



**Report**  
on the first five years of the  
**Australian Longitudinal  
Study on Women's Health**

**1995 - 1999**



in association with



# Contents

Director's Report .....	2
Main Cohorts - Investigators .....	3
Special Cohorts - Investigators .....	5
Location of Investigators, Collaborators and Participants.....	6
Main Cohorts - Associate Investigators.....	7
Main Cohorts - Staff and Students .....	8
Special Cohorts - Associate Investigators/Staff and Students.....	10
Progress Report - Main Cohorts.....	11
Progress Report - Special Cohorts.....	19
Completed PhD Theses .....	24
Completed Sub-studies (1996 - 1999).....	32
Ongoing Sub-studies (1996 - 1999) .....	36
Publications 1996 - 1999.....	39
Presentations 1996 - 1999 .....	58
Members of the National Advisory Committee (1995 - 1998).....	65
Members of the NHMRC Project Advisory Committee (1999 - 2003).....	66
Financial Summary.....	67

# Director's Report

The Australian Longitudinal Study on Women's Health (now known as the Women's Health Australia Project (WHA)) commenced in June 1995 as a result of initiatives arising from the National Women's Health Policy. The project has two components: large scale surveys of three 'main' cohorts of women selected by age and smaller studies of indigenous and migrant women. The studies of the main cohorts are conducted by the University of Newcastle and the special cohort studies are conducted by the University of Queensland.

The WHA project is committed to focussing on a social view of health, and to being relevant to the formulation of health policy. It involves collection of quantitative and qualitative data, as well as record linkage with other data sources. The research team of more than twenty investigators, mostly women, encompasses a wide range of disciplinary perspectives including sociology, epidemiology, psychology, medicine, nutrition, demography and statistics. The aim of the project is to understand the factors which enhance or inhibit good health in women of all ages. The main themes are: use of health services; weight and exercise; life stages and key events (eg childbirth, divorce and widowhood); domestic violence; and time use (paid and unpaid work and leisure).

This report covers the initial funding period from 1995 to 1999. In future there will be Annual Reports in this series. More information about the project can be obtained from the website <http://u2.newcastle.edu.au/wha>, or by telephoning 1800 068 081.

The main findings of the project so far, highlight the diversity of women's lives. The young women report high levels of stress and have poorer levels of mental health than women in the generations of their mothers and grandmothers. In contrast, the older women present a picture of healthy ageing and, despite increasing physical limitations, provide a positive and optimistic perspective in this International Year of Older People. Mid-aged women are typically in the paid workforce, manage their homes, care for others (including their children, spouse and elderly or disabled relatives) and have less time for themselves. While women living in the cities have a good choice of doctors and health services, those living in the country face higher costs and fewer facilities. Determining which of these situations is best for women's health, will require detailed study over a long period of time. In the meantime we are also conducting specific studies on causes of iron deficiency and tiredness in women, helping Aboriginal women to run fitness classes, investigating domestic violence and engaging in a range of health promotion activities to translate research findings from WHA into improving health for women in Australia.

Suggestions for the Australian Longitudinal Study on Women's Health and comments on this report and other communications are always welcome. Please let us know your views.



Annette Dobson  
*Director*

# Main Cohorts - Investigators



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## ***Professor Annette Dobson***

BSc, MSc, PhD

Annette Dobson is the Director of the Women's Health Australia project. Annette is also Professor of Statistics in the Department of Statistics at the University of Newcastle.



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## ***Dr Wendy Brown***

BSc(Hons), DipEd, MSc, PhD

Wendy Brown is the project manager of the Women's Health Australia project. Wendy is also the Director of the Research Institute for Gender and Health at the University of Newcastle.

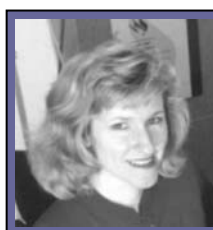


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## ***Emeritus Professor Lois Bryson***

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Lois Bryson is Emeritus Professor of Sociology, with the Research Institute for Gender and Health at the University of Newcastle.



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Julie Byles is a Senior Lecturer in Clinical Epidemiology at the Centre for Clinical Epidemiology and Biostatistics at the University of Newcastle.



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# Special Cohorts - Investigators



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## ***Associate Professor Gail Williams***

MSc, MSc(Epidemiology), PhD

Gail Williams is Principal Investigator for the Special Cohorts. She is Associate Professor in Statistics at the Australian Centre for International and Tropical Health and Nutrition, The University of Queensland.



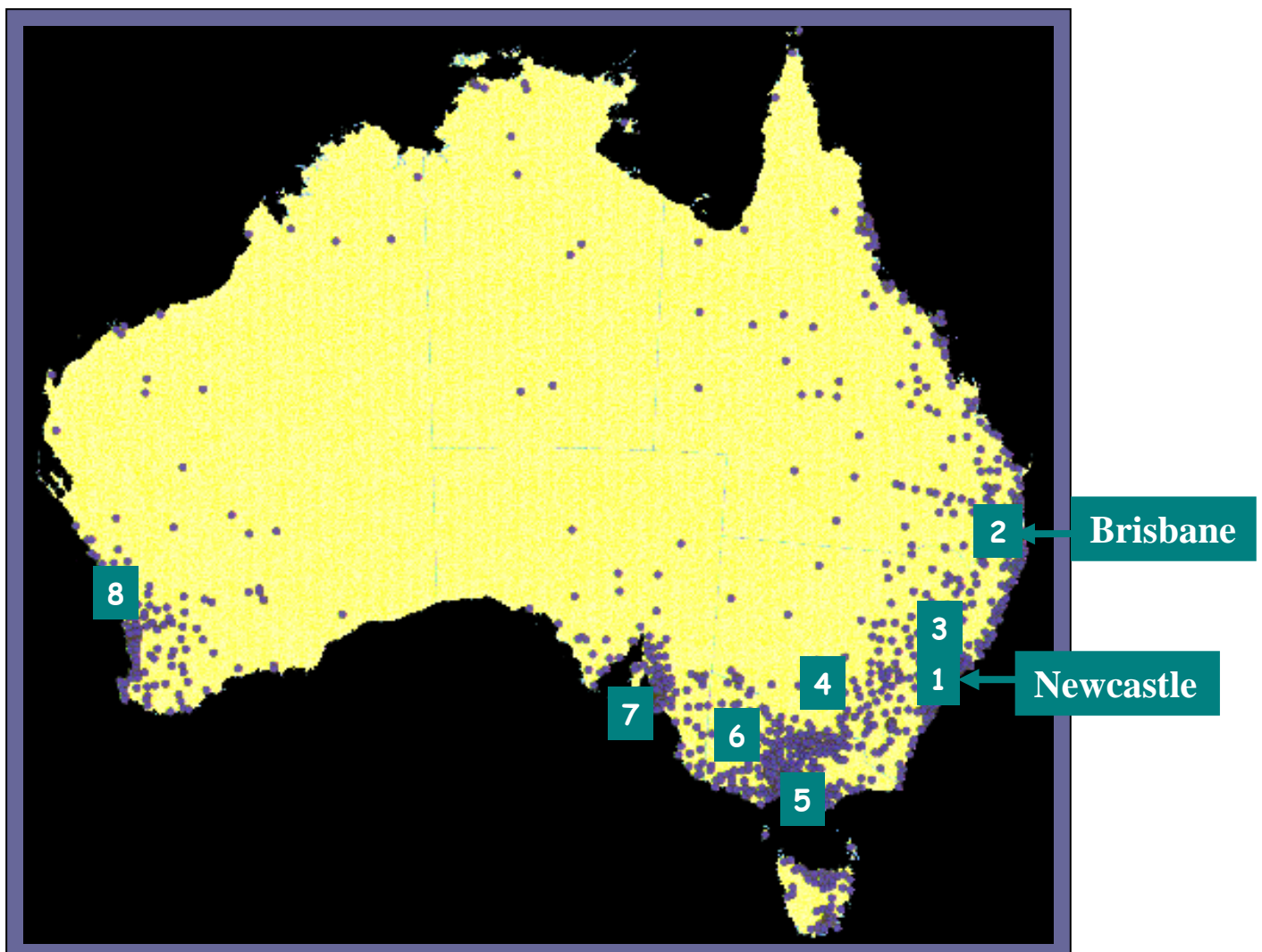
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## ***Professor Lenore Manderson***

BA(Hons), PhD, FASSA

Lenore Manderson was Principal Investigator for the Special Cohorts 1995-1998, when she was Professor of Tropical Health at the Australian Centre for International and Tropical Health and Nutrition. She is currently the Director of the Key Centre for Women's Health in Society, The University of Melbourne.

# Location of Investigators, Collaborators and Participants



Investigators and/or collaborators at:

- 1 University of Newcastle
  - 2 University of Queensland
  - 3 University of New England
  - 4 Charles Sturt University
  - 5 University of Melbourne, Royal Melbourne Institute of Technology, Victoria University of Technology
  - 6 La Trobe University
  - 7 University of Adelaide
  - 8 University of Western Australia
- Postcode centres of participants in the Women's Health Australia project

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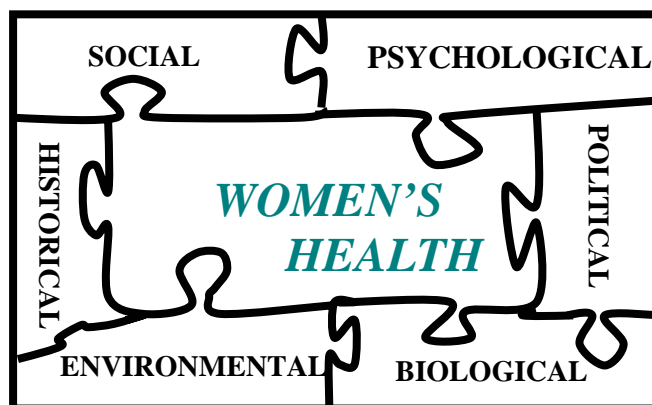
# Progress Report - Main Cohorts

The Australian Longitudinal Study on Women's Health (ALSWH) is a large project designed to run for at least 20 years. It is acquiring an international reputation for its multidisciplinary methodology. In contrast to several overseas longitudinal studies, which have focused on women in specific geographical areas (eg the Iowa Women's Health Study<sup>1</sup>) or occupation

groups (eg the Nurses' Health Study<sup>2</sup>), this study was designed to explore factors that promote or reduce health in women who are broadly representative of the whole Australian population. An overall goal of the project is to clarify cause-and-effect relationships between women's health and a range of biological, psychological, social and lifestyle factors.

## Goal

- ◆ to determine the social, psychological, physical and environmental factors which determine good health, and those which cause ill-health, in women throughout adult life (18 - 95 years)



## MAIN COHORTS: STUDY DESIGN AND SAMPLE

The study involves three main cohorts of women, selected to represent young women (aged 18-23 at the time of baseline data collection in 1996), mid-

age women (45-50 years) and older women (70-75 years). They were randomly selected, come from all walks of life and live in all parts of Australia.

The Medicare database held by the Health Insurance Commission (HIC) was used as the sampling frame to select women who were sent an initial invitation to participate in the main cohort studies. Since 70% of Australian women live in major (coastal) cities, there was deliberate over-sampling of women living in rural and remote areas to ensure their adequate inclusion. Statutory restrictions on the use of the HIC database required that the identity of the selected women would be unknown to researchers until they consented to participate or voluntarily contacted the research team. Recruitment was therefore limited entirely to materials mailed from the HIC, without the advantage of usual methods to encourage participation (eg by telephone contact).

More than 41,000 women (14,792 young women, 14,200 mid-age women and 12,624 older women) responded to the baseline surveys for the main cohorts in 1996. Due to uncertainties about the accuracy of the Medicare database, response rates cannot be calculated exactly. Nevertheless, it is estimated that 41-42%, 53-56% and 37-40% of the young, mid-age and older women respectively responded to the initial invitation to participate<sup>3</sup>.

In light of these response rates, it is important to assess the effect of any response bias on the generalisability of the study findings. A demographic comparison of respondents and non-respondents is not possible because privacy guidelines prevent access to information about women who were sent

an invitation but did not respond. We were able however, to assess the degree to which participants are demographically similar to the general population of Australian women by comparison with 1996 census data (see Table 1)<sup>3</sup>. The study cohorts include more women in married or defacto relationships than the general population, particularly in the younger group. This reflects the over-representation of rural and remote women, who tend to marry earlier than their urban counterparts. This difference can be taken into account statistically when data are analysed. In the mid-age cohort more women are employed, while women in the workforce are under-represented in the younger cohort. This suggests there may be an over-representation of full-time students in the young cohort. While there is some over-representation of women born in Australia and other English-speaking countries in all three main cohorts, women from Europe and Asia are well represented. The proportions of Aboriginal women and Torres Strait Islander women in each cohort are also similar to those in the census data (see Table 1), although Aboriginal women from remote areas are under-represented.

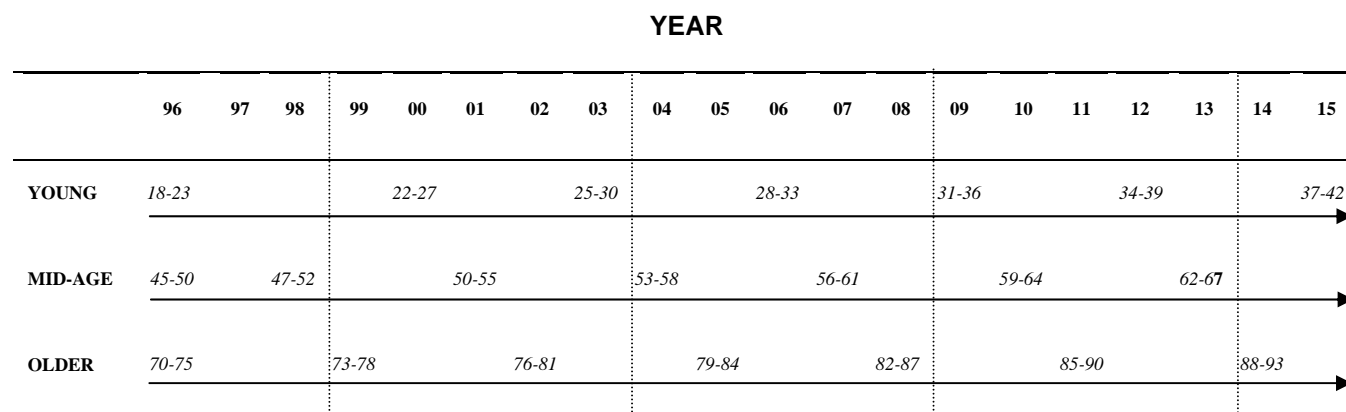
Baseline surveys were conducted for all three main cohorts in 1996, and plans for the follow-up surveys of each main cohort over a twenty-year period are displayed in Figure 1. The first follow-up survey of the mid-age women in 1998 and older women in 1999 achieved response rates exceeding 90%. Development of the survey for the first follow-up of the young cohort is currently underway.

**Table 1: Demographic characteristics of the women in the three main cohorts at the WHA baseline survey in 1996, and women of the same age in the general population according to the 1996 Census**

	Young women		Mid-age women		Older women	
	Cohort N=14,792 %	Population N=683,145 %	Cohort N=14,200 %	Population N=489,965 %	Cohort N=12,624 %	Population N=276,614 %
<b>Current marital status</b>						
married/defacto	20.3	11.4	80.7	77.1	55.5	49.2
separated/divorced	0.9	1.1	13.2	14.8	6.3	5.5
Widowed	0.1	0.3	2.1	3.1	34.9	39.7
Single	78.8	87.2	4.0	5.0	3.3	5.5
<b>Country of birth</b>						
Australia	89.5	83.0	69.8	66.2	73.3	72.0
UK/New Zealand	3.4	4.9	14.1	12.1	13.0	11.7
Europe (non-English speaking)	1.4	1.8	9.1	11.8	10.6	7.9
Asia	3.7	4.7	4.2	3.1	1.6	1.8
Others	2.0	5.6	2.8	6.9	1.5	6.7
<b>Aboriginal/Torres Strait Islander</b>	1.7	2.1	0.8	0.9	0.4	0.4
<b>Highest qualification completed</b>						
No post school qualifications	69.7	76.1	63.0	65.3	79.6	69.2
Trade/Cert/Diploma	17.5	11.1	19.5	15.3	11.2	5.7
University degree	12.3	3.2	16.3	7.4	4.2	1.6
Other (Not stated)	0.5	9.6	1.2	12.0	5.0	23.5
<b>Current housing situation</b>						
House	74.5	78.7	90.2	88.9	76.7	79.1
Flat/unit/apartment	20.1	15.5	7.5	7.6	19.4	13.2
Caravan/tent	0.8	0.9	0.7	1.1	0.7	1.5
Other	4.6	4.9	1.6	2.4	3.2	6.2
<b>Main current employment status*</b>						
Full time paid work	31.2	35.1	36.1	33.7	-	-
Part-time/casual work	18.9	20.0	30.0	26.2	-	-
Work without pay	0.4	0.3	5.4	0.9	-	-
Employment not stated	0.0	3.1	0.0	2.8	-	-
Unemployed	6.4	13.9	1.9	4.5	-	-
Total in labour force	56.9	72.4	73.4	68.1	-	-
Total not in labour force	40.6	25.3	23.3	28.6	-	-
Not stated	2.5	2.3	3.3	3.3	-	-

\*not asked in older survey

**Figure 1: Survey plan for the main cohorts for twenty years.** (Figures in italics indicate the age of the women in each main cohort at the time of each planned follow-up survey. Dashed vertical lines indicate past, current and proposed funding periods).



## Key Themes

The five main themes for this project are:

- ◆ Health service utilisation
- ◆ Healthy weight and exercise
- ◆ Time use and social roles
- ◆ Life stages and key events
- ◆ Violence against women

### **MAIN COHORTS: SELECTED EARLY FINDINGS AND FUTURE RESEARCH DIRECTIONS**

The study began with the objective of exploring the five key themes of health service use, weight and exercise, life stages and key events (eg childbirth, divorce, widowhood), domestic violence, and time use (paid and unpaid work and leisure). Some preliminary findings in each of these thematic areas and future research questions in each of the main cohorts are described below.

#### **Young women: stress, health risks, parenting and body image**

Women in the young cohort were born in the 1970s into a society experiencing escalating social, cultural, economic and technological

change<sup>4</sup>. In the baseline survey, levels of stress were significantly higher among the young cohort compared with mid-age and older women (see Table 2)<sup>5</sup>. Young women reported the main sources of stress to be money, study, and work/employment<sup>6</sup>. Future surveys will explore the issue of stress in greater depth and its relationship to physical and mental health. The relationships between stress and behaviours dangerous to health such as smoking, binge drinking, eating disorders and illicit drug use will also be investigated. As the study progresses it will be possible to ascertain whether high stress levels and their associated health risks persist in this generation, or whether they are a life-stage phenomenon that will dissipate over time.

**Table 2: Mean scores for the physical functioning and mental health index sub-scales of the SF-36<sup>7</sup>; and for stress; and the proportion of women in each weight category, for women in each of the three main cohorts.\***

	Young (N=14,711)	Mid-age (N=14,006)	Older (N=12,582)
<b>Physical Functioning sub-scale of the SF-36 (0-100)</b>			
mean	90.2	85.1	63.1
95% CI	90.0 - 90.5	84.7 - 85.4	62.6 - 63.5
<b>Mental Health Index sub-scale of the SF-36 (0-100)</b>			
mean	67.9	72.1	76.4
95% CI	67.6 - 68.2	71.8 - 72.4	76.1 - 76.7
<b>Stress**</b>			
mean	0.91	0.71	0.42
95% CI	0.90 - 0.92	0.70 - 0.72	0.41-0.43
<b>BMI (%)</b>			
underweight (<20 kg.m <sup>-2</sup> )	28	7	9
healthy weight (20-≤ 25)	50	45	44
overweight (>25 ≤ 30)	15	30	34
obese (>30)	7	18	14

\* Numbers vary slightly due to missing data

\*\* Mean stress scores derived from 11, 10 and 7 items for the young, mid-age and older women respectively. (Range for all = 0 (low stress) to 4 (high stress)).

At baseline, physical and mental health component summary scores obtained from the Medical Outcomes Study Short Form health survey (SF-36)<sup>7</sup> were significantly lower for women with young children compared to those without children. For physical health, women with one or more children (N = 1,573) mean = 47.2, women without children (N = 12,845) mean = 50.4, 95% confidence interval (CI) for difference = 2.6 – 3.7; for mental health, women with children, mean = 48.8, women without children, mean = 50.1, 95% CI for difference = 0.8 – 1.9. This may be due to having young children, or having children at a young age, or to differences in the socio-economic status of women who have children early or later in their lives. To investigate these issues, a comparison of health levels at baseline and follow-up for women who have children between

1996 and 2000 will be conducted, taking into account socio-economic status, the age of the mother at the time of the first birth and the number of children. As the study progresses we will be able to establish the effect of the age at which women have their children on long-term health outcomes.

At baseline 28% of young women were underweight (body mass index (BMI) below 20kg.m<sup>-2</sup>), compared with only 7% of mid-age women and 9% of older women (see Table 2). While almost 80% of young women had a BMI in the underweight or healthy weight range, 68% of those with a BMI less than 25 kg.m<sup>-2</sup> (including 20% of those with BMI less than 18 kg.m<sup>-2</sup>) said they would like to weigh less. Frequent dieting, and a history of beginning to diet before the age of 15 were found to be associated with

poorer physical and mental health, including depression<sup>8</sup>. Future surveys will address the question of whether high levels of body dissatisfaction persist as these women become older and have children. Also the physical and mental health consequences for underweight women will be investigated by comparing women who do and those who do not gain weight over time.

### **Mid-age women: multiple roles, tiredness, weight control and menopause**

The majority of women in the mid-age cohort grew up in Australia during a period of strong economic growth and prosperity<sup>4</sup>. More than 90% are mothers, and almost 20% of those living in rural and remote areas have four or more children. More than 65% are in paid work and a further 7% work without pay in a family business or farm, or as volunteers (as shown in Table 1). Among those engaged in work outside the home, 66% and 55% of full-time and part-time workers respectively, still have children younger than 19 years living with them, and 20% of women report regularly providing care or assistance to another person because of long-term disability or frailty. The long-term impact of multiple and changing roles on women's health (including depression, anxiety, and fatigue) is being explored using data from the baseline and subsequent surveys. For example, among women in this age group who still have children at home, optimal levels of mental health are found among those who work between 25 and 34 hours per week in paid work outside the home.<sup>9</sup>

The most commonly reported 'symptom' among mid-age women is tiredness, with more than two thirds reporting being 'constantly tired'. Tiredness is more

prevalent among women who reported a history of 'low iron levels' at baseline, and they had lower mean scores for physical and mental health and vitality scores. At follow-up, these scores were significantly reduced for women who reported iron deficiency in the last two years (after correcting for the number of children, chronic conditions, symptoms, and hours worked)<sup>10</sup>. The possibility that iron deficiency may be a reflection either of heavy menstrual bleeding or of low dietary intake is being explored in a series of sub-studies.

Overweight and obesity are prevalent among mid-age and older women (see Table 2), increasing their risk of a wide range of physical and mental health problems (such as hypertension, diabetes, tiredness, and back-pain)<sup>11</sup>. Scores for general health, social function, mental health, and vitality from the baseline survey were optimal when BMI was in the range 19–24 kg.m<sup>-2</sup><sup>11</sup>. The role of menopause in mid-life weight gain is being explored from the follow-up survey by comparing weight gain among women who do and do not experience menopause between 1996 and 1998. To understand mid-age increase in weight, we plan detailed analyses of factors such as age, socio-economic status, weight cycling,<sup>11</sup> dieting, eating disorders, physical inactivity, Hormone Replacement Therapy (HRT) use, hysterectomy, smoking and changes in social roles. The onset of weight-related conditions such as hypertension, type II diabetes, and depression will also be examined in relation to weight gain.

At baseline, one third of mid-age women who have not had a hysterectomy reported menstrual symptoms such as heavy periods or severe period pain. Fewer than 5% of the women with

symptoms at baseline had had a hysterectomy by the follow-up survey in 1998, but almost 15% reported taking HRT. The effect of different responses to dealing with menstrual symptoms on long-term health outcomes will be the focus of a future sub-study. In addition, patterns of response to menstrual symptoms, including treatments, will be investigated according to geographical location. Baseline data indicated a higher prevalence of hysterectomy among women living in rural and remote areas. Higher rates of hysterectomy were also related to having private health insurance, lower education levels, being currently or previously married, having had other gynaecological and non-gynaecological procedures<sup>12</sup>. These patterns indicate a need for careful evaluation of gynaecological services for women in Australia, particularly those living in remote areas and women with lower education levels. Over time, the WHA project has the potential to explore the impact of hysterectomy and HRT use on physical and mental health and quality of life for women in a range of circumstances.

### **Older women: healthy ageing, independence, and community participation**

Born in the 1920s, women in the older cohort have experienced the depression years of the thirties during childhood, the second world war, and being mothers of the 'baby boomers' in the fifties<sup>4</sup>. More than 68% were born in Australia (as shown in Table 1), and a further 10% arrived in Australia as children or young adults.

Baseline data provided a clear picture of positive ageing among older Australian women, despite the increasing number of physical, emotional, mental and social

difficulties that confront them. They report much lower stress levels than women in the mid-age and younger cohorts (see Table 2). Although their physical health scores are poorer than those of younger age groups, their mental health scores are higher than those of both young and mid-age women (see Table 2).

The 1999 follow-up survey for older women focused on measuring changes in physical and mental health and health care service use and satisfaction. Psychological characteristics such as optimism and health-related hardiness<sup>13</sup> were also measured with the intent of exploring their association with health outcomes. Community factors such as neighbourhood satisfaction, social support, and social participation will also be analysed in terms of their relationship with both physical and mental health outcomes in this generation.

Intentional over-sampling of women from rural and remote areas provides sufficient numbers of women from different geographic locations (eg metropolitan, rural and remote areas), to explore how the experiences and health outcomes of growing older vary according to location. Older women living in rural and remote areas report poorer access to and greater dissatisfaction with the cost of health services than those in urban areas<sup>14</sup>. The WHA project has the potential to evaluate the effectiveness of policy initiatives to improve health services in rural areas by monitoring the outcomes for this vulnerable group of older women.

### **SUB-STUDIES**

During the first five years of the project, we have been able to explore selected issues in more depth through a series of nested studies. Subjects explored to date

include: the role of psychological stress and coping in the development of eating disorders; experiences of women seeking help for psychological problems; contraceptive choice among young women; driver behaviour and motor vehicle accidents among young and mid-age women; iron deficiency and tiredness; use of and satisfaction with health care services; legal protection in the prevention of domestic violence; the health of widows; and social support, health status and health care use in older women. Details of these sub-studies, can be found on the WHA web page at <http://u2.newcastle.edu.au/wha>

## CONCLUSION

Women's Health Australia is a major study by international standards, with the potential to make a significant contribution to knowledge about factors that enhance or inhibit good health for women. The Australian Government, through the Commonwealth Department of Health and Aged Care and the NHMRC, has made a commitment to the research and to using the findings to improve the health care system according to women's needs. Comparisons between the main age cohorts can establish whether the nature and extent of health problems represent generational differences, or merely the position of women in the life cycle. The longitudinal design provides a unique opportunity to explore causal relationships between health care service use, life events, weight and exercise, violence, time use, and long-term health and well-being. Our primary aim is to ensure that the findings can be translated into policies and practices which are relevant, and which reflect the social and cultural diversity of these three generations of Australian women.

## REFERENCES

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# Progress Report - Special Cohorts

With the decision to use the Health Insurance Commission (HIC) database as a sampling frame for the postal questionnaire-based study of the main cohorts, there was a concern that some disadvantaged groups of women, notably Aboriginal women, Torres Strait Islander women, and migrant women, particularly those from non-English speaking backgrounds, would be under-represented. It was therefore decided that there would be two 'special cohort studies, one of Aboriginal and Torres Strait Islander women, the other of women from the Philippines.

## **ABORIGINAL WOMEN AND TORRES STRAIT ISLANDER WOMEN**

### **Consultation, negotiation and collaboration**

Following the decision to allow for a special component of ALSWH to address issues of Indigenous women's health, there was a commitment to developing meaningful consultation with several communities of Indigenous women, so that they could determine how the project was to proceed, the issues to be explored and the way in which its outcomes would be managed. In this component of the study, there has been great emphasis on developing partnerships with the communities, so that true ownership of the project remains with them. A great deal of effort has been focussed on developing environments of trust and involvement from the communities, so that the project will remain acceptable to the communities, throughout the proposed 20 year study period.

### **Working with Indigenous communities 1995-1999**

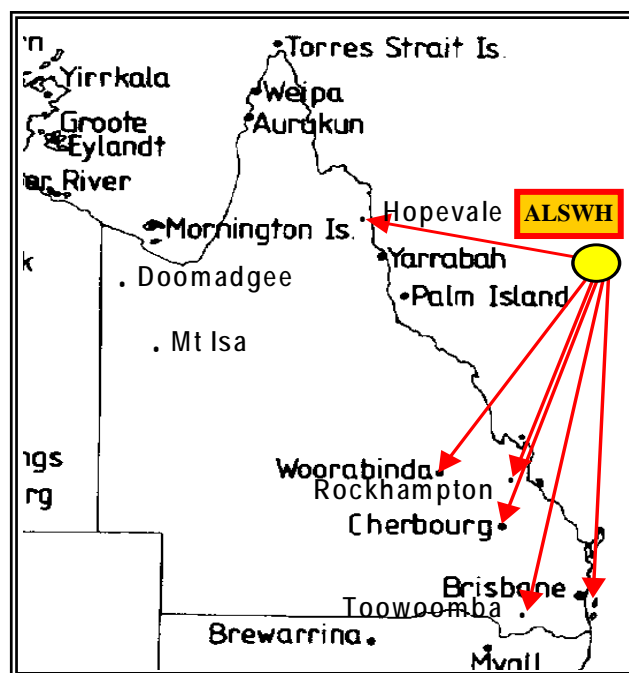
The major achievements from 1995 to 1999 have been:

- Consultation with Indigenous women from five communities in Queensland, as well as with Indigenous-controlled and other relevant government organisations, in order to inform them about the project, seek advice on the best way of carrying it out, and be informed of health priorities and existing health goals and targets.
- Collation of available information on health issues emerging as priorities from the consultations. Issues identified as priorities were: mental and physical health; service provision; women's business; stress and life style; nutrition; substance use; household composition and provision of family care; environmental health; cultural identification and activities; mobility; and social factors such as education and employment.
- Development of a modularised draft interview protocol (coupled with a computerised database for storing corresponding information) covering the areas listed above, as a basis for initial discussions with women at community meetings. Women are able to exclude, change or add sections according to their needs. Additional modules on mammography, grief and loss, sexual abuse, domestic violence and the impact of incarceration were included.
- A series of community meetings was conducted over a period of more than 12 months in Cherbourg and Woorabinda (see figure 2). At these meetings, there were discussions about the project, the original themes, other health priorities, and research methodology. Changes were then made to the baseline questionnaires to incorporate women's concerns, and

sampling strategies were agreed on. In partnership with the Cherbourg Health Action Group, a household-based survey of women aged 16 years and older was then designed and subsequently completed by 171

women. This resulted in an initial report, several community feedback meetings and a proposal to the Queensland State government for a women's fitness centre in Cherbourg.

Figure 2: Indigenous communities involved with ALSWH



The Cherbourg Healthy Lifestyle Program evolved at the initiative of Cherbourg women, and in response to the finding of high rates of obesity, hypertension and infrequent exercise among women in this community (see Completed Sub-studies section).

For the next phase of working with Cherbourg community, the option of another whole population survey will be explored. It is also suggested that a qualitative component will be most appropriate to identify the complex social, historical and cultural determinants of women's health. Methods proposed include

open-ended life histories and semi-structured health history interviews, selected on the basis of generational affiliation. This approach is ideally suited to sensitive information because of the locus of control and the relationship established between interviewer and interviewee.

- In partnership with the Woorabinda Aboriginal Health Service and family support centre, a household-based census and women's health survey was designed and completed by 65 women. A draft report (ALSWH, 1998) of the survey is presently being

considered by the community. Key issues identified related to access to female general practitioners and health workers, physical activity and the provision of fresh fruit and vegetables.

- A computerised database has been developed and installed at the Woorabinda Aboriginal Health Service to monitor service delivery, estimate community morbidity and assist health workers identify health priorities and self-evaluate service delivery.
- Consultation with the Central Queensland Public Health Division, Aboriginal Community Health, Bidjerrdi Health Centre and the Mother and Child Health Centre in Rockhampton with a view to carrying out a survey of urban Indigenous women in Rockhampton in late 1999-2000, and to establish a reference group. A women's forum is planned for December 1999.
- Consultation with the Downs Women's Support Group and the Indigenous Health Team in Toowoomba and surrounds, to carry out a survey of women in Toowoomba and the surrounding communities in 2000.
- Consultation with and approval from the Hopevale women's group, community council and health team to carry out a survey of the women in Hopevale. The baseline survey that had been used in Cherbourg and Woorabinda was piloted with women in Hope Vale in 1998. This was done in conjunction with a study of diabetes completed by Audrey Deemal as an honours project for the Bachelor of Applied Health Science (Indigenous primary health care) at the University of Queensland. It is planned to complete the baseline survey in Hope Vale in late 1999.
- Consultation with women on Stradbroke Island about future participation in ALSWH.
- Consultation with Kambu Medical Centre, Ipswich Women's Health Service to participate in the baseline survey. A Women's Health Forum addressing health issues and concerns, with guest speakers, was held in late September 1999.
- Consultation with Keriba Warngunn Aboriginal and Islander Corporation for Women and Sandgate Aboriginal Corporation to carry out a baseline survey on the north side of Brisbane.
- Consultation with Murrigunyah Aboriginal and Islander Corporation for women to participate in the baseline survey. A women's breakfast is being planned for the south side of Brisbane.
- A women's gathering at Nungeena, Glasshouse Mountains, to discuss the survey questions with interested women on the north side of Brisbane.
- In 2000, additional work will involve linking data from Indigenous and migrant women in the main cohorts to those within the special cohort communities, and exploring ways to cross-inform these groups of

women about their counterpart cohorts.

### **NON-ENGLISH SPEAKING BACKGROUND WOMEN**

The main migrant component of the study involves a cohort of women from the Philippines. A smaller study involving women from the Former Yugoslavia Republics (FYR) was also conducted as a PhD project from 1996-1999 (see Completed PhD Theses section). The research techniques for these cohorts involved a combination of quantitative and qualitative methods.

A reference group of sixteen women nominated by the Filipino Community Coordinating Council of Queensland and representing Filipinas throughout Queensland was established in 1996 to guide this research.

In 1996-97, 482 Filipinas (87% response rate) from Brisbane and the Gold Coast, the Sunshine Coast, Townsville, Cairns and Mt Isa were interviewed. The sample was very similar to that in the 1991 census except that a higher proportion of the study sample spoke English well and had immigrated in the last ten years<sup>1</sup>. Eighty three per cent (403/482) of those interviewed gave consent for a follow-up interview one year later in 1997-98. 346 Filipinas (response rate of 86%) participated in a follow-up interview. Additional areas of key focus for the research specific to this cohort included immigration experience and satisfaction with life in Australia, social support, relationship issues and mental health.

Women from Mt Isa were compared to women living in other parts of the State in order to gain an insight into the issues for Filipina women living in more remote environments. Women in Mt Isa were more likely to be married, were less well educated and more likely to be in paid employment. The major issues identified by the women were associated with geographic location rather than ethnicity. These included lack of bulk billing doctors, difficulty in accessing female doctors, difficulty in accessing specialists and transience of medical staff. These barriers to health service provision affect all women in the region. However in some cases Filipinas' response to health issues was informed by differences in the cultural beliefs about the way health care should be provided.

In general the issues faced by younger Filipinas tended to be very different from those faced by older Filipinas. To explore these issues, 44 young Filipinas from Brisbane and Cairns were interviewed. Young Filipinas (those under 25) were found to experience migration and settlement in Australia very differently from older women migrating to Australia as adults. While older women strive to meet their own expectations of what life in Australia might be like, younger women have difficulty balancing their own family's expectation, the expectations of the society in which they live and their own expectations. Most young Australians face similar issues but race, gender and culture often make it difficult for young Filipinas to develop a sense of their own identity and place in Australia.

Mental health was a major issue for both young and old Filipinas. The qualitative research showed that mental health is not a concept that Filipina women relate to easily because mental and emotional well-being is seen as intrinsically linked to the context of a women's lives rather than an entity that exists independently. For example, a woman who cries all the time as a consequence of economic difficulties is seen as having money problems rather than having mental health problems or being depressed. The presence of mental illness is defined by the absence of an external attribution for signs and symptoms rather than the signs and symptoms themselves. The quantitative data revealed that at follow-up, the prevalence of poor-mental health in the Filipina cohort measured using the GHQ-28 screening tool was 23%. The tendency

for western psychiatrists to over-diagnose and mis-diagnose clients from other racial and ethnic backgrounds has been documented both overseas<sup>2</sup> and in Australia<sup>3</sup>. Future research with the Filipina cohort will address the question of whether the high prevalence of poor mental health in this population is based on valid diagnosis and will explore further the meaning of mental health and illness in Filipina women.

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# Completed PhD Theses

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## Iron Deficiency in Women of Childbearing Age

Supervisors: Dr Wendy Brown, Professor David Roberts

The current prevalence of iron deficiency for Australian women of childbearing age is unknown, but baseline data from the Australian Longitudinal Study of Women's Health (ALSWH) suggest that one in three women have had diagnosed iron deficiency by the age of 45-50 years. Despite this, dietary and lifestyle factors which are important in the development of iron deficiency have not yet been clearly defined for Australian women, and the public health impact of this condition remains unclear. In addition, while the Australian Iron Status Advisory Panel (AISAP) currently recommends dietary intervention as the first line of treatment for iron deficiency in adults, the efficacy of dietary treatment has not been evaluated. The thesis resulting from this PhD research describes a series of studies which examine the development, implications and treatment of iron deficiency for Australian women of childbearing age.

A detailed literature review provides background information on the physiology of iron, the biochemical and haematological variables used to assess iron status, and the current definitions used for the diagnosis of iron deficiency. Iron deficiency has been shown to adversely affect work performance, immunity, thermoregulation and cognitive functioning, and the research describing these relationships is reviewed. Dietary and lifestyle factors thought to be important determinants of iron status, and the current strategies used in the prevention and treatment of iron deficiency are also discussed.

The PhD work included two preliminary studies. The first was a general practitioner (GP) survey and pathology audit which examined the knowledge, attitude and behaviour of GPs in relation to the diagnosis and treatment of iron deficiency. While diagnosis practices were generally in accordance with AISAP recommendations, treatment practices were not. Supplementation was the preferred treatment option in even mild cases of iron deficiency, and this preference may reflect the poor dietary knowledge of GPs in relation to enhancers and inhibitors of iron absorption. The second preliminary study was an epidemiological analysis of baseline and follow-up data from the ALSWH to determine the impact of self-reported iron deficiency on general health and well-being (measured using the Short Form-36 General Health and Well-being questionnaire; SF-36) for two large cohorts of Australian women. Baseline and longitudinal analysis of these data showed reduced vitality and physical and mental health for women who reported iron deficiency.

The major component of this research was a randomised control trial which compared dietary and supplement treatment for iron deficiency. Baseline dietary, lifestyle and morbidity data were examined for iron deficient and iron replete women. Multivariate analyses were used to investigate the relative importance of dietary and lifestyle factors in the development of iron deficiency for women of childbearing age. Iron status was positively associated with oral contraceptive pill use and alcohol

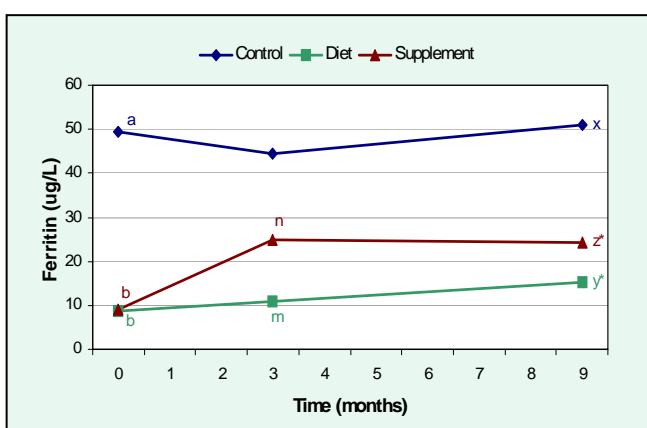
consumption and negatively associated with phytate intake. The effects of iron deficiency on general health and well-being, fatigue and cognitive functioning were examined using the SF-36 general health questionnaire, the Piper Fatigue Scale and four sub-scales of Wechsler Adult Intelligence Scale-Revised (WAIS-R), respectively. Iron deficiency was associated with decreased mental health, vitality and cognitive functioning, and increased fatigue in the baseline data.

Dietary and supplement treatment for iron deficiency and the relative effects of each on general health and well-being, fatigue and cognitive functioning were compared. Both dietary and supplement treatment resulted in significant improvements in haemoglobin and serum ferritin, but changes in serum ferritin were seen more quickly for the

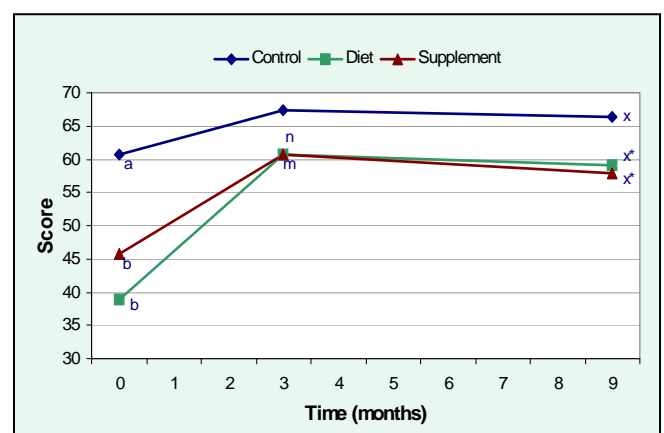
supplement group. Women in both the diet and the supplement intervention groups showed significant improvements in general health and well-being, fatigue and cognitive functioning during the trial. Improvements in mental health were more marked among women in the diet intervention group, while vitality and fatigue improved similarly for women in both groups. Women in both groups also improved similarly on two sub-scales of the WAIS-R which assess reasoning and perceptual organisation.

From this research it is clear that women who suffer from iron deficiency experience major morbidity in terms of vitality, fatigue and general health and well-being. Dietary intakes of alcohol and phytate have been highlighted as possible factors in the determination of iron status, and dietary treatment of iron deficiency has been shown to be effective.

**Figure 3: Mean (sd) serum ferritin results for the control, diet and supplement groups at baseline (time = 0 months), following the three month intervention and after the six month follow-up.**



**Figure 4: Mean (sd) Vitality (VT) scores from the SF-36 for the control, diet and supplement groups at baseline (time = 0 months), following the three month intervention and after the six month follow-up.**



\* Diet or Supplement group changes significantly over time  
a,b Comparison of Control, Diet and Supplement groups at T0 (different letters = significantly diff.)  
x,y,z Comparison of Control, Diet and Supplement groups at T2 (different letters = significantly diff.)  
m,n Comparison of Diet and Supplement groups at T1 (different letters = significantly diff.)

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## General Practitioner Utilisation Among Women In Australia

Supervisors: Professor Annette Dobson, Dr Julie Byles

General practice is the first point of contact for the provision of health care services in Australia and is the gateway to more intensive and specialised services. Despite the existence of a national health insurance scheme (Medicare) there is growing debate about the equity of access to health services, especially for people living in rural and remote areas of Australia.

This study examined the use of general practitioner (GP) services during 1995 and 1996. The framework for the study was the behavioural model of health service utilisation which includes measures of medical need and other individual and societal factors that may predispose, enable or impede use of services. Survey data for 20,000 participants in the Australian Longitudinal Study on Women's Health were linked with data from the Health Insurance Commission which administers Medicare. The survey data included a range of questions designed to explore social and environmental aspects of women's lives as well as the psychological and biological determinants of health and health care utilisation. The Health Insurance Commission data provided a measure of GP utilisation and the out of pocket cost associated with each consultation (for services funded by Medicare and the Department of Veterans' Affairs), for each woman who gave written consent to record linkage.

Using the linked database, the demographic characteristics, medical

history and health service utilisation of very frequent attenders and non-attenders to general practice were described. These data provided insights into the use of GP services that could not be determined from either source alone. Although some findings were consistent across age groups, the profile of frequent attenders differed according to life stages such as pregnancy and menopause. The difficult personal and social circumstances of some women were demonstrated in case studies which highlighted the importance of considering the context in which use of health services takes place.

A third source of data for the research was a sub-study to provide additional measures of individual and environmental determinants of health service use and satisfaction with GPs among a sample of almost 5,000 mid-age and older women participating in the longitudinal study. This sub-study provided strong quantitative evidence to support the qualitative reports of the problems faced by women living in country areas. The availability, accessibility and affordability of services were rated lower by women living in rural and remote areas than by women living in urban areas (Figure 5 and Figure 6).

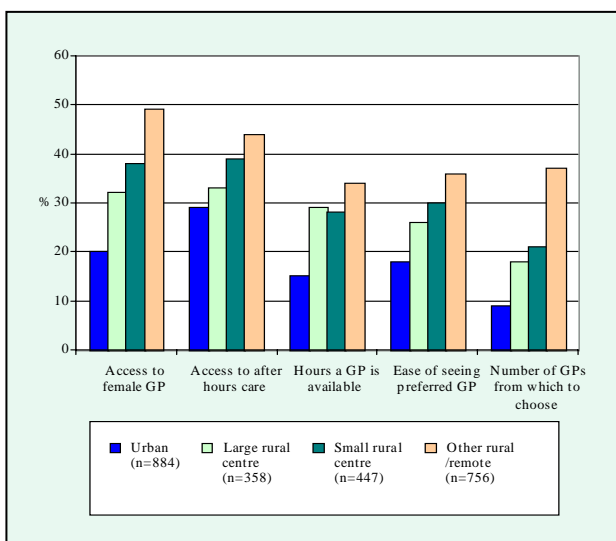
Many studies have adapted the behavioural model to examine the utilisation of a variety of types of health services, but the model requires more complex analysis than the traditional statistical techniques employed by most researchers. Insights were gained by using structural equation modelling, in addition to multiple linear regression and Poisson

regression modelling, and by including out of pocket costs in the model.

The use of GP services was shown to be determined primarily by medical need. Also the out of pocket cost per visit tended to be lower for women with lower socioeconomic status. These findings suggest that the system is equitable in these dimensions. However the out of pocket cost for GP services increased with distance from urban centres, which shows that the charges imposed by GPs are not equitable across place of residence. Higher cost was associated with lower use of services, even among women considered to have high levels of need for care.

The findings from these cross-sectional data suggest a need to regulate the costs of GP services to patients, particularly in rural areas. The study also highlights the need to improve the delivery of GP services especially in rural and remote areas. The longitudinal study will be well placed to monitor

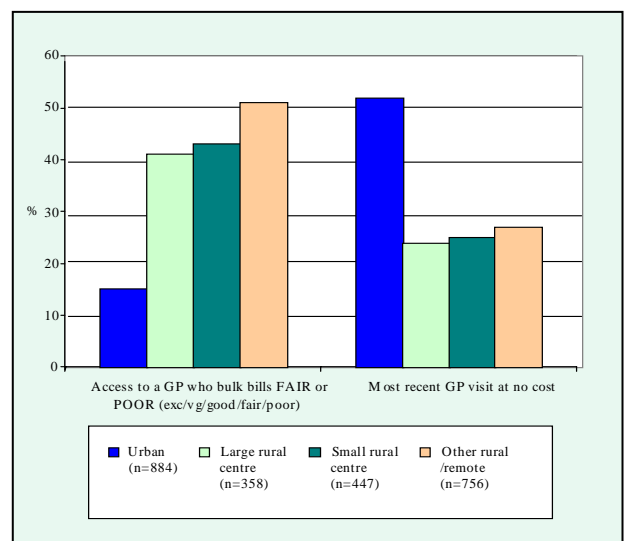
**Figure 5: Percentage of mid-age women in this sub-study (n=2,445) who rated items as 'fair' or 'poor' (on a scale of excellent/very good/good/fair/poor) by area of residence (within NSW).**



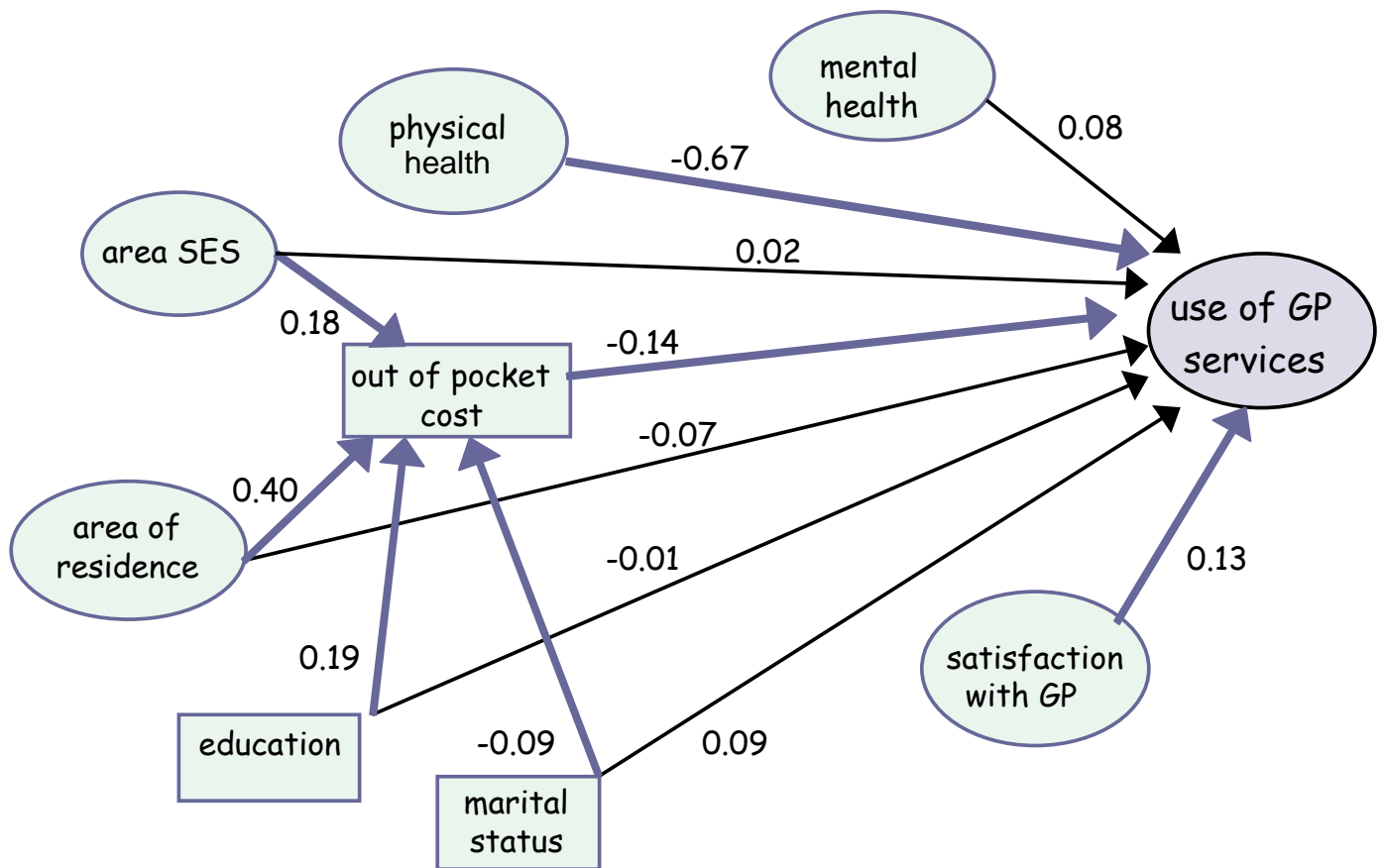
access to health services from the viewpoint of women throughout Australia and to assess the effectiveness of policy changes. For example, if the number of medical practitioners in rural and remote areas increases, especially female GPs, the negative relationship between geographical isolation and perceived access to care shown in this study should be reduced. Improved access should also be reflected by better ratings of satisfaction with GP services.

The long-term impact of the geographical inequity in services on health outcomes for women remains to be determined. The results of this research provide the rationale for the continued monitoring of the use of GP services among women in Australia and provide a mechanism for the evaluation of strategies designed to achieve equity of access to health care. In addition, longitudinal analysis of linked databases will enable the outcomes of use of health services to be examined and should be considered a priority for research in Australia.

**Figure 6: Financial aspects of GP care reported by mid-age women in this sub-study (n=2,445) by area of residence (within NSW).**



**Figure 7: Structural equation model for GP use, mid-age women, n=7121 (actual model)**



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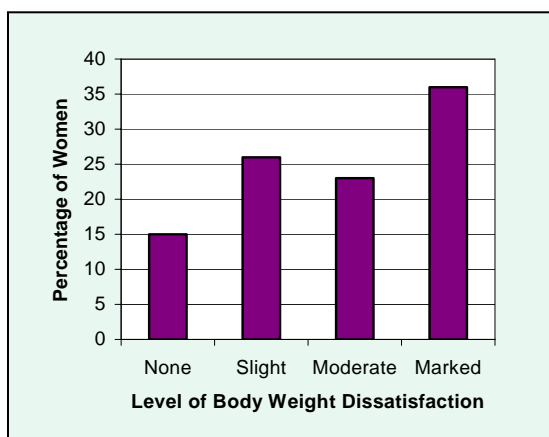


**Disordered Eating, Psychological Stress And Coping In Young Women**  
 Supervisor: Associate Professor Christina Lee

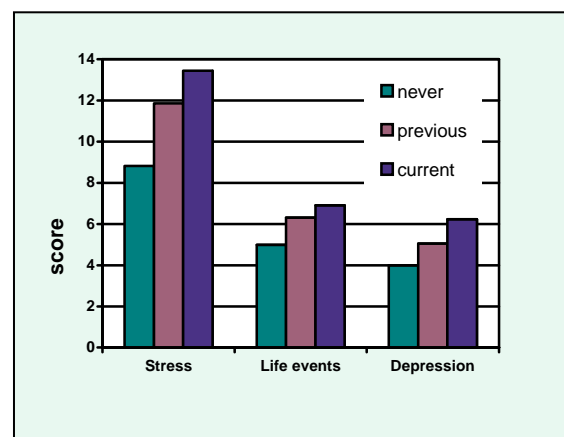
While disordered eating among young women is generally believed to be multifactorially determined, two factors frequently implicated for their hypothesized etiological importance are psychological stress, and a reliance on maladaptive coping strategies. A review of empirical evidence indicated strong support for the concept that stress and inadequate coping strategies were major precursors of disordered eating, but also identified a number of conceptual and methodological limitations. Most significantly, prior research was characterized by a reliance on cross-sectional methodologies, from which no conclusions regarding causal relationships can be made. A series of interconnected research studies was therefore designed to address these issues and investigate in detail the relationships between stress, coping and disordered eating in young Australian women. Firstly, the relationships between these variables were assessed cross-sectionally in two community surveys. Results of these quantitative surveys were supplemented with those of several qualitative studies, assessing their perceptions of relationships among stress, coping and disordered eating. Finally, a longitudinal study,

targeting women with reported eating pathology, was conducted, with multiple regression and structural equation modelling used to investigate causal relationships between the study variables. Overall, the cross-sectional data indicated strong relationships between stress, coping and disordered eating; this was supported by qualitative findings suggesting a strong perception among young women that stress triggered subsequent eating pathology. However, results of longitudinal analyses, demonstrating only tenuous relationships between the study variables, did not support the hypothesis that stress and coping strategies predict disordered eating over time. These findings, while contrary to general opinion in the eating disorders literature, are consistent with those of the few previous longitudinal studies reported, and suggest that stress, coping and disordered eating may be closely intertwined, occurring concurrently among young women. Future studies replicating and extending these results could help to further clarify our knowledge of the mechanisms underlying these relationships, and, ultimately, to increase our understanding of the complex etiology of disordered eating.

**Figure 8: Body weight dissatisfaction among young women**



**Figure 9: Eating disorders and psychological well-being**



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## **Under the sun of a foreign sky: Resettlement of immigrant women from the Former Yugoslav Republics**

Supervisor: Professor Lenore Manderson

**Aims:** The aim of this research was to examine the interrelationship between immigration experience, social structure and health status of women from the Former Yugoslav Republics. The research explored social, cultural, and personal characteristics, the personal, interpersonal and institutional resources women accessed before and after settling in Australia, and the coping strategies they developed after immigration.

**Methods:** In-depth interviews were conducted with 52 immigrant women and 118 completed a questionnaire. Immigrant women had arrived in Australia between 1991 and 1996. Community organisations were involved in designing and translating the questionnaires and recruitment of study participants.

**Main findings:** Nearly 70% of women reported they immigrated to Australia in order to escape the war or political situation in their country of origin. Few women chose to recount their experiences during the war in great depth, and these issues were not pursued. Women who reported that their health had deteriorated were more likely to report that they were housewives, and they were more likely to be on a Social Security benefit than a salary or wage. Self-reported deterioration of women's health status was also associated with being less satisfied with life in Australia. Health-related behaviours (exercise, smoking and overweight) are affected by

the culture of immigrants, civil war, and their post-immigration socio-economic position. Pre-immigration (eg war) and post-immigration stressors (eg unemployment, work injury, financial constraints) make giving up smoking harder. For some women, however, financial hardship reduced smoking.

Overweight may be caused by continuation of a traditional diet and low socio-economic status, limiting opportunity to have a healthy diet and/or leading to reduced activity. On the positive side, alcohol consumption is not a health concern, and although women do not formally exercise, physical activity is maintained through walking.

**Conclusion:** Although most women did not perceive any change in health since immigration, more felt their health had deteriorated than improved. Not having to worry about their own and their family members' safety any more, and improved diet, were seen as contributing to improved health. Explanations for deteriorating health among refugees following resettlement include pre-immigration stressors, resettlement-related stress, and health risk behaviours.

**Implications:** In the course of analysing coping and adjustment strategies, three types of outcomes were identified: (1) loss orientation; (2) ambivalence; and (3) future orientation. Determinants of immigrants' inclination towards a particular category are employment-related issues, financial hardship, health

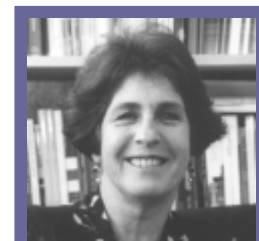
status, access to welfare, English language skills, the existence of networks, current news from the country of origin, and children's success in school. From a theoretical point of view,

the typology delineates the modes of incorporation of immigrants into the host society; on a practical level it predicts their needs for services and patterns of service utilisation.

# Completed Sub-studies 1996 - 1999

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## The Health and Social Needs of Recently Widowed Older Australian Women

**Aims:** This sub-study of the WHA project aimed to identify the health and social needs of older women, immediately following the death of their husbands. Women who at the start of the study in 1996 were in the 70-75 year age group and who indicated that they had lost their spouse within the past 12 months, were included in this study. Women who had been selected for other sub-studies, were excluded for this present study. This sub-study aimed to quantify the prevalence of needs identified in the baseline qualitative data, and to further test the hypothesised improvement in health-related quality of life over time.

**Method:** 12,624 women from the older cohort of the WHA project completed baseline questionnaires. 34.5% of the women were widowed, and 13.5% of these widowed women had lost their spouse within the past 12 months. Follow-up surveys were returned by 340 women out of a sample of 430 women who indicated that they had been widowed. Of these, 231 women indicated that they had been widowed for three years or less. Eighteen months after the baseline survey, the selected women were sent written invitations to participate in this sub-study by completing a survey on the 'health and well-being of older widows in Australia'. The survey was developed through focus group research and analysis of the detailed written comments provided by widows when they completed the baseline survey.

**Main Findings:** While 82% of the 231 women still lived in their own homes, almost one-fifth had moved house since

being widowed for financial or social reasons.

Needs for legal services (75%), and home maintenance (63%) were common. Assistance obtained from medical practitioners included understanding (64%), support 38% and information 23%. Thirty-five percent said they had received medication to assist their bereavement, and 35% had taken medication to help them sleep or 'for their nerves' within the four weeks prior to the survey. Most women (90%) felt they had maintained or increased their level of social contact since becoming widowed.

**Conclusions:** The findings suggest that widowed women have broad needs for practical help and advice, and the identification of persistent and recurring themes of coping and transition, particularly in relation to expressed needs for support, networks and resources. The study confirmed that there is a need for accessible and affordable legal and financial advice, informed and sensitive health providers and that public transport is central to the ability of older women to maintain a sense of well-being and autonomy.

**Implications:** While this analysis has not addressed specific cultural sub-groups within the Australian community, there is a clear need to undertake such an analysis in future research. This study confirms that the needs of widowed women go beyond a narrow definition of health. They commonly extend into more practical and social arenas, and policy and services for widowed women need to encompass more than bereavement.

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## Health, Attitudes and Eating Patterns

Supervisor: Dr Justin Kenardy

**Aims:** This sub-study of the WHA project examined attitudes of women hypothesised to be at risk of Binge Eating Disorder (BED). BED is a newly defined psychiatric disorder affecting up to 2% of the general population and 30% of individuals presenting to weight loss clinics. Designed to increase our understanding of the risk factors leading to the development of this disorder, the study tested an integrated dual pathway model of binge eating. The model examines the extent to which certain attitudes and experiences predict binge eating. The two paths tested were a restraint path and an interpersonal pathway. Variables included in the restraint path were sociocultural pressure, ideal-body internalisation, body dissatisfaction, and dietary restraint. Factors tested in the interpersonal path were the presence of interpersonal problems, depression, and emotional eating.

**Method:** Participants were from the mid-age cohort of the WHA project. Our sample of 600 women was randomly selected from a pool of 903 women who responded positively to screening questions on disordered eating in the baseline WHA survey (N = 14,011). Participants had a mean age of 49 years. Data were collected from questionnaires returned by 68% of the sample.

**Main Findings:** The integrative dual pathway model of binge eating was tested by estimation of a structural equation model. The model provided an adequate fit to the data, supporting the majority of

hypothesised relationships between binge eating and restraint and interpersonal variables. On the restraint pathway, perceptions of sociocultural pressure were associated with body dissatisfaction, ideal-body internalisation and dietary restraint. Body dissatisfaction predicted dietary restraint and negative affect. Dietary restraint was associated with binge eating. On the other path, interpersonal problems were related to negative affect, which was associated with emotional eating. Emotional eating was a predictor of binge eating. A further finding, not included among the original hypotheses, was that dietary restraint predicts emotional eating.

**Conclusions:** The findings suggest that sociocultural, interpersonal and emotional factors are all important determinants of binge eating pathology. Restraint theory appears applicable to BED. In addition, the newly tested interpersonal pathway suggests that those individuals with higher levels of interpersonal problems experience negative affect, increasing the likelihood of binge eating by using emotional eating as a coping mechanism. High levels of dietary restraint also appear to increase an individual's susceptibility to emotional eating.

**Implications:** This study contributes to the identification of risk factors for BED which, when targeted in treatment may be predictive of successful outcomes. In particular, targeting emotional eating may be an important adjunct to future therapeutic interventions.

Sue Outram  
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## Experiences of women (45-50 years) seeking help for psychological distress

Supervisor: Dr Jill Cockburn

**Aims:** *Study 1* - To describe significant socio-demographic and health related variables associated with poor mental health in 14,000 Australian women aged 45-50 years in the baseline WHA survey and report those that predict poor mental health. *Study 2* - To describe the experiences of seeking help for psychological distress in a community sample of 400 NSW women with low mental health scores. This included an analysis of the descriptions women used to describe their feelings, the perceived causes of distress, reasons for feeling better as well as a description of help offered in the informal and formal sector and an evaluation of the perceived effectiveness.

**Methods:** *Study 1* - Cross-sectional data were analysed for women who scored 52 or less on the Mental Health Index (MHI-5) of the SF-36. Relevant sociodemographic and health related variables were analysed in a logistic regression model to determine predictors of poor mental health. *Study 2* - 400 women who scored 52 or less on the MHI-5 in the baseline study and who lived in NSW were randomly selected to take part in a semi-structured telephone interview. Both quantitative and qualitative data were collected and analysed.

**Results:** *Study 1* - While poor mental health was significantly associated individually with most sociodemographic variables, when logistic regression analysis was used the significant variables were found to be low educational levels, home duties, unemployment and being unable to work due to sickness, non-English speaking backgrounds, more life-

events, menopausal status, low satisfaction with friendships, low perceived social support outside the family, lower levels of exercise, and smoking 20 or more cigarettes per day. *Study 2* - Women said the main causes of their psychological distress were family worries, physical ill health and work difficulties. Two-thirds of the women had talked to a health professional, most commonly a GP, followed by mental health professionals and complementary therapists. The medical treatment mainly consisted of listening and medications. While about 70% of women felt that the help provided by the GP was helpful to some extent, women were critical of GPs in general. These criticisms focused on the lack of interest and expertise in emotional problems, inappropriate use of psychotropic drugs, and lack of holistic care.

**Conclusions & Implications:** The study highlights the strong association between poor mental health and poor socioeconomic conditions, suggesting the need to promote better education and employment opportunities for women before they reach midlife. Screening and appropriate follow-up treatment by doctors of women with social and behavioural risk factors may improve their quality of life. Improved communication skills and structural changes in providing care, as well as a wider range of treatment options provided by GPs may be indicated. However the increasing tendency to medicalise social and emotional problems and the expectation that GPs should treat these problems is of concern from a public health perspective.

## The Cherbourg Healthy Lifestyle Program

The Cherbourg Healthy Lifestyle program began when the Health Action Group (HAG) and the ALSWH University of Queensland team met to talk about the findings of the first survey of the health of women in Cherbourg. The HAG decided that the best way to address the findings of high prevalence of overweight and related health problems was to encourage women from the community to improve fitness. They wanted to do this in a way that was social and fitted with the women's commitments to family and community.

Funding for the Cherbourg Healthy Lifestyle Program which is a collaboration between the Cherbourg HAG, the Australian Centre for International and Tropical Health and Nutrition, and the Department of Human Movement at the University of Queensland, was provided by Queensland Health. The program launched in Cherbourg in September 1998 and almost one year later, had more than 120 women and 30 men participating in classes. This is approximately 10% of the Cherbourg community. An instructor from a fitness centre in Kingaroy currently runs the classes.

Over the period of the project attendance has increased despite obstacles resulting in periods of non-attendance. In August 1999 the project moved from temporary premises in the Australian Inland Mission church to a newly built community sports complex where separate men's classes began.

At the request of the community, the instructor has volunteered to start an on-site training program in fitness instruction for a local woman and two local men. Under supervision, they will begin running fitness classes in late 1999.

The first year of the Cherbourg healthy lifestyles program has been an important period of establishing the program in the community, improving access and increasing community participation.

Repeated screenings throughout the project have enabled some measures of improved fitness among participating women. However perhaps most revealing are the anecdotal reports by women about their increased self-esteem, a renewed interest in healthy diet and other health measures, such as walking for exercise. Several women report they have noticed the adverse effect of smoking on their capacity for exercise and have quit.

The major factor which has sustained the Program is its strong community ownership, which has enabled it to continue and grow. The success of the project is particularly due to the Cherbourg HAG who identified the need, Queensland Health who provided funding, the Australian Inland Mission Church who gave the project a home in its early days, the Cherbourg Council who supported the move to the new centre, the fitness instructors who provide leadership, and the women and men of Cherbourg who participated in the Cherbourg healthy lifestyles program.

# Ongoing Sub-studies 1996 - 1999

## **Social support, health status and health care utilisation in women aged 70-76.**

*PhD candidate:* Mr Brendan Goodger (CCEB, University of Newcastle)

*Supervisors:* Dr Julie Byles & Dr Gita Mishra

## **What factors influence weight change at menopause?**

*PhD candidate:* Ms Lauren Williams (RIGH, University of Newcastle)

*Supervisor:* Dr Wendy Brown

## **The effectiveness of legal protection in prevention of domestic violence in the lives of young Australian women.**

*PhD candidate:* Ms Margrette Young (RIGH, University of Newcastle)

*Supervisors:* Dr Julie Byles & Professor Annette Dobson

## **Iron deficiency and menstrual blood loss in Australian women**

*PhD candidate:* Ms Allison Schmidt (RIGH, University of Newcastle)

*Supervisor:* Dr Wendy Brown

## **Cognitive functioning and hormone replacement therapy in postmenopausal women**

*PhD candidate:* Ms Kerrilie Rice (Faculty of Human Development, Victoria University of Technology)

*Supervisor:* Professor Carol Morse

## **Psychosocial problems of sufferers of intractable angina**

*PhD candidate:* Mr Esben Strodhl (Department of Psychology, University of Queensland)

*Supervisor:* Dr Justin Kenardy

## **An examination into the aspirations of a group of young Australian women in relation to work, education, relationships and children**

*PhD candidate:* Ms Lisa Milne (Department of Sociology & Anthropology, University of Newcastle)

*Supervisors:* Dr Deidre Wicks & Dr Gita Mishra

## **The politics of breathing: A critical analysis of asthma in Australia**

*PhD candidate:* Ms. Gabrielle Rose (Key Centre for Women's Health, University of Melbourne)

*Supervisor:* Professor Lenore Manderson

## **Culture of chaos: Indigenous women and vulnerability in an Australian rural reserve**

*PhD candidate:* Ms Jan Hammill (ACITHN, University of Queensland)

*Supervisors:* Dr. Mark Brough & Professor Lenore Manderson

**Assessing the prevalence of body dissatisfaction and factors associated with this in the young cohort**

*Masters candidate:* Ms Fiona Campbell (Discipline of Behavioural Science in Relation to Medicine, University of Newcastle)

*Supervisor:* Dr Libby Campbell

**A longitudinal study of women with menstrual symptoms, treatments tried, hysterectomy and satisfaction with outcomes**

*Masters candidate:* Ms Melissa Graham (School of Health & Human Sciences, La Trobe University)

*Supervisors:* Dr Helen Keleher & Dr Erica James

**Women and depression: is there an unmet need?**

*Masters candidate:* Ms Barbara Reen (CCEB, University of Newcastle)

*Supervisors:* Dr Nick Higginbotham & Dr Carla Treloar

**Violence and abuse: an assessment of mid-aged women's experiences**

*Honours candidate:* Ms Glennys Parker (Department of Psychology, University of Newcastle)

*Supervisor:* Associate Professor Christina Lee

**Examination of the psychometric properties of the WHA stress scale: a measure of perceived stress for young Australian women.**

*Honours candidate:* Ms Sandra Hickling (Department of Psychology, University of Newcastle)

*Supervisor:* Associate Professor Christina Lee

**Examination of the psychometric properties of the WHA stress scale: a measure of perceived stress for young Australian women.**

*Honours candidate:* Ms Audrey Deemal (ACITHN, University of Queensland)

*Supervisor:* Dr David Craig

**Health care seeking and health care experience in rural and urban NSW**

*Collaborator:* Ms Margaret Harris (CCEB, University of Newcastle)

*WHA Collaborator:* Dr Julie Byles

**Alcohol consumption by young Australian women: patterns, harms, behaviours and predictors**

*Collaborator:* Dr Helen Jonas (Turning Point Alcohol & Drug Centre, University of Melbourne)

*WHA Collaborators:* Dr Wendy Brown, Professor Annette Dobson

**Mid age women and heart disease: understanding risks and prevention**

*Collaborator:* Dr Marilyns Guillemain (Centre for the Study of Health & Society, University of Melbourne)

*WHA Collaborator:* Dr Wendy Brown

**Women's leisure? What leisure?**

*Collaborator:* Dr Peter Brown (Department of Leisure & Tourism Studies,  
University of Newcastle)

*WHA Collaborators:* Dr Penny Warner-Smith, Dr Wendy Brown &  
Emeritus Professor Lois Bryson

# Publications 1996 - 1999

The following abstracts of papers can be found on our webpage under the publication section. The address is <http://u2.newcastle.edu.au/wha>.

## Published

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**Brown WJ, Bryson L, Byles JE, Dobson AJ, Manderson L, Schofield M & Williams G (1996). Women's Health Australia: Establishment of the Australian Longitudinal Study On Women's Health. *Journal of Women's Health*, 1996; 5(5): 467-472.**

The Australian Longitudinal Study on Women's Health was begun in June 1995 in response to initiatives arising from the National Women's Health Policy. Now renamed Women's Health Australia, the study involves six cohorts of women, selected on the basis of age or ethnicity to represent young, middle-aged, and older women (main cohorts), as well as Aboriginal and Torres Strait Islander women and women migrants to Australia (special cohorts). The main themes of the study are time use; health, weight, and exercise; violence against women; life stages and key events; and use of and satisfaction with health care services. Results of pilot studies indicate that it is feasible to use the Health Insurance Commission (Medicare) database as a sampling frame for the three main cohorts and that middle-aged women are more likely than older or younger women to consent to participate. The baseline survey for the main cohorts began in April 1996, with data collection for the special cohorts progressing over 1996-1997 as appropriate consultation with the communities concerned is established. Data from this Australian study should make a valuable contribution to current international efforts to identify the factors that promote and reduce health in women.

**Dobson A, Mishra G, Brown W & Reynolds R. Food habits of young and middle-aged women living outside the capital cities of Australia. *Australian and New Zealand Journal of Public Health*, 1997; 21(7): 711-715.**

Young (18-22 years) and middle-aged (45-49 years) women living in urban and rural areas of New South Wales completed a brief food frequency questionnaire as part of a wider health survey. Urban women in both age groups consumed meat less frequently than women in rural areas, and women in the less populated rural areas were more likely to eat green and yellow vegetables and least likely to eat dried beans. There were few other geographic differences in food habits. Middle-aged women consumed reduced-fat milk, fruit, vegetables, fish, biscuits and cakes significantly more frequently, and rice, pasta, full-cream milk, fried food and take-away food less frequently than younger women. Smokers in both age groups consumed fresh fruit, vegetables and breakfast cereals significantly less frequently than non-smokers, and women with low levels of habitual physical activity consumed fresh fruit and cereals less frequently than more active women. The findings suggest that strategies aimed at changing eating behaviours should be age-group-specific and targeted specifically to smokers and less active women.

**Bryson L. Women's Health Australia: Towards 2000. *Proceedings of the Rural Australia: Towards 2000 Conference*. Albury: Charles Sturt University, 1997.**

In the 1988 survey of women in rural Australia carried out by the Office of the Status of Women and the Country Women's Association, almost two thirds of women indicated that health and medical services 'were among their priorities for increased Government action in rural areas'. Indeed this is so for all Australians and an extensive national survey of peoples' attitudes to government expenditure on health, found that only 6% opted for less expenditure while 62% wanted more, of whom 21% wanted much more. While access to health care is an issue of concern to all Australians, as with all services, the problems are somewhat distinctive and often compounded for those who reside in rural Australia.

This paper touches on three issues of health and service delivery which are of key relevance to women in rural Australia, at the dawn of a new millennium. The first is the state of women's general health, as they see it; the second is the way they experience the demands regularly made on their time and the third relates to their experience with medical services. Drawing on the early analysis of data from a multifaceted study of women's health, these three areas are discussed for their contribution to our better understanding of health issues for women in rural areas.

**Brown W, Young A & Byles J. Women's Health Australia: A health profile of mid-life rural women. *Rural Public Health in Australia*, 1997. Canberra: National Rural Health Alliance, pp 211-220.**

More than 14,000 women aged 45-50 from every state and territory are participating in the Australian Longitudinal Study on Women's Health. This study is designed to track the health of Australian women for 20 years, and to understand lifestyle and health care factors that influence women's health. The study deliberately over-represents women from rural (N = 7,955) and remote areas (N = 954). This early analysis of baseline data provided by the women compares responses for urban, rural and remote area women. The data show that while rural and remote women in this age group have similar levels of self-rated health, they have significantly fewer visits to general practitioners and specialists ( $p < 0.001$ ) and more visits to alternative health care providers. Rural and remote women were also more likely to undergo gynaecological surgery than women living in urban areas ( $p < 0.001$ ). Other results suggest that drinking and overweight are more common among rural and remote women. In the main however, the results reflect the strength and independence of rural and remote women. Further follow-up will allow divergence in health and health care equity to be explored as these women move into their older years.

**Brown WJ, Bryson L, Byles JE, Dobson AJ, Lee C, Mishra G & Schofield M. Women's Health Australia: Recruitment for a national longitudinal cohort study. *Women and Health*, 1998; 28(1): 23-40. (Co-published simultaneously in *Australian Women's Health: Innovations in Social Science and Community Research*. 1998; 23-40)**

The Women's Health Australia (WHA) project is a longitudinal study of several cohorts of Australian women, which aims to examine the relationships between biological, psychological, social and lifestyle factors and women's physical health, emotional well-being, and their use of and satisfaction with health care. Using the Medicare database as a sampling frame (with oversampling of women from rural and remote areas), 106,000 women in the three age groups 18-22, 45-49 and 70-74 were sent an invitation to participate and a 24 page self-complete questionnaire. Reminder letters, a nation-wide publicity campaign, information brochures, a freecall number for inquiries, and the option of completing the questionnaire by telephone in English or in the respondent's own language, were used to encourage participation. Statutory regulations precluded telephone follow-up of non-respondents. Response rates were 41% (N=14,792), 54% (N=14,200) and 36% (N=12,614) for the three age groups. Comparison with Australian census data indicated that the samples are reasonably representative of Australian women in these age groups, except for a somewhat higher representation of women who are married or in a defacto relationship, and of women with post-school education. The most common reason for non-participation was lack of interest or time. Personal circumstances, objections to the questionnaire or specific items in it, and concerns about confidentiality were the other main reasons. Recruitment of three representative age-group cohorts of women, and the maintenance of these cohorts over a number of years, will provide a valuable opportunity to examine associations over time between aspects of women's lives and their physical and emotional health and well-being.

**Kenardy J & Ball K. Disordered eating, weight dissatisfaction and dieting in relation to unwanted childhood sexual experiences in a community sample. *Journal of Psychosomatic Research*, 1998; 44(3/4): 327-337.**

A study was conducted to examine the relationships among eating pathology, weight dissatisfaction and dieting, and unwanted sexual experiences in childhood. An unselected community sample of 201 young and 268 middle-aged women were administered questionnaires assessing eating behaviours and attitudes, and past and current sexual abuse. Results showed differential relationships among these factors for the two age cohorts: for young women, past sexual abuse predicted weight dissatisfaction, but not dieting or disordered eating behaviours, whereas for middle-aged women, past abuse was predictive of disordered eating, but not dieting or weight dissatisfaction. Current sexual abuse was also found to be predictive of disordered eating for these young women. These findings underscore the complexity of the relationships among unwanted sexual experiences and eating and weight pathology, and suggest that the timing of sexual abuse, and the age of the woman, are important mediating factors.

**Wicks D & Mishra G. Young Australian women and their aspirations for work, education and relationships. In E Carson, A Jamrozik & T Winefield (Eds), *Unemployment Economic Promise and Political Will*. Brisbane: Australian Academic Press, 1998.**

It is recognised that while women make up over half of tertiary enrolments, this outcome is not reflected in the gender composition of occupational structure, career patterns and pay distribution. There are a number of different explanations for this including a recent contribution from British sociologist Catherine Hakim who identified the main causal factor as women's own lack of career orientation and work commitment. Hakim's contribution has produced a lively debate with all sides acknowledging the lack of, and need for, longitudinal data on women's workforce participation.

The present paper investigates data from the first stage of the Australian Longitudinal Study on Women's Health which provides a valuable opportunity to inform this debate through an analysis of the aspirations of a large group of young Australian women aged 18-22 years. The investigation will be conducted in relation to young women's aspirations for work, relationships and further education. In this context, the implications for the 'Hakim debate' will be discussed.

Analysis of the initial data casts light on debates about women's workforce participation at the same time as establishing baseline data for future research on the work and family patterns of this group of young women. The information will have significance for policy debates in several areas, including those concerned with child care, access to higher education and work-force planning.

**Young AF, Byles JE & Dobson AJ. Women's satisfaction with general practice consultations. *Medical Journal of Australia*, 1998; 168: 386-389.**

Objective: To determine women's satisfaction with general practice services.

Design: Cross-sectional postal questionnaire conducted during April to September 1996 (part of the baseline survey of the Australian Longitudinal Study on Women's Health).

Participants: Women aged 18-22 (n=14,739), 45-49 (n=14,013) and 70-74 (n=12,941) years, randomly selected from the Medicare data base, with oversampling of women from rural and remote areas of Australia.

Main outcome measures: Frequency of use of general practice services, satisfaction with the most recent visit to a general practitioner (GP), prevalence of symptoms, preference for a female doctor.

Results: The most recent visit to a GP was rated overall as good, very good or excellent by more than 80% of women, with increasing levels of satisfaction with increasing age of the women. However, satisfaction was lower for waiting room time and cost of the visit. A third of the young and middle-aged women living in rural and remote areas were dissatisfied with the cost of the visit. Young women were more likely to prefer a female doctor, and many were dissatisfied with their GP's skills at explaining their problem and giving them a chance to give an opinion and ask questions. The most prevalent symptoms for all women included headaches and

tiredness and many were not satisfied with the health services available to help them deal with these symptoms.

Conclusions: Australian women are reporting high levels of satisfaction with GP consultations. However, more effective strategies may be needed to improve communication with younger women, and there is an unmet need for services to help all women deal with some common symptoms. Dissatisfaction with cost of services and women's preference for female doctors have implications for future health policy.

**Patterson AJ, Brown WJ & Roberts DCK. Development, prevention and treatment of iron deficiency in women. *Nutrition Research*, 1998; 18(3): 489-502.**

Iron deficiency is the most common nutritional deficiency in the world. Women of childbearing age are at particular risk of developing iron deficiency due to the iron losses associated with menstruation and childbirth. Women in less developed countries are often unable to obtain adequate dietary iron for their needs due to poor food supplies and inadequate bioavailable iron. In this situation, fortification and supplementation of the diet with extra iron is a reasonable approach to the prevention and treatment of iron deficiency. In Western countries however, food supply is unlikely to be an issue in the development of iron deficiency, yet studies have shown that many women in these countries receive inadequate dietary iron. Research has shown that the form of iron and the role of enhancers and inhibitors of iron absorption may be more important than total iron intake in determining iron status. Despite this, very little research attention has been paid to the role of diet in the prevention and treatment of iron deficiency. Dietary modification would appear to be a viable option for the prevention and treatment of iron deficiency in Western women, especially if the effects of enhancers/inhibitors of absorption are considered. While dietary modification has the potential to address at least part of the cause of iron deficiency in women of childbearing age, its efficacy is yet to be proven.

**Schofield MJ & Mishra G. Validity of the SF-12 compared with the SF-36 health survey in pilot studies of the Australian Longitudinal Study on Women's Health. *Journal of Health Psychology*, 1998; 3(2): 259-271.**

This study assessed the relative validity of the Medical Outcomes Study Short-Form General Health Survey (SF-36 and SF-12) for Australian women and compared norms for the independently administered and embedded SF-12. Two samples of women in New South Wales were randomly selected from the Medicare database (N=3,600). The sample was stratified into young (18 to 22 years), middle-aged (45 to 49 years) and older (70 to 74 years) women, and into women living in urban (40 percent), rural (30 percent) and remote (30 percent) areas. In this study, 3,500 households were selected by random digit dial. The method was a mailout survey. SF-36 scale scores were similar to US norms. For the older group, health profiles of the independent and embedded SF-12 differed. For the SF-36 and independently administered SF-12, means differed in all three age groups. The SF-12 physical health scores discriminated between women with poor versus good physical health, and mental health scores discriminated between groups who were or were not psychologically

distressed on GHQ-12. The SF-36, relative to the SF-12, appears to be a more reliable measure for examining changes in health status over time and between groups

**Mishra G & Schofield MJ. Norms for the physical and mental health component summary scores of the SF-36 for young, middle and older Australian women. *Quality of Life Research*, 1998; 7(3): 215-220.**

The SF-36 was developed in the US to provide an eight scale health profile and two component summary scores representing physical and mental health. The published norms and scoring procedures are based on data from the US general population. The Australian Longitudinal Study on Women's Health (Women's Health Australia) undertook a survey in 1996 of over 40,000 Australian women in three age groups: 18-22, 45-49, and 70-74 years and provided age and gender specific norms for the SF-36 health profile. From this data, factor weights and factor score coefficients were calculated for these age and gender specific populations of Australian women. Thus, component summary scores for physical and mental health can now be calculated using formula standardised to the relevant Australian population. This will facilitate interpretation of the physical and mental health component summary scores in the Australian context and will allow more meaningful comparisons within the young, middle-aged and older cohorts of Australian women in the Australian Longitudinal Study on Women's Health.

**Brown WJ, Dobson AJ & Mishra G. What is a healthy weight range for middle aged women? *International Journal of Obesity*, 1998; 22: 520-528.**

Objective: To explore associations between body mass index (BMI) and selected indicators of health and well-being and to suggest a healthy weight range (based on BMI) for middle aged Australian women.

Design: Population based longitudinal study (cross-sectional baseline data).

Subjects: 13,431 women aged 45-49 who participated in the baseline survey for the Australian Longitudinal Study on Women's Health.

Results: Forty eight percent of women had a BMI > 25 kg/m<sup>2</sup>. Prevalence of medical problems (eg hypertension, diabetes), surgical procedures (cholecystectomy, hysterectomy) and symptoms (eg back pain) increased monotonically with BMI, while indicators of health care use (eg visits to doctors) showed a 'J' shaped relationship with BMI. Scores for several sub-scales of the MOS short form health survey (SF-36) (eg general health, role emotional, social function, mental health and vitality) were optimal when BMI was around 19-24 kg/m<sup>2</sup>. After adjustment for area of residence, education, smoking, exercise and menopausal status, low BMI was associated with fewer physical health problems than mid-level or higher BMI, and the nationally recommended BMI range of 20 – 25 was associated with optimum mental health, lower prevalence of tiredness and lowest use of health services.

Conclusions: Acknowledging the limitations of the cross-sectional nature of these data, the results firmly support the benefits of leanness in terms of reducing the risk of cardiovascular disease, diabetes and gall bladder disease. The findings are moderated however by the observation that both low and high BMI are associated

with decreased vitality and poorer mental health. The optimal range for BMI appears to be about 19 - 24 kg/m<sup>2</sup>. From a public health perspective this study provides strong support for the recommended BMI range of 20 - 25 as an appropriate target for the promotion of healthy weight for middle aged Australian women.

**Bryson L & Warner-Smith P. Choice of GP: who do young rural women prefer? *Australian Journal of Rural Health*, 1998; 6: 144-149.**

The demand for female medical practitioners by women in rural areas appears to be increasing and to be age related. However, the distribution of general practitioners in country Australia is heavily weighted to older men, and access to a women's health centre also decreases with distance from the metropolitan areas. Data from the Australian Longitudinal Study of Women's Health indicate that young women are significantly more likely than middle-aged or older women to prefer to see a female doctor. It is argued here that it is the 'culture of practice' exhibited by female doctors which young women find attractive, rather than an essential appeal of the gender of the practitioner. The findings suggest that restricted access to female practitioners may affect health outcomes if young rural women are reluctant to seek medical services provided by male doctors practising in traditional modes.

**Brown WJ, Ball K & Powers J. Is life a party for young women? *ACHPER Healthy Lifestyles Journal*, 1998; 45(3): 21-26.**

Baseline data for the Australian Longitudinal Study on Women's Health (now known as the Women's Health Australia or WHA project) were collected from women in three age groups (18-23; 45-50; 70-75) in 1996. The project aims to explore how changes in biological, psychological, social and lifestyle factors impacted over time on women's physical and emotional health. Participants in the study were randomly selected from the Health Insurance Commission/Medicare data base, and represented women from all walks of life, from every State and Territory of Australia. This paper focuses on lifestyle variables, as well as causes of, and methods of coping with stress, in the young cohort (N=14,600). The most common causes of stress in this group were money, study and work/employment issues, and the most common method of coping was talking to a good friend. Almost 20% of the cohort reported eating (more or less) as a method of coping with stress, and 17% reported using exercise as a stress reduction strategy. One third of the cohort were current smokers and almost one fifth reported binge drinking (more than five drinks) at least weekly.

More than 60% of the sample reported more than one health 'risk' characteristic and multiple risks were associated with decreased physical and mental health scores on the Medical Outcomes Survey (MOS Short Form, SF-36) Health profile. Mental health scores were very low for women who reported unhealthy eating practices and high levels of stress, and for women who reported three or more risk characteristics (33% of the cohort).

The data provide insight into levels of stress and strategies for coping with stress in young women. Associations between high stress levels, poorer mental health and multiple risk behaviours suggest that "life is not a party" for many young women in the transition between adolescence and adulthood. The findings, which will be the focus of future work in this longitudinal study, have implications for health education and health promotion programs for young women.

**Bryson L & Warner-Smith P. Employment and women's health. *Just Policy*, 1998; 14: 3-14.**

In this paper we focus on the links between employment and women's health, with a view to contributing to broader debates relating to women, work and social policy. Our empirical data are from the survey responses of a cohort of women in the longitudinal Women's Health Australia (WHA) project. These women were aged between 45 and 50 years at the time of collection of the baseline data in 1996. Here we examine links between the hours the women are employed, their family commitments and their health, and we point to a strong association between better health and employment for women. Given a number of current trends, the policy implications of our findings are of particular importance for contemplating the future demographic characteristics of Australian society, over and above their fundamental relevance for women's citizenship.

**Harris MA, Byles JE, Mishra G & Brown WJ. Screening for cervical cancer: health care, isolation and social support. *Health Promotion Journal of Australia*, 1998; 8(30): 167-172.**

Issue addressed: This research explores associations between participation in cervical cancer screening and health care use, geographical isolation and social support in middle-aged women.

Method: Women aged 45-50 years, randomly selected from the Australian Health Insurance Commission Medicare data base, were surveyed by mailed questionnaire. These women were participants in the Australian Longitudinal Study on Women's Health (Women's Health Australia project).

Results: Surveys were returned from 14,205 women (response rate 53.9%). Of these women eligible for screening (n=10,795), 81.4% (n=8,791) were screened. Women with lower education and occupational status, non English speaking women and indigenous women were least likely to be screened (p<0.001). Rural women were more likely to be overdue for screening. After controlling for these factors, the risk of being unscreened or overdue for screening was lower among women who made more visits to a general practitioner, those who had private health insurance and those who currently use oral contraceptives or hormone replacement therapy (p<0.001). Women who had no preference for a female provider and post menopausal women were more likely to be screened (p<0.001). Social support was a highly significant factor related to screening (p<0.001).

Conclusions: The promotion of stronger social networks may enhance participation in cervical cancer screening. Further exploration of the importance of social support as a facilitator of screening is warranted.

So what: Greater insight into the role of social support in cervical screening may open new avenues for promoting cervical screening among all women.

**Bryson L. The Women's Health Australia project and policy development. *Australian Journal of Primary Health - Interchange*, 1998; 4(3): 59-71.**

The Women's Health Australia (WHA) project plans to follow for 20 years, the health of a national sample of around 42,000 women who, in 1996 were in the age cohorts, 18-22, 45-49 and 70-74. The multi-disciplinary research team adopts a social approach to health, focuses on biological, psychological, social and lifestyle factors and their relationship to physical health and emotional well-being, and is examining the use of, and satisfaction with, health care services.

Base-line survey data highlight diversity and the need for health policy to tailor communications to the different age groups. In terms of general well-being and service appropriateness, the young are the most problematic, the mid cohort next while older women indicate fewest problems. Young women experience the highest levels of stress, often suffer from tiredness and are over-concerned with their weight and shape. They are also most dissatisfied with GP services. Issues of employment and health are also central. In general employment is associated with good health, but strains are evident when there are family commitments. As employment becomes increasingly normalised for women, health policy must be mindful of these effects and the significant difficulties faced by a small group of women whose health precludes employment.

**Chiarelli P & Brown W. Leaking urine in Australian women: Prevalence and associated conditions. *Women and Health*, 1999; 29(1): 1-12.**

The paper aims to (1) assess the prevalence of leaking urine and to (2) explore associations between leaking urine and a variety of other symptoms, conditions, surgical procedures and life events in three large cohorts of Australian women, who are participants in the Australian Longitudinal Study on Women's Health. Young women aged 18-23 (N = 14,000), mid-age women, 45-50 (N = 13,738) and older women, 70-75 (N = 12,417), were recruited randomly from the national HIC/Medicare database.

Leaking urine was reported by approximately one in eight young women [estimated prevalence 12.8% (95% CI: 12.2-13.3)] and one in three mid-age women [36.1% (CI: 35.2-37.0)] and older women [35.0% (CI: 34.1-35.9)]. Leaking urine was significantly associated with parity, conditions which increase the pressure on the pelvic floor such as constipation and obesity, past gynecological surgery and conditions which can impact on bladder control. The study showed that fewer than half the women had sought help for the problem and that younger women were less likely to be satisfied with the help available for this problem.

Strategies for continence promotion, including opportunistic raising of the issue at the time of cervical screening and pregnancy care are suggested, so that the health and social outcomes of untreated chronic incontinence in women might be improved.

**Ball K, Lee C, & Brown W. Psychological stress and disordered eating: An exploratory study with young Australian women. *Women and Health*, 1998; 29(1): 1-15.**

An exploratory study was conducted to examine whether the relationships between psychological stress and disordered eating, reported in many studies using American samples, would be found in a sample of young Australian women. A total of 212 women aged 18-22 years completed a questionnaire assessing a number of women's health issues, including life event stress levels, psychological distress, disordered eating behaviours, and concerns about weight and eating. While results showed few strong relationships between stress and eating variables for the sample overall, those women with high psychological stress levels appeared to be more likely to engage in disordered eating behaviours than women with low levels of stress. Results suggest that further investigation, targeting subgroups of women scoring highly on measures of psychological stress or disordered eating, may help clarify our understanding of the relationships between these factors in young Australian women.

**Byles JE, Feldman S & Mishra G. For richer, for poorer, in sickness and in health: older widowed women's health, relationships and financial security. *Women and Health*, 1999; 29(1): 15-29.**

Aim: This study contrasts the health and social needs of widowed older women with needs of married older women.

Method: 12,624 women aged 70-75 years across Australia completed baseline questionnaires for the Australian Longitudinal Study on Women's Health: 34.5% of the women were widowed, and 13.5% of these widowed women had lost their spouse within the past 12 months (recently widowed).

Results: Recently widowed women had particular physical and mental health needs as well as financial and practical needs relating to managing on their income. They had the lowest self-rated health, were most likely to report they were stressed about their health, and scored significantly lower than married women on all 8 sub-scales of the SF-36. Women were more likely to say they make their own decisions about their life if they were widowed than if they were married. However, stress with relationships with children or other family members was more likely to be reported by widows than other women.

**Dobson AJ, Brown W, Ball J, Powers J & McFadden M. Women driver's behaviour, socio-demographic characteristics and accidents. *Accident, Analysis and Prevention*, 1999; 31: 525-535.**

The purpose of this study was to examine factors which affect driving behaviour and accident rates in women in Australia. Two groups of women (18-23 and 45-50 years) participating in the Australian Longitudinal Study on Women's Health, completed a mailed questionnaire on driver behaviour and road accidents. Self reported accident rates in the last 3 years were 1.87 per 100,000km for the young

drivers (n=1,204) and 0.59 per 100,000km for the mid-age drivers (n=1,565); most accidents involved damage only, not injury. Mean scores for lapses obtained using the Driver Behaviour Questionnaire, were similar in the two age groups and similar to those found in other studies. In contrast, scores for errors and violations for the young women were higher than for the mid-age group and previous reports using the same instruments.

Riskier driving behaviour among young women was associated with stress and habitual alcohol consumption. In the mid-age group, poorer driver behaviour scores were related to higher levels of education, feeling rushed, higher habitual alcohol consumption and lower life satisfaction scores. Accident rates in both groups were significantly related to lapses. Women born in non-English speaking countries had significantly higher risk of accidents compared to Australian-born women: relative risk = 3.40, 95% confidence interval (1.93, 5.98) for the young drivers; relative risk = 1.77, 95% confidence interval (1.11, 2.83) for mid-age drivers.

**Brown P & Brown WJ. Women and leisure: does all work and no play make Jill unwell? *World Leisure and Recreation*, 1999; 41(1): 11-14.**

Leisure time is characterised by liberation from the constraints of employment, domestic work and other social obligations. It affords time and space to relax and recuperate from the stresses and fatigue of daily activities; offers opportunities to express individuality and creativity; and provides an important context for the establishment and maintenance of social networks. It is also an avenue for the promotion of health, through physical activity and the psychological benefits of social leisure activities.

The Australian Longitudinal Study on Women's Health aims to clarify the relationships between biological, psychological, social and lifestyle factors and women's physical health and emotional well-being. Baseline surveys were completed in 1996 by more than 41,000 young, mid-age and older women. Among the mid-age women (45-50 years, N=13,595) one in five felt rushed, pressured or too busy every day, and 38% felt more rushed than five years ago. About half the women said they would like more time for passive (43.9%) and active (2%) leisure; while only 2% reported no passive leisure, 18.7% reported no active leisure.

These findings will be reviewed in the context of interrelationships between work and leisure in women's lives and the practical and ideological significance of changes in patterns of labour market involvement on women's leisure and health.

**Brown WJ, Young AF & Byles JE. Tyranny of distance? The health of mid-age women living in five geographical areas of Australia. *Australian Journal of Rural Health*, 1999; 7: 148-154.**

More than 41,000 women aged 18-23, 41-50, and 70-75 years in 1996 are participating in the Australian Longitudinal Study on Women's Health (Women's Health Australia). Baseline surveys were conducted for all three cohorts in 1996, and

the first follow-up survey of the mid- age group in 1998 has achieved a response rate exceeding 90%. The main findings so far reflect the large differences in the life experiences of the three cohorts. The young women report high levels of stress. The physical and mental health of those with young children is worse than for those without children, but confounding by sociodemographic characteristics may account for the differences. Two thirds of young women in the healthy weight or underweight range would like to weigh less, and early onset of dieting is associated with poorer physical and mental health. Most of the women in the mid-age group have multiple roles-in paid work, home duties, and caring for children and other dependents. The potential of the study to investigate the long-term impact of such busy lives on health outcomes is considerable. At this stage, the main health issues for these women relate to tiredness, weight gain, and menopause. The older cohort presents a picture of positive aging. These women are heavier users of health services than the mid-age and younger women, and they are also more satisfied with these services. Although their physical health is poorer, their mental health is better, and they report less stress than women in the other two cohorts. The follow-up survey of this group, planned for 1999, will focus on the coping strategies used by these women. An overall goal of the project is to understand the interactions among social roles, life events, and women's health in order to provide a basis for improved health policies and services. Analysis of these interactions, which relies on both quantitative and qualitative data, poses many challenges that will be addressed as the longitudinal data become available.

**Bryson L, Brown W & Strazzari S. Shaping the life course: women, control and contraception. *Family Matters*, 1999; 53: 31-38.**

'I consider the oral contraceptive pill to be the one discovery which has brought about the most change in society. Control in women has changed it all'. These are the words of one of the young women in a large national study of women's health and well-being across the life course (the Women's Health Australia project). While effective contraception has become normalised and the capacity to shape their life course is much appreciated by women, the study also reveals that many problematic issues remain.

**Brown WJ, Dobson AJ, Bryson L & Byles JE. Women's Health Australia: On the progress of the main cohort studies. *Journal of Women's Health & Gender-based Medicine*, 1999; 8(5): 681-688.**

More than 41,000 women aged 18-23, 45-50 and 70-75 years in 1996 are participating in the Australian Longitudinal Study on Women's Health. Baseline surveys were conducted for all three cohorts in 1996, and the first follow-up survey of the mid-age group in 1998 has achieved a response rate exceeding 90%. The main findings so far reflect the large differences in the life experiences of the three cohorts.

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by socio-demographic characteristics may account for the differences. Two thirds of young women in the healthy-weight or under-weight range would like to weigh less, and early onset of dieting is associated with poorer physical and mental health. Most of the women in the mid-age group have multiple roles - in paid work, home duties and caring for children and other dependents. The potential of the study to investigate the long-term impact of such busy lives on health outcomes is considerable. At this stage the main health issues for these women relate to tiredness, weight gain and menopause.

The older cohort presents a picture of positive aging. While these women are heavier users of health services than the mid-age and younger women, they are also more satisfied with these services. Although their physical health is poorer, their mental health is better, and they report less stress than women in the other two cohorts. The follow-up survey of this group, planned for 1999, will focus on the coping strategies used by these women.

An overall goal of the project is to understand the interactions between social roles, life events and women's health, in order to provide a basis for improved health policies and services. Analysis of these interactions, which relies on both quantitative and qualitative data, poses many challenges which will be addressed as the longitudinal data become available.

**Ball K, Kenardy J & Lee C. Relationships between disordered eating and unwanted sexual experiences: a review. *Australian Psychologist*, 1999; 34(3): 166-176.**

It is frequently suggested that unwanted sexual experiences (USE), particularly childhood sexual abuse, are a major risk factor for the development of disordered eating. A review of published literature indicates that, while several studies find no relationship between a history of USE and eating pathology, many report that the hypothesised relationship is evident in at least some circumstances or subpopulations. It is argued that researchers should now attempt to explain this relationship by linking these research findings to a clear conceptual model which can be tested in future studies. In particular, longitudinal studies are required in order to test whether the relationship between these factors is causal or an artifact of other psychological processes. A conceptual model of the relationships among USE and disordered eating is currently lacking in the literature and the establishment of such a model should be a priority of future research in this area, in order to enable a thorough understanding and minimisation of the effects of USE on later psychological disturbance such as disordered eating.

**Lee C. Health habits and psychological functioning among young, middle-aged and older Australian women. *British Journal of Health Psychology*, 1998.**

Objectives: To assess health habits, and their relationship with psychological well-being among Australian women; in particular to examine the relationship between health habits and the Women's Health Questionnaire.

Design: A cross-sectional postal survey of women in three age groups was carried out.

Methods: Questionnaire responses from a representative sample of 612 women from three age groups (18-23, 45-50, and 70-75) were analysed. Data included the WHQ, 12-item General Health Questionnaire, Medical Outcomes Study SF-12, and self-reports of smoking, height and weight, alcohol use, and exercise status.

Results: Young women had the highest rates of smoking and drinking, and were most likely to be underweight, while middle-aged and older women were most likely to be overweight or obese. Psychological distress was highest in the youngest group; the middle-aged were most likely to report vasomotor symptoms and difficulties with memory and concentration, and the older women difficulty sleeping. Health habits were related to psychological well-being; smoking, unhealthy body weight, and lack of exercise were most closely related to the depression sub-scale of the GHQ.

Conclusions: Young adulthood appears the time of greatest distress for women. Distress, particularly depression, is associated with behaviours which predispose to later disease, suggesting that psychological interventions with young women may be particularly important for long-term physical health. The WHQ appears a useful measure of well-being and a good predictor of health-related behaviour across a range of ages.

**Brown WJ, Lee C, Mishra G, Bauman A. Leisure time physical activity in Australian women: relationship with well-being and symptoms. *Research Quarterly for Exercise and Sport*, 1998.**

This paper explores the hypothesis that moderate levels of physical activity are associated with health benefits in terms of well-being and commonly reported symptoms such as tiredness, back pain and constipation. 14,502 young women (18-23 years), 13,609 mid-age women (45-50) and 11,421 older women (70-75), who are participating in the Australian Longitudinal Study on Women's Health, answered questions about vigorous and less vigorous exercise (used to determine a physical activity score), health and well-being (SF-36), symptoms and medical conditions. There were significant associations between PA score and SF-36 scores in each cohort. Odds ratios for reporting a range of symptoms and conditions were lower for women who reported low -- moderate activity (eg for young women, OR for constipation = 0.76 (CI 0.65-0.89), for mid-age women, OR for tiredness = 0.70 (0.63-0.78)) than for sedentary women. There was no threshold level of PA at which health benefits appeared to increase significantly. While acknowledging the limitations of cross-sectional data in terms of drawing conclusions about causality,

the findings suggest that low to moderate levels of exercise are associated with a range of health benefits for women of all ages. These preliminary findings will be followed up during the course of the longitudinal study.

**Ball K & Lee C. Relationships between psychological stress, coping and disordered eating: a review. *Psychology and Health*, 1999.**

Objective: Psychological stress and inadequate coping skills have been hypothesised to play important roles in the etiology of disordered eating. This paper reviews the empirical evidence which has emerged regarding the proposed relationships among stress, coping skills and various forms of disordered eating.

Method: A search of psychological and medical databases was conducted to identify studies examining life events, and other types of psychological stress and coping strategies, in relation to the onset of disordered eating.

Results: Despite methodological limitations such as the use of non-representative samples and retrospective methodologies, evidence of relationships between stress, coping and disordered eating was obtained in the majority of studies reviewed.

Discussion: The implications of these findings are discussed and suggestions for future research, including the utilisation of longitudinal, prospective studies, are presented.

**Kenardy J, Brown WJ & Vogt E. Dieting and health in young Australian women. *Health Psychology*, 1998.**

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

**Brown WJ, Fuller B, Lee C, Cockburn J & Adamson L. Never too late: older people's perceptions of physical activity. *Health Promotion Journal of Australia*, 1999.**

Issue Addressed: A series of focus groups was conducted to explore older people's attitudes to, practices, and perceptions of physical activity, in order to inform the

development of appropriate strategies to encourage participation among this population group.

**Methods:** Thirty five men and 46 women aged over 60, recruited through the Australian Longitudinal Study on Women's Health, seniors' organizations and personal contacts in urban and rural areas of the Hunter Valley, participated in 11 focus groups. A semi-structured group interview explored relevant issues including current patterns of activity and understanding of the terms used in activity promotion, motivations and barriers, and appropriateness of current promotion strategies, including the 'Active Australia' campaign.

**Results:** The participants described a wide range of current activities. The most common were walking, gardening and housework. Participants were unsure about what constituted 'adequate' activity but showed good understanding of the terms vigorous, moderate and light activity. Health, social support, doing something useful, environmental factors and avoiding the negative stereotypes of ageing were the main motivations for activity. Barriers included poor health; no-one to exercise with; inappropriate or unsafe environments and facilities; and lack of interest. Participants found existing media messages confusing, but supported the idea of campaigns encouraging older people to be active.

**Conclusions:** These older people were interested in a wide range of physical activities, but suggested that lack of social support, poor facilities and concerns about safety were the major barriers to participation.

**So What?** This project identified factors which are pertinent for the promotion of physical activity among older people. The issues identified, to maintain good health, a sense of social connectedness, and an ability to contribute, as well as the need for safe environments and appropriately trained exercise leaders, suggest strategies for the development of physical activity promotion campaigns for this group.

**Chiarelli P, Brown W & McElduff P. Constipation in Australian women: Prevalence and associated factors. *International Urogynecology Journal*, 1998.**

A postal health survey was completed by 14,761 young women (aged 18-23 years), 14,070 middle-aged women (45-50 years) and 12,893 older women (70-75 years). The prevalence of constipation was 14.1% (CI 13.5-14.7) in young women, 26.6% (CI 25.9-27.4) in middle-aged women, and 27% (CI 26.9- 28.5) in the older women. The prevalence of hemorrhoids was 3.2% (CI 2.9-3.4 young), 17.7% (CI 17.1- 18.4 middle-aged) and 18.3% (CI 17.6-19.0 older). In the middle-aged and older women, those who reported previous gynecologic surgery were between 18% and 63% more likely to report constipation; in the younger cohort, women with one or two children were also more likely to report constipation (adjusted OR 1.43-1.46). One-third of the young women and half the middle-aged and older women had sought help for constipation; the majority indicated that they were satisfied with the help available to them.

**Chiarelli P, Brown WJ & McElduff P. Leaking urine – prevalence and associated factors in Australian women. *Neurourology and Urodynamics*, 1998.**

The Women's Health Australia project provided the opportunity to examine the prevalence of leaking urine and associated variables in three large cohorts of Australian women aged 18- 23 ('young' N= 14,761), 45 - 50 ('mid-age' N=14,070) and 70 - 75 ('older' N= 12,893) years. The proportion of women reporting leaking urine was 12.8% (95% CI: 12.2 - 13.3), 36.1% (35.2 - 37.0) and 35% (34.1 - 35.9) in each of the three cohorts respectively. Logistic regression analysis showed significant associations between leaking urine and parity in the young and mid-age women, and between leaking urine and constipation, other bowel symptoms, body mass index and urine that burns or stings, in all three groups. In the mid-age and older cohorts, women who reported having both hysterectomy and prolapse repair, or prolapse repair alone, were also more likely to report leaking urine. Lower scores on the physical and mental component summary scores of the SF-36 suggest lower quality of life among women who report leaking urine, compared with those who do not.

**Schofield M, Mishra G & Dobson A. Risk of multiple prior miscarriages among middle aged women who smoke. *Conference Proceedings of the 10<sup>th</sup> World Conference on Tobacco or Health*, 1999.**

We present retrospective self-reported data from the baseline survey of the Australian Longitudinal Study on Women's Health on the relationship between smoking and history of miscarriages among 14,200 women aged 45-49 at the time of the survey. The sampling frame was the database of the national health insurance system. Participants were randomly selected, with over-sampling from rural and remote areas, and are broadly representative of Australian women in this age group. Polychotomous logistic regression analyses were used to test the hypotheses that current smoking status and age at starting to smoke are associated with the number of miscarriages reported. There was a strong positive relationship between smoking status and the number of reported miscarriages. Ex-smokers were 1.25 times more likely to have had two or more miscarriages, light smokers (1-19 cigarettes per day) were 1.39 times more likely, and women who smoked 20 or more per day were 1.78 times more likely compared with women who had never smoked. An inverse relationship was also found between age at starting to smoke and a history of miscarriages. The findings provide strong evidence of a link between smoking and miscarriages and suggest that new initiatives are needed to prevent smoking among women of child-bearing age.

**Schofield M, Mishra G & Dobson A. Risk of early menopause among Australian women who smoke. *Conference Proceedings of the 10<sup>th</sup> World Conference on Tobacco or Health*, 1999.**

We examined the relationship between smoking status and self-reported natural menopause among 14,200 women aged 45-49 years in the Australian Longitudinal Study on Women's Health. The sampling frame was the database of the national

health insurance system. Participants were randomly selected, with over-sampling from rural and remote areas and are broadly representative of Australian women in this age group. Polychotomous logistic regression analyses were used to estimate the association between current smoking status and early menopause and peri-menopausal status after adjustment for potentially confounding factors. Smokers of 1-19 cigarettes per day were 1.48 times more likely to be peri-menopausal, and women who smoked  $\geq 20$  per day were 1.74 times more likely to be peri-menopausal in comparison with never smokers. Both groups of smokers were 1.8 times more likely to report post-menopausal status than women who had never smoked. For ex-smokers, the risk for earlier onset of menopause declined rapidly after quitting. The results extend earlier evidence of a link between smoking and early menopause by estimating the effects of quitting and by controlling for a wide range of potential confounders.

**Byles J. Over the hill and picking up speed: older women of the Australian Longitudinal Study on Women's Health. *Australian Journal on Ageing*, 1999.**

Objective: The aim of the Australian Longitudinal Study on Women's Health is to explore the physical, psychological, social and environmental factors that affect the health of women in Australia. In this paper, we identify key health issues for the 12,900 women in the oldest cohort of the study and highlight issues to be explored longitudinally.

Method: Women aged 70-75 years registered with the Health Insurance Commission were sent a postal questionnaire (response rate 40%). The questionnaire included 260 items on health, health related behaviours and health care use, and social circumstances.

Results: Despite the high proportion of women reporting chronic medical conditions and recent symptoms, only 4% of the women rated their health as poor. Scores on the SF-36 health-related quality of life measure indicate that while physical health scores were lowest for the older cohort, mental health scores were higher than for the youngest (18-23 years) and mid-age (45-50 years) cohort. In their comments, the older women emphasised the importance of their homes, social support and their active participation in their community as fundamental to their well-being.

Conclusion: This analysis highlights areas for follow-up in the longitudinal study, importantly that the older women in the study do not equate disease with poor health and a broader social view of health is justified.

**Feldman S, Byles JE & Beaumont R. "Is anybody listening?": The experiences of widowhood for older Australian women. *Journal of Women & Ageing*, 1999.**

This paper discusses preliminary findings from participants in the baseline survey of the Australian Longitudinal Study on Women's Health who reported their marital status as widowed. A total of 12,624 women, aged 70-75 years, completed a self administered 260 item questionnaire, and 4,355 of these women were widowed. Many of these women provided additional qualitative comments about their health, social and financial circumstances after the death of their spouse. This paper presents a thematic analysis of the qualitative comments and builds on the findings

of the quantitative analysis of base-line data. The aims of this study are to examine the short and long term effects of widowhood on the health and wellbeing of older women and to explore the process of change that they experience after the death of a spouse. Preliminary findings suggest that, as a key life event, widowhood has an initial negative impact on the health and wellbeing of older women, but in the long term it may be accompanied by a positive shift into a new life phase.

# Presentations 1996 - 1999

## 1996

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Young AF, Byles JE & Dobson AJ. The tyranny of distance: health care utilisation by women living in rural and remote Australia. 28th Annual Conference of the Public Health Association of Australia. Perth, Western Australia, 29 September - 2 October 1996.

Byles JE, Schofield MJ, Brown WJ & Tiller K. Variation in gynaecological procedure rates. 28th Annual Conference of the Public Health Association of Australia. Perth, Western Australia, 29 September - 2 October 1996.

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## 1997

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Wicks D & Mishra G. Young Australian women and their aspirations for work, education and relationships. National Conference on Unemployment. Adelaide, South Australia, 18-20 June 1997.

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# *Financial Summary*