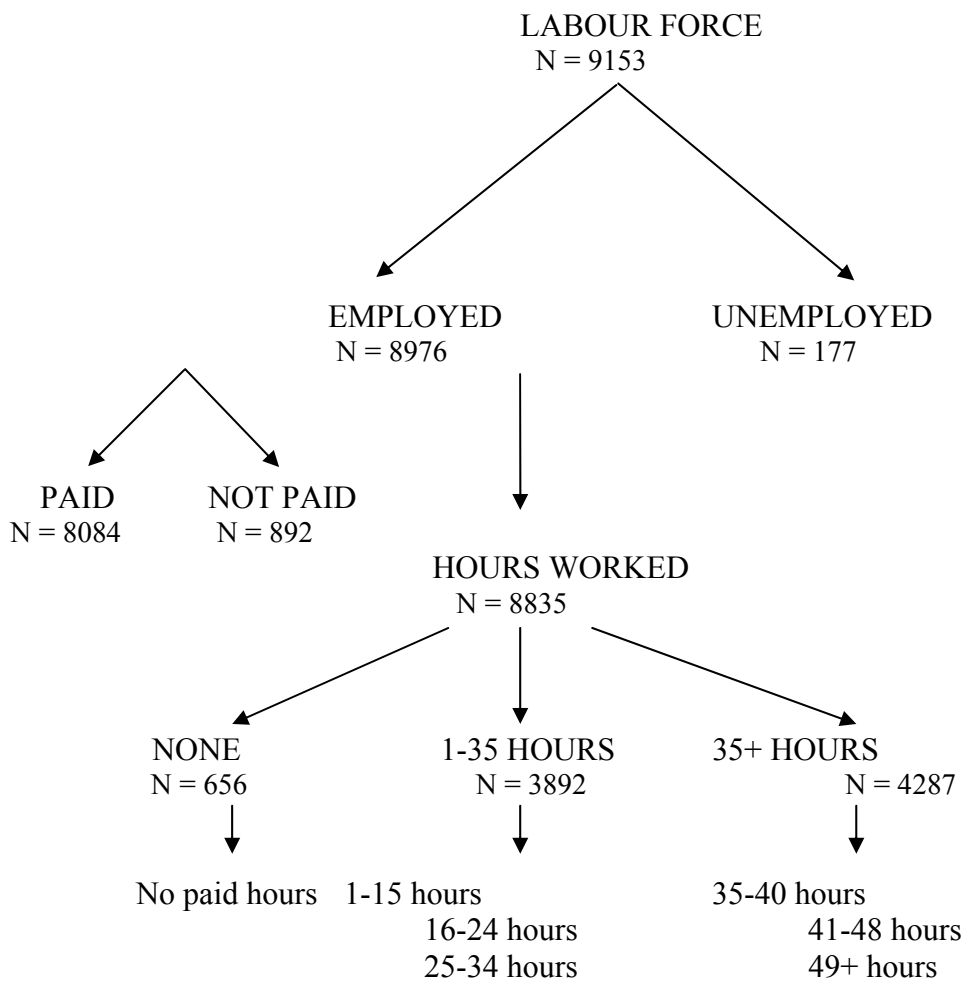
LABOUR FORCE

- Full time (employed) (paid)
- Part time (employed) (paid)
- Casual (employed) (paid)
- Work without pay / family worker (employed) (not paid)
  
- Unemployed (unemployed)

NOT IN LABOUR FORCE N = 2270

(The total number of women in each category below is based on answers to main occupation only.)

- Home duties: N = 1956
- Studying: N = 42
- Retired: N = 68
- Unable - sick or injured: N = 155
- Unpaid voluntary: N = 34
- No secondary occupation: N = 15



MID 3:

LABOUR FORCE

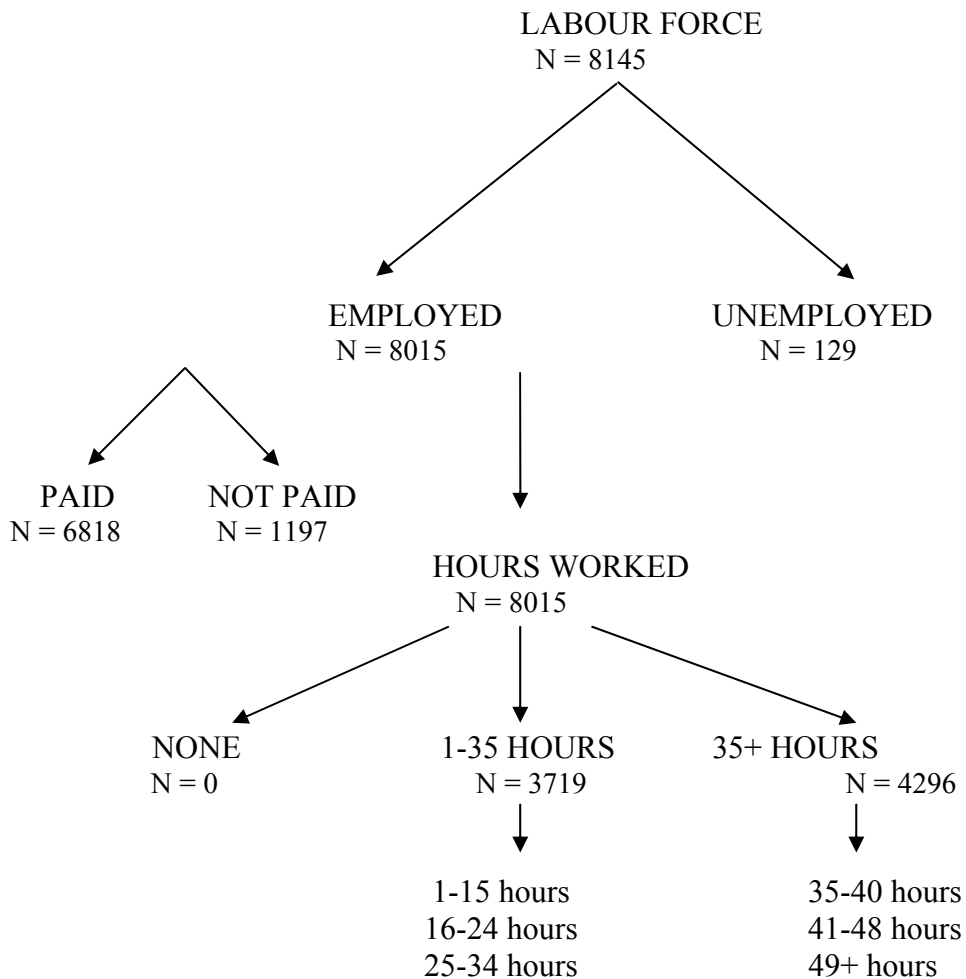
- Full time (employed) (paid)
- Part time (employed) (paid)
- Casual (employed) (paid)
- Work without pay / family worker (employed) (not paid)
  
- Unemployed (unemployed)

NOT IN LABOUR FORCE N = 2095

(Due to the style of question asked at this time the number of women, in each of the separate categories outside the labour force, could not be calculated as multiple combinations of answers were possible and thus common.)

- Home duties
- Studying
- Retired
- Unable - sick or injured
- Unpaid voluntary
- Other

For MID survey 3, due to the style of question and the calculation for total hours worked, there is no 'no paid hours worked' category.



## APPENDIX 3.11: MOS SOCIAL SUPPORT SCALE

<b>Derived Variables</b>	<ol style="list-style-type: none"><li>1. m2mnemigp</li><li>2. m2mnaffposgp</li><li>3. m2mntangp</li><li>4. m2socsupgp6, y2socsupgp6</li></ol>
<b>Definitions</b>	<ol style="list-style-type: none"><li>1. MOS emotional/informational support</li><li>2. MOS affectionate support/positive social interaction</li><li>3. MOS tangible support</li><li>4. MOS 6 item social support score</li></ol>
<b>Source Items</b>	Young Survey 2: Question 89, parts a-f Young Survey 3: Question 100: parts a-f Mid-Age Survey 2: Question 82, parts a-m Mid-Age Survey 3: Question 81, parts a-f
<b>Data Dictionary Index Number</b>	FAMF <i>[To be allocated by the Data Manager]</i>
<b>Endorsed by Data Management Group</b>	7 August 2002

## Tables

**Table A1 Pearson Correlations for 19 Social Support Items, by subscale**

	<i>Tangible Support</i>				<i>Affectionate Support</i>			<i>Positive Social Interaction</i>		
	a	d	k	n	e	i	s	f	j	q
a		0.67	0.65	0.68	0.48	0.44	0.44	0.47	0.47	0.48
d			0.65	0.66	0.57	0.50	0.51	0.56	0.55	0.56
k				0.82	0.60	0.59	0.60	0.61	0.62	0.63
n					0.59	0.59	0.60	0.61	0.62	0.65
e	0.48	0.57	0.60	0.59		0.80	0.82	0.76	0.67	0.69
i	0.44	0.50	0.59	0.59			0.81	0.72	0.71	0.70
s	0.44	0.51	0.60	0.60				0.75	0.70	0.74
f	0.47	0.56	0.61	0.61	0.76	0.72	0.75		0.80	0.83
j	0.47	0.55	0.62	0.62	0.67	0.71	0.70			0.83
q	0.48	0.56	0.63	0.65	0.69	0.70	0.74			
b	0.56	0.59	0.51	0.55	0.54	0.49	0.50	0.58	0.61	0.60
c	0.53	0.59	0.50	0.54	0.52	0.48	0.49	0.57	0.60	0.59
g	0.50	0.59	0.58	0.59	0.60	0.58	0.59	0.68	0.68	0.67
h	0.45	0.54	0.52	0.55	0.58	0.56	0.56	0.65	0.69	0.67
l	0.49	0.56	0.62	0.62	0.59	0.59	0.61	0.67	0.71	0.70
o	0.45	0.53	0.58	0.62	0.62	0.62	0.65	0.68	0.71	0.73
p	0.47	0.55	0.58	0.61	0.59	0.58	0.62	0.66	0.70	0.72
r	0.46	0.54	0.57	0.61	0.61	0.61	0.66	0.69	0.72	0.75
m	0.52	0.58	0.65	0.68	0.61	0.63	0.64	0.73	0.78	0.79

**Table A1 (continued)**

	Emotional/Informational Support								
	b	c	g	h	l	o	p	r	m
a	0.56	0.53	0.50	0.45	0.49	0.45	0.47	0.46	0.52
d	0.59	0.59	0.59	0.54	0.56	0.53	0.55	0.54	0.58
k	0.51	0.50	0.58	0.52	0.62	0.58	0.58	0.57	0.65
n	0.55	0.54	0.59	0.55	0.62	0.62	0.61	0.61	0.68
e	0.54	0.52	0.60	0.58	0.59	0.62	0.59	0.61	0.61
i	0.49	0.48	0.58	0.56	0.59	0.62	0.58	0.61	0.63
s	0.50	0.49	0.59	0.56	0.61	0.65	0.62	0.66	0.64
f	0.58	0.57	0.68	0.65	0.67	0.68	0.66	0.69	0.73
j	0.61	0.60	0.68	0.69	0.71	0.71	0.70	0.72	0.78
q	0.60	0.59	0.67	0.67	0.70	0.73	0.72	0.75	0.79
b		0.82	0.67	0.78	0.67	0.68	0.72	0.70	0.66
c			0.74	0.76	0.73	0.68	0.74	0.71	0.66
g				0.76	0.76	0.69	0.74	0.73	0.71
h					0.76	0.79	0.82	0.80	0.73
l						0.76	0.80	0.78	0.77
o							0.88	0.83	0.75
p								0.85	0.76
r									0.76
m	0.66	0.66	0.71	0.73	0.77	0.75	0.76	0.76	

**Table A2 Standardized Scoring Coefficients for 3-Factor Solution based on Varimax and Promax rotations**

Item	Varimax			Promax		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
<i>Emotional/Informational Support</i>						
h	0.24588	-0.08817	-0.10337	0.16923	-0.02723	-0.05100
p	0.21524	-0.04979	-0.10308	0.15332	-0.00214	-0.04937
c	0.24822	-0.20764	0.04192	0.17282	-0.09790	0.05409
b	0.21878	-0.18760	0.05935	0.15686	-0.08470	0.06729
r	0.18192	0.00046	-0.11883	0.13440	0.02877	-0.06033
o	0.16620	0.01341	-0.11462	0.12522	0.03656	-0.05744
l	0.16453	-0.04084	-0.04128	0.12633	0.00548	-0.00363
g	0.15448	-0.05416	-0.01318	0.12050	-0.00267	0.01630
<i>Not in a subscale</i>						
m	0.07639	0.03639	-0.00900	0.07862	0.05555	0.02180
<i>Affectionate Support</i>						
s	-0.14019	0.32473	-0.07719	-0.04719	0.23041	-0.02751
i	-0.15049	0.32239	-0.06264	-0.05344	0.22869	-0.01742
e	-0.14953	0.28762	-0.01577	-0.05091	0.20939	0.01749
<i>Positive Social Interaction</i>						
f	-0.05755	0.23745	-0.07758	0.00087	0.17761	-0.02742
q	-0.01861	0.19398	-0.07450	0.02365	0.15143	-0.02495
j	0.00247	0.17429	-0.08268	0.03456	0.13822	-0.03177
<i>Tangible Support</i>						
a	-0.10040	-0.17383	0.49508	-0.01386	-0.06348	0.38766
d	-0.06546	-0.10917	0.37066	0.00502	-0.02529	0.29822
n	-0.12350	-0.01704	0.34615	-0.02573	0.03350	0.28299
k	-0.14975	0.01234	0.34356	-0.04119	0.05109	0.28087

**Table A3** Number of missing items within each subscale of the MOS Social Support Index

Number of Items Missing	Number	Percent	Mean of non-missing items in the subscale			
			Mean	SD	Minimum	Maximum
<i>Emotional/Informational Support</i>						
0	11 120	95.5	3.74	1.07	1	5
1	294	2.5	3.33	1.11	1	5
2	42	0.4	3.51	1.12	1.17	5
3	21	0.2	3.33	1.13	1.4	5
4	12	0.1	3.21	1.07	2	4.75
5	11	0.1	3.27	1.01	1	5
6	8	0.1	2.44	1.12	1	4
7	10	0.1	2.20	1.75	1	5
8	130	1.1				
<i>Affectionate Support/ Positive Social Interaction</i>						
0	11 160	95.8	4.03	1.01	1	5
1	286	2.5	3.48	1.07	1	5
2	44	0.4	3.43	1.03	1.5	5
3	10	0.1	3.10	1.28	1.33	5
4	5	0.0	3.00	1.22	1	4
5	8	0.1	2.63	1.51	1	5
6	135	1.2				
<i>Tangible Support</i>						
0	11 191	96.1	3.72	1.12	1	5
1	259	2.2	3.40	1.16	1	5
2	45	0.4	3.36	1.42	1	5
3	18	0.2	2.89	1.41	1	5
4	135	1.2				



**Table A3 (continued)**

	Number of		Mean of non-missing items in the index				
	Items Missing	Number	Percent	Mean	SD	Minimum	Maximum
<i>Social Support Index – Full</i>							
0		10 617	91.2	3.84	0.97	1	5
1		643	5.5	3.49	0.98	1	5
2		134	1.2	3.42	1.01	1.18	5
3		41	0.4	3.36	1.07	1.31	5
4		22	0.2	3.65	1.06	1.80	5
5		10	0.1	3.83	0.80	2.50	4.86
6		4	0.0	3.37	0.79	2.54	4.15
7		9	0.1	2.95	0.97	1.92	4.25
8		10	0.1	3.55	0.95	2.27	5
9		5	0.0	3.56	1.42	1.30	5
10		5	0.0	3.33	1.18	1.89	5
11		2	0.0	2.50	1.24	1.63	3.38
12		3	0.0	3.24	1.36	1.86	4.57
13		3	0.0	3.67	1.04	2.50	4.5
14		2	0.0	1.10	0.14	1	1.2
15		1	0.0	3.75		3.75	3.75
16		5	0.0	2.93	1.46	1	5
17		2	0.0	1.50	0.71	1	2
18		9	0.1	2.44	1.81	1	5
19		121	1.0				
<i>Social Support Index – Abbreviated</i>							
0		11 135	95.6	3.82	1.00	1	5
1		295	2.5	3.54	1.10	1	5
2		49	0.4	3.49	1.30	1	5
3		10	0.1	3.47	1.18	1.33	5
4		20	0.2	2.80	1.20	1	4.5
5		14	0.1	2.50	1.70	1	5
6		125	1.1				

**Table A4 Agreement between the full and abbreviated MOS Social Support Index**

		<b>Abbreviated Index</b>				<b>Total</b>
		<b>All</b>	<b>Most</b>	<b>Some</b>	<b>None/ Little</b>	
<b>Full Index</b>						
<b>All</b>	Number	4 820	399	1	<b>5220</b>	
	Overall %	45.4	3.76	0.01		
	Row %	92.34	7.64	0.02		
	Column %	94.84	12.64	0.06		
<b>Most</b>	Number	262	2 599	303	<b>3164</b>	
	Overall %	2.47	24.48	2.85		
	Row %	8.28	82.14	9.58		
	Column %	5.16	82.35	19.02		
<b>Some</b>	Number		158	1 240	225	<b>1623</b>
	Overall %		1.49	11.68	2.12	
	Row %		9.74	76.4	13.86	
	Column %		5.01	77.84	28.63	
<b>None/Little</b>	Number			49	561	<b>610</b>
	Overall %			0.46	5.28	
	Row %			8.03	91.97	
	Column %			3.08	71.37	
<b>Total</b>		<b>5 082</b>	<b>3 156</b>	<b>1 593</b>	<b>786</b>	<b>10 617</b>

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