

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



## Annual Report 2000

Australian Longitudinal Study on Women's Health



in association with



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# Director's Report

The Australian Longitudinal Study on Women's Health (known as Women's Health Australia - WHA) has been in progress since 1995. The project, conducted by The University of Newcastle in collaboration with The University of Queensland, involves longitudinal survey research with large cohorts of Australian women in three age groups. Smaller targeted studies focusing on indigenous and other special groups are also conducted.

The WHA project takes a social view of women's health, studying women's health and health service use in the context of their personal, family, social, employment and economic circumstances. The research team comprises experts in a wide range of disciplines including sociology, epidemiology, psychology, medicine, nutrition and statistics.

This report outlines progress and highlights during 2000. This year saw the second survey of the youngest cohort, now aged 22 to 27, an age

group which is characterised by extremely high levels of mobility and change. A smaller targeted survey of Filipina migrants in Queensland was completed, and a series of surveys of indigenous women living in Deed of Grant communities and urban areas in Queensland was continued.

WHA research is guided by the twin principles of scientific excellence and relevance to public policy. Projects in progress during 2000 have involved additional substudies of all three cohorts, as well as subsidiary analyses of existing data. The need to understand women's health in context is made clear by the complex interactions among variables. This is true whether one focuses on health-related behaviour, such as alcohol consumption or use of medications; on symptoms, such as menstrual difficulties or urinary leakage; or on life

circumstances, such as family caregiving. Increasingly, the research findings support calls for greater integration of government policies in order to provide appropriate services to women throughout Australia.

Planning for surveys in 2001 and beyond, statistical work on the databases, and general maintenance of the project are ongoing tasks which require continual attention. I am proud of the results of the project so far, and of the work of the staff and researchers. We welcome your comments and suggestions on the further development of this valuable and unique Australian resource.

*Annette Dobson*

Project Director

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# Associate Investigators 2000

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## Congratulations to our successful graduates - 2000

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Ms Glennys Parker, BA, BSc(Hons)

Dr Amanda Patterson, PhD

Ms Jenny Powers, MMEDSTATS

Dr Anne Young, PhD

# Staff

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Ms Amanda Cahill

Ms Catherine Dorward

Ms Alicia Frost

Ms Renay Grieg

Ms Vibeke Hansen

Ms Jenny Helman

Ms Penny Knight

Ms Melinda Lang

Ms Kathryn McCabe

Ms Yvette Miller

Ms Bev Parker

Ms Lisa Scobie

Ms Nicole Smith

Ms Kate Warner-Smith



# What is Women's Health Australia?

The Australian Longitudinal Study on Women's Health – now widely known as Women's Health Australia (WHA) - is a large-scale, multidisciplinary project which aims to examine the health of Australian women in its broadest context through a longitudinal survey, designed to run for at least 20 years. 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 among 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.

The project has been funded by the Commonwealth Department of Health and Aged Care since 1995. Funding was initially committed for three years, and following an independent review the project has been guaranteed funding until mid-2003, with a further review to be conducted in 2002.

## Main Cohorts

In April 1996 women in three age groups (18-23 years, 45-50 years and 70-75 years) were selected from the Medicare database, which is maintained by the Health Insurance Commission and contains name and address details of all Australian citizens and permanent residents, as well as some temporary visitors. This is widely regarded as the most up-to-date and complete database of Australians in existence.

Sampling from the population was random within each age group, except that women from rural and remote areas were sampled at twice the rate of women in urban areas. This oversampling meant that the numbers of women living outside major urban areas are large enough to allow statistical comparisons of the circumstances and health of city and country women, an important issue for Australia now and in the future. WHA is, in fact, the largest study of health issues in rural and remote parts of Australia.

An invitation to participate in the study, together with a 24 page survey, was sent to each woman by the Health Insurance Commission. Overall response rates were 41% for the young sample, 54% for the mid-age sample, and 36% for the older sample. There are between 12,000 and 15,000 women participating in each age group.

Comparison with Australian census data, collected in the same year, 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 de facto relationship, and of women with post-school education.<sup>3</sup> The study is designed to run for 20 years, with surveys every three years (see Figure 2).<sup>3,4</sup>

*Young women,  
18-23 yrs in 1996*



*Mid-aged women,  
45-50 yrs in 1996*



*Older women,  
70-75 yrs in 1996*





The age groups were selected so that WHA could collect baseline data and then follow women through life stages which are considered to be critical to their health and well-being. The younger age group was selected because they were in the early stages of transition from adolescence to adulthood, and they could be tracked longitudinally as they moved into the work force, entered adult relationships, and became mothers. The mid-age group was selected when the majority would be pre-menopausal, so menopausal transitions could be examined longitudinally. Women in this

age group experience many changes in their roles as their children leave home, their own parents may become dependent on them, and they consider their own retirement. The early 70s were selected to recruit a cohort of older Australian women including a large number who were still active members of the community. These women will be tracked to obtain information on predictors of continuing well-being in older adult life, and conversely to examine the effects of ill health on older women's quality of life and ability to live independently.

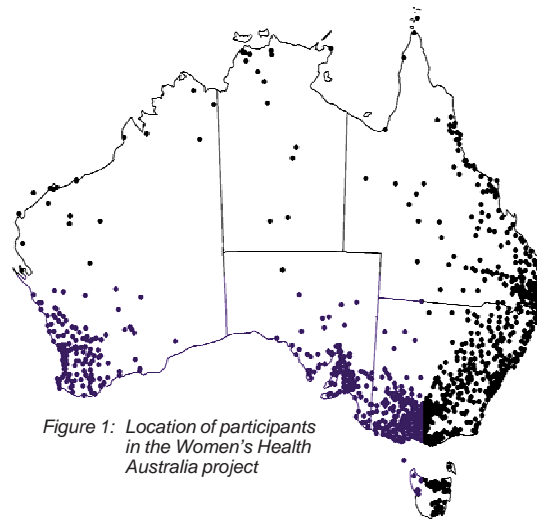


Figure 1: Location of participants in the Women's Health Australia project

	YEAR																			
	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Young	18-23			22-27				25-30		28-33			31-36			34-39				37-42
Mid-age	45-50		47-52			50-55			53-58		56-61			59-64			62-67			
Older	70-75			73-78			76-81			79-84			82-87			85-90			88-93	

Figure 2: 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).

## Indigenous and Migrant Cohorts

An important aspect of Women's Health Australia is the inclusion of several special cohorts. The largest of these are the special indigenous cohorts, consisting of women members of Aboriginal Deed of Grant communities in Queensland as well as women members of urban indigenous groups. Research methods with these communities rely on extensive community consultation, allowing the

establishment of a mutual and sustainable relationship with potential partner communities, and promoting an approach to research which emphasises the communities' ownership of the projects.

Projects with migrant women from the former Yugoslav Republics and from the Philippines have also been

conducted, and have been wound up after providing information to both government and private migrant health services. During the last year, a survey of Filipinas living in various parts of Queensland has focused on mental health and access to support services.



## Objectives

The study began with the objective of exploring five key themes which are relevant to all cohorts. These are health service use; health-related behaviours such as diet and exercise; time use (paid and unpaid work and leisure); life stages and key events (eg childbirth, divorce, widowhood); and violence against women. These themes arose from debates within the Australian women's health agenda. It is well established that social factors such as income, education and ethnicity play an enormous role in individual choices, lifestyles and eventually in life expectancy. The debate around gender differences tends to focus on the consistent findings that women live longer than men but experience more illness. Further, both women's and men's life choices are constrained by social expectations, but women are more likely than men to experience family caring responsibilities, financial stresses, abusive events, and challenging social circumstances.<sup>5</sup> The themes were selected in order to focus the survey on social and personal issues which influence women's health and which have implications for government policy.

For Indigenous women and the women in selected migrant groups, there were community consultations to identify the most relevant health issues. While these were related to the key themes, differences in emphasis developed and are reflected in the contents of the surveys conducted for these special cohorts.

## Surveys for Main Cohorts

Each survey comprises over 300 items, addressing issues including general health and well-being; health service use; symptoms; stress; smoking and alcohol; weight, exercise and eating; time use; social support; demographics; and aspirations. At the end of each questionnaire, women are also invited to write about any additional issues which they feel have affected their health and well-being.

The second survey of the mid-age group (conducted during 1998) and the older age group (conducted during 1999) achieved response rates exceeding 90%. The younger cohort was surveyed for a second time in 2000. Response rates for the youngest group have been considerably lower, despite intensive efforts to locate the participants. The high level of mobility among young Australian women has meant that the response rate has been close to 70%.

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 mental health. As well as these main surveys, women are invited to participate in a variety of sub-studies which address specific

issues or target specific groups. These have included a survey of young women who report disordered eating behaviours; targeted surveys of mid-aged and older women with urinary leakage; and surveys of older women with and without sleeping difficulties.

Women are also invited to consent to linkage of their survey responses with records from the Medicare database of the Health Insurance Commission. The Medicare data include information such as number of GP visits and service costs, but no clinical or diagnostic information. To date, 37% of the younger cohort, 59% of the mid-age cohort and 53% of the oldest cohort have consented to record linkage, and this has enabled us to conduct valuable analyses which explore the health service use of women in different regions of Australia, and their satisfaction with access to services.

Women's Health Australia, funded by the Commonwealth Department of Health and Aged Care, is designed to provide information that will assist Commonwealth and State Departments to plan for the future and to develop policies which are most appropriate to Australians of all ages in the twenty-first century.

## References

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4. 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* 1999; 8: 681-688.
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# Research Highlights 2000

## Young Cohort

In accordance with the study plan, the research team conducted Survey 2 of the Young cohort during 2000, thus completing the second wave of surveys for all age groups. The process of developing the survey instrument actually began in March 1999, with discussions and workshops to decide which aspects would be retained from Survey 1 and which would be altered. A draft survey was developed and piloted in 1999. The final version of Survey 2 had much in common with the earlier surveys but also included a number of new items. These were introduced to keep pace with the changing circumstances of the participants, now aged 22 to 27. Items were also included on the basis of feedback from participants and developments in policy and research interests. Items which were maintained included the SF-36 (a measure of quality of life with eight physical and emotional subscales), questions relating to the main survey themes of health service use, health behaviour, time use, violence and life stages/key events. New items included a series of questions about the use of illicit drugs, a topic about which many of the young women expressed concern, but one which we had been reluctant to include in the first survey as it seemed too intrusive. For similar reasons, and also because the cohort were moving through adolescence and into young adulthood, we included questions about sexual orientation and fertility problems. Reflecting increasing

public concern about suicide and self-harm, we included items on those topics as well as a measure of depression.

Survey 2 was mailed to 13,516 women in March 2000, with reminders in April and May. Telephone calls to those who had not returned a survey began in June, and continued until the end of October. Further mailouts, to women whose address details had changed, were conducted from June to October. As expected, response rates from the young cohort were lower than those obtained for the mid-age and older cohorts. High levels of mobility, changes of name, and lower probability of being listed in telephone directories under their own names or appearing in the electoral rolls, meant that many women could not be located. Extensive efforts were made to track these women, involving a staff of twelve additional part-time assistants, who made a total of over 11,000 telephone calls and sent out approximately 3,800 duplicate surveys to new addresses (28% of the sample). Surveys were even sent to women who were holidaying or working overseas, and arrangements were made to allow these women to return their surveys to a maildrop in the UK. The staff used electronic white pages and electoral rolls, as well as contact details provided by the women themselves, in an effort to track as many young women as were possible. The final response rate, 69%, was considerably lower than that obtained for the mid-age and older cohorts but it compares

Figure 3: Young Cohort: Relationship Status in 1996 and 2000

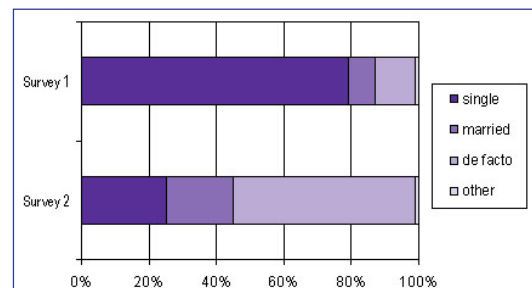


Figure 4: Young Cohort: Employment Status in 1996 and 2000

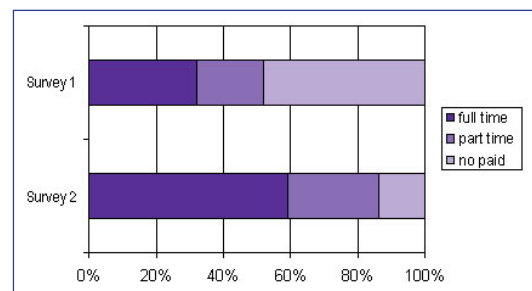


Figure 5: Young Cohort: Formal Qualifications in 1996 and 2000

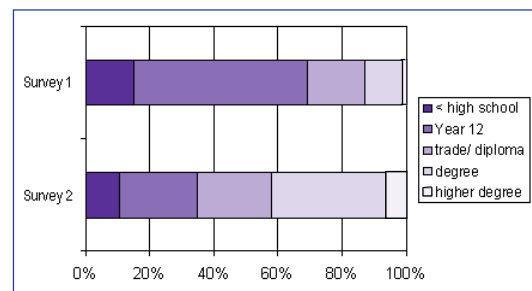
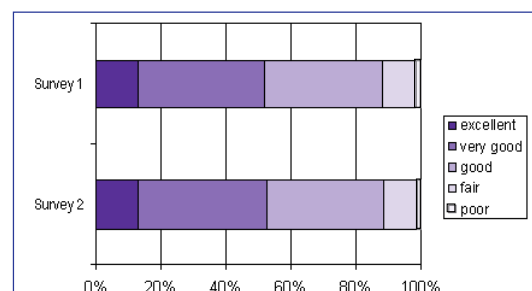


Figure 6: Young Cohort: Self-rated Health in 1996 and 2000



well with the findings of other surveys targeting this very mobile age group. It is worth noting that fewer than 1% of the women in this cohort actually withdrew entirely from the project, with a further 2% unable to participate on this occasion. Most of those women who did not respond could not be traced – they were not known at their previous address, not locatable on the white pages and not identifiable in the electoral rolls. Figures 3, 4 and 5 on the previous page, comparing demographic characteristics of the women in 1996 with preliminary data from 2000, illustrate the enormous

changes in women's lives during this stage of life and reflect the difficulty of keeping track of women during this time of change. It is notable that, despite major life changes, there seems to have been no change in self-ratings of health.

Scanning, cleaning and checking of the Young Survey 2 data are under way at the end of 2000, and the next step will be to link these data with Survey 1 and start exploring the impact of life changes in this cohort of women.

2000 has also seen the development and piloting of Survey 3 for the mid-age

cohort. Since this survey will be administered in 2001, this will be reported in more detail in the next annual report.

As usual, the research team, associate investigators and postgraduate students have been involved in a large number of substudies and analyses which make use of existing data or involve additional, smaller, surveys of the participants. This work, its outcomes, resulting publications, and implications are described in detail later in this report.

## Filipina Cohort

Figure 7: Non-smokers, Filipina and main cohorts (NB age groups for Filipina cohort are: young 14-29; mid 30-39; older 40-59)

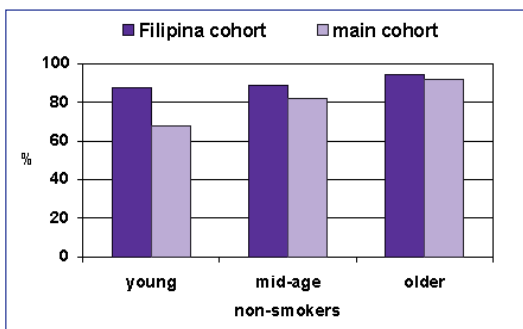
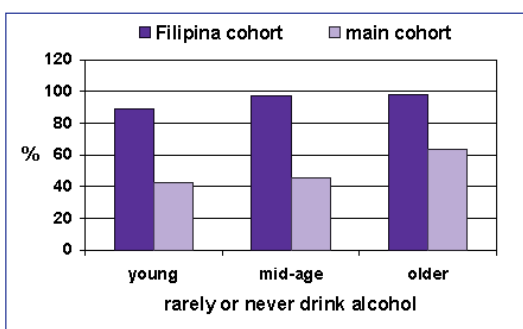


Figure 8: Percentage who drink alcohol rarely or never, Filipina and main cohorts (NB age groups for Filipina cohort are: young 14-29; mid 30-39; older 40-59)



The decision, taken in 1999, to discontinue the Filipina component of Women's Health Australia was implemented in 2000 following two successful waves of quantitative surveys, each accompanied by in-depth qualitative interviews. Evidence from these surveys had indicated that emotional well-being was an issue for this group. Therefore, during 2000, a qualitative survey of the mental health of Filipina women in Brisbane and environs was conducted. Individual interviews were conducted with 24 women, sampled on the basis of age (under or over 50) and mental health scores in the

quantitative survey. A semi-structured questionnaire was used to assess problems and coping strategies; experience of mental health problems; community and family networks; and how women connect with place in Australia. The women identified a need for information in various areas, including the workings of the Australian health care system; entitlement to benefits and assistance; support available in looking for work; the processes involved in having professional qualifications recognised in Australia; and other aspects of everyday life.

## Indigenous Cohort

The Indigenous Women's Cohort Project aims to investigate health issues among indigenous women in remote, rural and urban communities in Queensland. During 2000, new methodology has been developed for surveying women in an urban setting - Toowoomba - in such

a way that follow-up surveys can be conducted without identifying individual women but rather members of the same community. Plans have commenced for follow-up surveys in the Deed of Grant in Trust communities. Special issues for research conducted in partnership with Indigenous

communities include potential misinterpretation of data, and the potential for communities to use the data to improve their situation.

### ***Purpose of research***

- Help community identify needs
- Owning the process → owning the outcomes → owning the responses → sustainability
- Facilitate strategic development of responses and further partnerships

### ***Dissemination of Results***

- Requires community negotiation and approval
- Process begins with reports; community discussion
- Community needs to be assured of benefit

### ***Partnerships***

- Ownership in partnership between communities and researchers
- Freedom to do things differently, in their own way and time
- Community confidence in their own control of processes
- Community benefit
- Relevance to women and community

# Completed Research Theses 2000

## Completed PhD Thesis

### Student

Mr Brendan Goodger  
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### Thesis

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

### Supervisors

Dr Julie Byles & Dr  
Gita Mishra

### Social support and health

This substudy involved a two-year prospective survey (with annual follow-up) of those older women with low and higher levels of social support who responded to the WHA baseline survey. Out of the 840 participants selected for this substudy, 573 completed surveys at all three time periods. The overall response rate was 71%. This study had three major aims. Firstly, to identify changes in social support among older women. Secondly, to assess the effects of social support on health-related quality of life, and thirdly to investigate the potential for social support to moderate the relationship between quality of life and the number of visits to general practitioners. Multivariate statistical techniques were used with adjustment for the effect of potential confounding among the many variables considered in the study.

Of participants classified as having high support at Survey 1, only 4% changed to low support after two years. However of those with low support at Survey 1, 57% still had low support two years later with a further 22% improving to "fair support". Women with low support at Survey 1 had significantly worse physical and mental related quality of life scores than those with high support and this persisted over all time points of this substudy. Among all older women in this study with a higher number of visits to general practitioners (four or more), those with low support had mean physical and mental functioning scores that were significantly lower than those with high support. This research suggests that low social support has adverse consequences on the health of older women.



### Women's Health Australia PhD Graduates 2000

*Dr Anne Young, Dr Amanda Patterson and Dr Kylie Ball  
at their graduation in May 2000*

## Completed Masters Theses

### Statistical analysis

The objective of this statistical project was to determine patterns of intercorrelation among all the variables in the mid-age Survey 1, in order to provide information which might help to simplify future analyses. Cross-sectional data from the baseline survey for the mid-aged group were used. Five different analytical techniques (factor analyses with varimax and promax rotation, and cluster analyses with single, complete and density linkages) were used on three samples of data. The resulting factors and clusters were used to define common groups of correlated variables. The eighteen groups of variables, consisting of 122 items, fell into five broad categories – perceived physical and mental health, health service use, gynaecological health, lifestyle, and demographics. The results obtained using split samples and different analytical methods suggest that these groups of correlated variables are stable.

In studies such as this, where large numbers of variables are collected, a combination of factor analysis and cluster analysis can be used to identify stable groups of correlated variables. These groups may be used to create composite variables, such as factor scores or summated scores, or to identify one variable which is representative of the group. The new variables can then be used in future analyses so that the problems of multicollinearity can be avoided. The identified correlated variables may also be used to reduce both redundancy and the number of missing values.

### Emotional distress

The experience of emotional distress has been recognised in Australia and world-wide, as imposing a significant health burden on women. Overseas studies have pointed to the importance of economic, cultural and social factors in contributing to these experiences. To gain insight into the complex ways in which these factors affect women's lives, this study moved beyond the written questionnaire to collect more detailed qualitative information using open-ended questions in audio-taped telephone interviews lasting 35 - 60 minutes. Fifteen women from the mid-age group, who had indicated at both Survey 1 and 2 that their lives had been affected by feelings of emotional distress, were interviewed. They were randomly selected from women who live in rural and remote areas of Australia.

The interviews were completed in mid-June, transcribed (using pseudonyms to protect the identities of the women), checked for accuracy against the audio recording, then coded into the following categories: the causes of emotional distress (including relationships, grief, traumatic events); relationships with partner, family, friends and health professionals; coping strategies; personal attributes; needs; and personal growth. Ethnograph V4 was used to retrieve coded sections of data.

The study presents a detailed description of the range of emotions experienced by these women and of the ways in which their emotional experiences affect their lives. The study identifies many of the pressures placed on women living in isolated rural and remote areas and describes the way the women respond emotionally to these pressures. Listening to each woman talking about her own unique experiences, about her relationships, about her strengths and weaknesses, about help-seeking and about ways of coping has helped to identify health and community needs which are not being met adequately and to suggest practical ways of responding to these needs.

### Student

Ms Jennifer R Powers  
BSC, ASSOC DIP APPL SC (COMP)  
Research Centre for  
Gender and Health,  
The University of  
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### Degree

MMEDSTATS

### Thesis

*Stability of groups of  
correlated variables  
identified by  
exploratory factor and  
cluster analysis.*

### Supervisor

Professor Annette  
Dobson

### Student

Ms Barbara Reen  
MA, DIP ED,  
GRAD DIP HLTH SOC SCI  
Centre for Clinical  
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Biostatistics, The  
University of Newcastle

### Degree

MMEDSTATS

### Thesis

*Depression Study:  
Emotions and Health*

### Supervisors

Dr Carla Treloar,  
Associate Professor  
Nick Higginbotham &  
Ms Sue Outram



## Completed Honours Theses

### Student

Ms Sandra Hickling,  
Department of  
Psychology, The  
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### Degree

BSc(Psych)HONS

### Thesis

*Examination of the  
psychometric  
properties of the WHA  
Young Stress Scale: A  
measure of perceived  
stress for young  
Australian women*

### Supervisor

Professor Christina  
Lee

### Young women and stress

This study examined the psychometric properties of validity and internal reliability for the WHA “Young” Stress Scale, designed to measure perceived stress among young Australian women. Data from the young cohort of Survey 1 of the Women’s Health Australia study, and additional data collected from University of Newcastle undergraduates, were used for this purpose. There were 14,779 young women participants in Survey 1, and 111 in The University of Newcastle study, all aged between 18 and 23. The validity of the scale was determined by examining its relationships with other stress measures, mental health, physical symptoms, and health behaviour. The University of Newcastle data were also examined with two different scoring methods, and the differences between using a 6 and 12 month time frame were assessed. Results provided evidence that the scale is internally reliable, with a single stable factor. The scale was found to be related to mental health, physical symptoms, smoking, and alcohol consumption. Convergent validity was found with life events, feminine gender role stress, and daily hassles. The scoring method that takes into account only those items that respondents consider to be relevant to their lives, was found to have the highest correlations with the concurrently measured variables. It was concluded that the use of the WHA “Young” Stress Scale to measure stress levels in young women in Australia was both a valid and appropriate use of the data. Due to the small numbers in the validation study, future research should entail a repetition of this study to strengthen the findings, and a re-test reliability study to determine the extent to which the construct measured by the scale is best seen as a state or trait characteristic.

### Student

Ms Glennys Parker  
Research Centre for  
Gender and Health,  
The University of  
Newcastle

### Degree

BA, BSc(HONS)

### Thesis

*Violence and abuse:  
An assessment of mid-  
aged women’s  
experiences*

### Supervisor

Professor Christina  
Lee

### Violence and abuse

Little systematic research has been conducted in Australia to develop a picture of mid-aged women’s experiences of violence and abuse over their lifetime. The present study was designed to address this deficiency by assessing the prevalence of different types of abuse, the situations in which they occur, how women coped, and the effect of abusive encounters on general health and well-being. Measures included descriptions of the abuse, the SF-36 physical and mental health summary scores, the GHQ-12 instrument for psychological distress, and the CES-D depression scale. Using self-report questionnaires, data were obtained from 1,159 mid-aged women previously recruited in the Women’s Health Australia longitudinal project. The most frequently reported forms of abuse were emotional, physical and sexual. These overwhelmingly occurred in the home across all life stages, but mostly in adulthood and on an occasional or weekly basis. Almost all perpetrators were persons known to the victim and many women were afraid for their personal safety. Most abusive encounters persisted over time and were attributed to the personality of the perpetrator, alcohol, relationship problems, or financial concerns. The majority of women had discussed their circumstances with close relatives, friends, or professional persons, and one-third of respondents had reported abusive episodes to the police. Criterion measures of poorer physical and mental health, psychological distress, depression, and subjective perception of negative effects were predicted by frequent, but not recent, abuse in adulthood that had continued over time and was most likely to be physical mistreatment or harassment. Other predictors were the perpetrator being a blood relative, spouse, partner, or other known person, wanting to leave the situation but not being able to do so, and talking to a professional counsellor but not an intimate confidante. Further research currently in progress, assesses coping strategies which enable women to deal effectively with experiences of violence, and move on in a positive way.



# Completed Substudies 2000

## Family caregiving

This project explored the physical health, health behaviour, and emotional well-being of women in the mid-age and older cohorts who provided family-based care for family members. Survey 1 data were analysed quantitatively and qualitatively. Of 13,888 mid-age women, 1,775 reported family caregiving and 185 provided comments about their experiences. Quantitative analyses showed that caregivers experienced more financial difficulties; poorer physical and psychological health; higher levels of stress; and higher use of health care services. The graph below illustrates differences in the physical (PCS) and mental (MCS) summary scales of the SF-36. Content analysis of comments supported these findings, and in addition identified emerging themes including difficulties with travel, perceived inadequacies in health and welfare systems, a sense of exploitation, and fear for the future. Of the older cohort, 10% (1,235) identified themselves as caregivers and 168 made comments about their caregiving experiences. Unlike the mid-age women, the older cohort showed no differences in physical health between caregivers and others. They were, however, significantly more likely to have low levels of emotional well-being and to feel stressed, rushed and pressured. Qualitative analysis suggested that the older women were more likely to have internalised the “ethic of care”, with fewer comments indicating any sense of exploitation or of inadequacy of support systems. The differences between mid-age and older women have implications for family caregiving in the future: the older women’s acceptance of caregiving as their responsibility means that they absorb a major burden which would otherwise have to be funded publicly. It seems that the mid-age women experience the burden of caregiving in a much more negative way, and this may mean that these women will be less willing, or less able, to continue with caregiving as they age. The public implications of such a trend, in combination with increased deinstitutionalisation of the frail and infirm, and increasing longevity, present significant challenges for governments, communities, and individuals.

## Project

*Family caregiving among mid-aged and older women*

**WHA Investigator**  
Professor Christina Lee

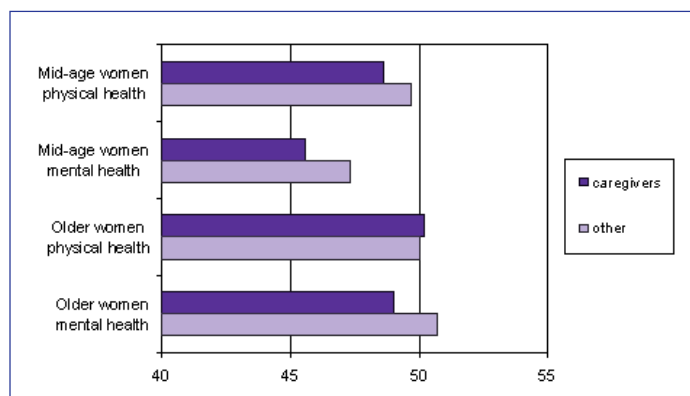


Figure 9: SF-36 Physical (PCS) and Mental (MCS) Component Scores for mid-age and older women with and without family caregiving responsibilities - Survey 1. NB caregivers scored lower than others on MCS in both age groups, and on PCS in the mid-age group only.

## Project

*Incontinence In Australian Women: Following Up Participants In The Australian Longitudinal Study On Women's Health*

## WHA Investigator

Professor Wendy Brown

## Collaborators

Ms Yvette Miller (Dept of Human Movement Studies, The University of Queensland) & Ms Pauline Chiarelli (Faculty of Medicine and Health Sciences, The University of Newcastle)

## Women's waterworks

In the 1996 surveys, 13% of young women (18-23 years), 36% of mid-age women (45-50) and 35% of older women (70-75) reported leaking urine. Of those women who reported leaking urine at Survey 1, the majority had not sought help for the problem.

The objectives of this substudy were to:

- 1 measure type and severity of urinary leakage;
- 2 investigate the association between these factors and age-related life events and conditions;
- 3 establish the determinants of help-seeking behaviour, treatments suggested by health care professionals (for those who sought help), and satisfaction with treatment outcomes among women in each age group who reported leaking urine at Survey 1.

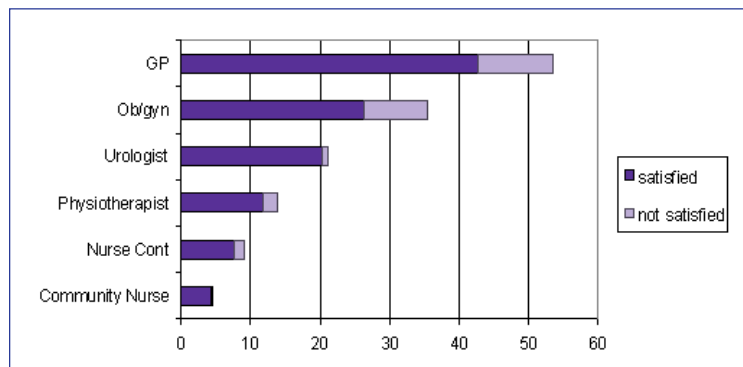
Five hundred participants were randomly selected from women in each of the young (21-26 years), mid-age (48-53 years) and older (72-79 years) cohorts who reported leaking urine in Survey 1. Details about leaking urine (frequency, severity, situations), and associated factors (pregnancy, childbirth, Body Mass Index), perceived changes in leakage over time, and help-seeking behaviour were requested via a self-report mailed survey.

Response rates were 50%, 83%, and 80% in the young, mid-age and older women respectively. Most respondents had leaked urine in the last month (78%, 94%, and 91% of young, mid-age and older women respectively), and the majority of these were cases of incontinence of 'mixed' types. Incontinence severity tended to increase with age and weight. However, there was no significant relationship between severity and number of births, forceps deliveries, or the number of large (>4000 grams) babies delivered.

Only 20%, 57%, and 54% of young, mid-age, and older women respectively had sought help or advice about managing urinary incontinence. The most common reasons for not seeking help were that the women felt they could manage the problem themselves, or did not consider it to be a problem. Fear of surgery was also a frequently reported reason for not seeking help among mid-age and older women. Among those who did seek help, satisfaction was generally high. More than half of the women who did pelvic floor exercises were satisfied with the results. Satisfaction levels were lowest for those who had undergone surgery.

Strategies are needed to encourage women who experience urinary incontinence to seek help. Health care professionals should be aware of the possibility of early onset incontinence, the progression of urinary incontinence, and treatment options which are effective and enable women to avoid surgery.

Figure 10: Percentage of mid-age women who sought help for urinary incontinence from different health care professionals; including those who were and were not satisfied with the help.



# Substudies and Student Projects in Progress 2000

## Substudies

### Menopause and symptoms

The objective was to measure changes in symptoms experienced by six groups of women in different stages of the menopause transition.

The study involved 8,623 mid-aged women who participated in Survey 1 in 1996 and Survey 2 in 1999, and who had not had a hysterectomy. Women were categorised into one of six menopause groups according to their menopausal status at Surveys 1 and 2.

At Survey 1, the most commonly reported symptoms were headaches, back pain, stiff joints, tiredness and sleeping difficulty. Peri-menopausal women were more likely than pre-menopausal or post-menopausal women to report these symptoms. Hot flushes and night sweats were more common among post-menopausal women. Compared with pre-menopausal women, those who were in the early stages of menopause were about 30% more likely to report tiredness, stiff joints, sleeping difficulties and hot flushes at Survey 2 than those who remained peri-menopausal throughout the two-year period. Women who remained peri-menopausal were also about 30% more likely to report back pain and leaking urine. Compared with pre-menopausal women, odds ratios for night sweats increased for women in consecutive stages of the menopause transition and remained high in the post-menopausal women.

With the exception of night sweats, changes in self reported physical and menstrual symptoms were most marked in early menopause, and among women who remained peri-menopausal during the two-year period.

### Diabetes, health, and health service use

The aims of this project are:

- to report on prevalence of diabetes; risk factors for diabetes (such as inactivity, overweight and obesity); and the health, functional status and access to health care services for women with and without diabetes, by analysing data obtained from Surveys 1 and 2 of the WHA project; and
- to examine the use of general practitioner and specialist services, out of pocket costs and use of best practice guidelines for HbA1c, lipids, microalbuminuria and retinal screening for women with diabetes, using Medicare/Department of Veterans' Affairs data.

This project uses a multidisciplinary approach to examine the quality and accessibility of diabetes-related health care for women in Australia and will contribute towards the evaluation of the goals of the National Diabetes Strategy. The objective is to use the data from Surveys 1 and 2 for the young, mid-age and older cohorts of women to provide information about the health and well-being of women with and without diabetes in Australia. Women who reported having been diagnosed with diabetes prior to the first survey in 1996 will be followed prospectively to determine their health outcomes. The longitudinal data allow the new cases of diabetes to be studied as a special group of interest.

### Project

*Menopausal symptoms and help seeking*

### WHA Investigators

Professor Wendy Brown, Dr Gita Mishra & Professor Annette Dobson

### Project

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

### WHA Investigators

Dr Anne Young, Dr Amanda Patterson & Dr Julie Byles

### Assoc Investigator

Dr Julia Lowe

**Project**

*Ethnicity and menopausal symptoms in mid-age women*

**WHA Investigators**

Professor Christina Lee and Dr Gita Mishra

**Ethnicity and menopausal symptoms**

Cross-cultural research suggests that women in different countries report different experiences during menopause, and a recent US study has shown that African, Asian, Hispanic and White American women report different levels and types of symptoms. There is considerable debate about whether these observed differences result from physiological, possibly genetically based, differences during the menopausal transition, or are better understood as reflections of differing cultural views of menopause and ageing. This analysis of Survey 1 and Survey 2 data for the mid-age group was conducted to explore the effect of country of birth on the menopausal transition. Of 8,236 women who had not had a hysterectomy and for whom complete data were available, 6,278 (76%) were Australian-born, 1,134 (14%) from other English-speaking countries, 512 (6%) from non-English speaking European countries, 191 (2.3%) from Asian countries, and 121 (1.5%) from other countries. Analysis and report writing are currently under way. Preliminary analysis suggests that women from Asian countries go through menopause more quickly and at a somewhat younger age, but that there are no differences between these groups in SF-36 or menopause-related symptoms.

**Project**

*The role of psychosocial factors in the onset of Type 2 Diabetes.*

**WHA Investigators**

Associate Professor Justin Kenardy, Dr Amanda Patterson & Dr Anne Young

**Stress and diabetes**

There is some evidence that psychosocial stress is a risk factor for Type 2 Diabetes. The Women's Health Australia dataset allows examination of the relative contributions of psychosocial factors such as perceived stress, life events, social support and depression to the onset of diabetes. The study will examine the data from Surveys 1 and 2 in order to contrast women who have developed Type 2 Diabetes over the course of the study, those who had diabetes throughout the study, and those who never had type 2 diabetes. The study allows for statistical control for measures of physical activity, diet, weight, use of health services, and education.

**Assoc Investigator**

Dr Julia Lowe

**Collaborator**

Mr Esben Strodl

**Project**

*Time pressure, satisfaction with leisure and health among Australian women*

**Collaborator**

Associate Professor Peter Brown (Dept of Leisure and Tourism, The University of Newcastle)

**Leisure and well-being**

Expectations associated with the multiple roles adopted by women over the life-course have contributed to feelings of time pressure and stress for many women. There is also a growing body of evidence that leisure participation contributes to individual health and well-being and may serve to moderate levels of stress. Exploration of associations between feelings of time pressure, satisfaction levels with the time spent in active/passive leisure, and measures of physical and mental health, may provide insights into the role of leisure in promoting good health, and moderating stress levels associated with increased time pressure for Australian women. Data from Survey 1 were used to explore such associations in the lives of 41,000 Australian women aged 18-23, 45-50 and 70-75 in 1996. While being rushed/pressured/busy seemed to impact adversely on health, the effects appear to be attenuated in women who are happy with the amount of leisure time available to them.

**WHA Collaborators**

Professor Wendy Brown & Ms Jenny Powers

**Funding source**

ARC Small Grant

### Young women and alcohol

Despite concerted community efforts to highlight the risks and reduce the harm associated with heavy drinking, the proportions of young Australian women who drink at hazardous or harmful levels and who binge drink regularly remain high. Most strategies aimed at reducing heavy drinking by young Australian women have failed because relevant information is lacking on the multiple factors that influence young Australian women's drinking patterns, attitudes, behaviours and drinking-associated harm. The aim of this project is to provide such information.

In October 1999, a comprehensive survey was mailed to 2,400 young Australian women (21-26 years) already participating in the Women's Health Australia project. The young women were asked about:

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

Fifty four percent of the young women mailed back their completed questionnaires. The information from all the survey forms is currently being processed, analysed and reported.

This study will provide up-to-date information on issues relevant to young women's drinking, and contribute significantly to the design and delivery of effective education and prevention programs.

### Heart disease in mid life

This research examines: how mid-age women with diagnosed heart disease understand their condition; the impact of heart disease on their lives; how they perceive their risks of heart disease; and the strategies they employ (if any) to prevent further recurrences of heart disease. This research was initially funded by the Australasian Menopause Society. Since the commencement of the research, the investigators have been successful in attracting a second grant from the Melbourne Research Career Establishment Grant Scheme to extend the research.

To date the following research has been completed:

1. Analysis of WHA data for associations between reported cardiovascular disease and recognised biological, social and psychological risk factors in the mid-age cohort (n=319).
2. Questionnaire survey of women from the WHA mid-age cohort who reported having cardiovascular disease; 94 women out of a possible 189 responded to the survey (50% response rate). The survey results are currently undergoing analysis.
3. Exploratory in-depth, face to face interviews with 32 women (73% participation rate) from the WHA mid-age cohort in rural and urban Victoria who report having cardiovascular disease. All the interviews have been completed and are currently undergoing analysis.

### Project

*Alcohol consumption by young Australian women: Patterns, harm, and influence*

### Collaborators

Dr Helen Jonas  
(School of Health & Human Sciences, La Trobe University) & Professor Margaret Hamilton (Turning Point Alcohol and Drug Centre Inc, Fitzroy)

### WHA Collaborator

Professor Wendy Brown

### Funding source

Victorian Health Promotion Foundation.  
June 1999-June 2001

### Project

*Mid-aged women and heart disease: Understanding risks and prevention*

### Collaborator

Dr Marilyns Guillemin  
(Centre for the Study of Health & Society, The University of Melbourne)

### WHA Collaborator

Professor Wendy Brown

### Funding source

The University of Melbourne & Australian Menopause Society



**Project**

*Sleeping difficulty and sleeping medication use among older women*

**WHA Investigators**

Dr Julie Byles & Dr Gita Mishra

**Collaborators**

Dr Margaret Harris & Associate Professor Kichu Nair

**Funding source**

Quality Use of Medicines Evaluation Program, Department of Health and Aged Care

**Sleeping difficulty**

Difficulty sleeping is common in older people and frequently attributed to age related physiological changes. Compared with younger adults, older people have less slow-wave sleep (stage 3-4) and less total sleep time. Older people also have more fragmented sleep, waking more frequently and lying awake for long periods.

Given these patterns, there is widespread acceptance that sleep disturbance is normal for older people and has no pathological significance. However, this assumption is not supported by the small amount of population data that is available. Although sleep disturbances increase with ageing, changes in sleep pattern do not necessarily lead to symptoms of sleep disturbance or complaints of insomnia.

Analysis of Survey 1 data from women aged 70-75 years identified strong relationships between self-reported sleeping difficulty and health-related quality of life, and between use of sleeping medications and quality of life. Approximately 50% of older women in the WHA project reported some degree of difficulty sleeping, and 17% reported often having difficulty sleeping. The adjusted means for the MOS Short Form-36 (SF-36) health survey subscale scores were significantly lower among women with sleeping difficulty and were also significantly lower among the 18% of women who reported using sleeping medication in the 4 weeks prior to study.

However, while these associations are both clinically and statistically significant, it is not clear whether sleeping difficulty reduces quality of life, or whether poor quality of life interferes with sleep, or whether both problems are a result of other associated conditions.

Survey 2 (1999) for the old cohort included the sleep sub-scale of the Nottingham Health Profile (NHP). Scores on this sub-scale ranged from 0-100 and the median score for the cohort was 12.6. Responses to individual items provide more detail on the types of difficulty reported with 42% of women reporting "waking in the early hours", 26% "taking a long time to get to sleep", 21% "sleeping badly at night", and 11% "lying awake most of the night". Although not part of the sleep sub-scale, an additional NHP item "worry keeping you awake" was included for face validity, and 11% of women reported this was a problem. Thirty-seven percent of women reported "no" to all NHP sleep sub-scale items, 33% reported one item only, 16% reported 2 or 3 items, and 14% reported more than 3 items.

Self-reported sleeping difficulty appeared to be a persistent condition among women in the cohort with a strong association between reported frequency of sleeping difficulty at Survey 1 and reporting difficulty on NHP items at Survey 2. Similarly there was a high level of agreement (88%) between taking sleeping medication within four weeks before Survey 1 and within four weeks before Survey 2, indicating that the use of these medications is a persistent and stable behaviour.

### **Weight maintenance**

This project aimed to investigate characteristics of women in the young cohort who maintained their weight over a four-year follow-up period. To date, preliminary descriptive analyses of Survey 1 data have been conducted with weight-related variables (eg physical activity, dieting). This will provide insight into potential analyses which will be important for investigating weight maintenance longitudinally, when complete Survey 2 data for the young women are available in early 2001.

Analysis of data from Survey 1 has shown that, while only about 20% of the young women were above a healthy weight, over half of the mid-age women were overweight or obese. Among the mid-age group, overweight was associated with increased risk of hypertension, diabetes, cholecystectomy, back and joint pain, and poor physical and emotional health. The weight differences between mid-age and young women are of interest. In particular it will be useful to understand which of the young women are able to maintain a healthy weight, and what factors are predictive of gain in weight during early adulthood. Once a person becomes overweight or obese, weight loss is recognised as extremely difficult. Understanding the process of weight gain may permit the development of prevention strategies in order to avoid negative health consequences.

### **Measuring socio-economic status**

Socio-economic status (SES) has a major effect on health and well-being, but there are currently substantive debates on how it is best measured. Measuring SES among women and among older people is particularly complex, because of the need to take their family context and work history into account.

Several analyses of age- and gender-specific measures of SES have been conducted. National Health Survey data, which include both males and females, are being used in order to develop age- and gender-specific measures which will be useful in the conceptualisation of SES within Women's Health Australia. Factor analysis produced consistent results that were interpreted in terms of five conceptually meaningful domains (employment, housing, migration, family unit and education). Age- and gender-specific SES scores based on these factors had stronger associations with physical and mental health, as measured by the component summary scores of SF-36, than either an area-based index or scores derived from data from males aged 40-45 years. The results supported the hypothesis that SES measures composed of social and demographic items exhibit important age- and gender-specific differences which are relevant for health.

### **Project**

*A longitudinal investigation of weight maintenance: Implications for weight gain prevention strategies*

### **Collaborator**

Dr Kylie Ball (Faculty of Health and Behavioural Sciences, Deakin University)

### **WHA Collaborators**

Professor Christina Lee, Professor Wendy Brown

### **Funding source**

Deakin University, 2000 Faculty Research Development Grants

### **Project**

*The measurement of socio-economic status of Australian women*

### **Collaborator**

Dr Kylie Ball (Faculty of Health and Behavioural Sciences, Deakin University)

### **WHA Collaborators**

Dr Gita Mishra, Professor Annette Dobson & Dr Julie Byles

### **Funding source**

Research Management Committee Project Grant, The University of Newcastle



**Project**

*Women and leisure towards 2000. Does all work and no play make Jill unwell?*

**Collaborator**

Associate Professor Peter Brown (Dept of Leisure and Tourism, The University of Newcastle)

**WHA Collaborators**

Professor Wendy Brown, Emeritus  
Professor Lois Bryson  
& Dr Penny Warner-Smith

**Funding source**

ARC Small Grant

**Negotiating leisure opportunities**

This sub-study aims to develop an understanding of the role of leisure in women's lives, and the relationships between leisure, well-being and gender relations. Key questions addressed by the study include: i) How do women divide their time between various types of leisure, including active/passive, structured/unstructured, relational/non-relational leisure? ii) How are leisure patterns and outcomes mediated by age, location (rural, urban, remote), class, and ethnicity? and iii) What patterns of leisure are associated with the greatest satisfaction for women and with the most efficacious outcomes for well-being?

A series of 11 focus groups have been completed involving 62 women from the existing 'young' and 'mid-age' WHA cohorts in a mix of 'urban' (Belmont, Dapto), 'rural' (Dubbo, Mittagong) and 'other rural' (West Wyalong) areas. Data are currently being analysed with particular reference to generational and geographical differences between women's leisure patterns and well-being, and the degree to which women use leisure as a form of risk management and stress relief in relation to their health.

**Project**

*Content analysis of survey data about the health experiences of rural and remote women: A sub-study of the Women's Health Australia longitudinal study*

**Collaborator**

Dr Helen Keleher (Public Health, La Trobe University, Bendigo)

**WHA Collaborator**

Professor Christina Lee

**Rural women's health**

This study is a content analysis of 2,500 records, each comprising a response to an open-ended question on the WHA 1996 and 1999 surveys for mid-age women. The project will combine qualitative thematic analysis and content analysis techniques. To date, two 10% samples of the data have been analysed to give an indication of categories and themes. These will be used to guide word searches of the whole data set and the results will be set up into files and sub-files. As the search widens, phrase searches can also be used.

The health of rural and remote women as a population group is under-researched. This study presents a very good opportunity to increase understanding of the health experiences of mid-life rural and remote women across Australia from narrative forms of data about their health experiences. It is significant that these women have volunteered their experiences anonymously assuming that someone would read them and take notice of what they are saying. This study is an opportunity to help the WHA study keep faith with the study participants by ensuring that the data are not neglected. This analysis will not only provide insights into the health problems raised by women living in rural and remote areas of Australia, but will also add value to the WHA longitudinal study and its national database on women's health.



## Students

### Psychological distress

This project aims to identify sociodemographic and health-related variables which were significantly associated with poor mental health among the mid-age women at Survey 1, and then to describe the experiences of help-seeking for psychological distress by focusing on a sample of 400 NSW women with poor mental health scores. This includes an analysis of the way women describe their feelings, the perceived causes of their distress, the type of help sought, and its perceived effectiveness.

In Study 1, cross-sectional data from 14,000 mid-age women were analysed. Women who scored 52 or less on the Mental Health Index (MHI-5) of the SF-36 were classified as having "poor mental health", and logistic regression was used to compare these women with the remainder on a series of relevant sociodemographic and health-related variables. Factors associated with poor mental health were: low level of education; no work outside the home; unemployment or inability to work due to sickness; born in continental Europe; higher numbers of life events; being perimenopausal or having had a hysterectomy; lower satisfaction with friendships; low perceived social support outside the family; feelings of being poorly understood; low levels of physical activity; and smoking 20 or more cigarettes per day.

Study 2 involved semi-structured telephone interviews with 400 women living in NSW who scored 52 or less on the MHI-5. Four of these will receive a further interview to assess their experience in retrospect and to collect further detail for in-depth case studies. When interviewed, the women most commonly identified the main cause of their psychological distress as family worries (74%), followed by physical ill health and work difficulties. Two thirds of the women had talked to a health professional about psychological distress, and as expected the health professional most commonly consulted was the general practitioner (52%), followed by mental health professionals (33%) and complementary therapists (15%). General practitioners generally responded by listening and by prescribing medications. Approximately 70% of women felt that their particular GP had been helpful to some extent, but most were critical of GPs in general. These criticisms focused on a lack of interest and expertise in emotional problems, inappropriate prescription of psychotropic drugs, and lack of a holistic approach to care.

The thesis, which will be submitted in 2001, highlights the strong association between poor mental health and poor socioeconomic conditions, particularly low levels of education and lack of paid employment. This suggests that women who have been able to access opportunities for education and employment in early adulthood may be better able to avoid psychological distress in midlife. Improving educational and employment opportunities for younger women may thus help to prevent poor mental health. Screening and appropriate follow-up treatment may enable GPs to identify women with poor mental health and to provide interventions which improve their quality of life. As the GP is usually the first port of call for women experiencing psychological distress, GPs may also benefit from programmes to improve their skills and confidence in dealing with these problems.

### Project

*Experiences of mid-aged women in NSW seeking help for psychological distress*

### PhD candidate

Ms Sue Outram  
(Faculty of Medicine & Health Sciences, The University of Newcastle)

### Supervisor

Professor Jill Cockburn

### Funding source

RMC Grant

**Project**

*Psychosocial problems of sufferers of intractable angina*

**PhD candidate**

Mr Esben Strodl  
(School of Psychology,  
The University of  
Queensland)

**Supervisor**

Associate Professor  
Justin Kenardy

**Funding source**

Australian  
Postgraduate  
Research Award, The  
University of  
Queensland

**Psychological factors and heart disease**

Analyses were based on the data from Survey 1 and 2 for the older cohort of WHA. Five hundred and three women reported having no heart disease in 1996 but having heart disease in 1999. The first analysis involved examining whether a number of psychological variables measured in 1996 were related to the development of heart disease during the subsequent 3 year period. The psychological variables included the Duke Social Support Index (DSSI), Perceived Stress, Mental Health Index (MHI from the SF-36), time pressure, and whether or not the participants had a partner. It was shown that both Perceived Stress and DSSI significantly predicted the development of heart disease over the 3 year period. However, when entered into a multivariate analysis, only Perceived Stress was a significant predictor. The study also found that there were a number of biological variables that were significant predictors of the development of heart disease (higher BMI, nutrition-related problems, higher alcohol intake, lower physical activity, and hypertension). Perceived Stress was still a significant predictor of heart disease even after controlling for these biological variables. Elderly women with high levels of stress had approximately twice the chance of developing heart disease over a 3 year period compared with women who reported no stress in 1996.

A similar set of analyses was performed using the development of hypertension over the 3 year period as the outcome measure. The results suggest that the MHI in 1996 was a significant predictor of the development of hypertension, even after controlling for a range of biological variables. Thus it is possible that clinical levels of depression or anxiety may be causally involved in the development of hypertension in elderly women.

We also examined whether psychological variables in 1996 could be used to analyse whether those women who developed heart disease would experience chest pain or not in 1999. After controlling for possible confounding from comorbid heartburn/indigestion and panic attacks in 1999, none of the psychological variables could significantly predict the presence of chest pain in women who develop heart disease. Similarly, none of the psychological or biological variables in 1996 could predict whether or not elderly women, without heart disease in 1996, would have heart surgery in the following 3 year period.

The results of this study suggest that although stress may be a significant predictor of the development of heart disease in elderly Australian women, two common manifestations of heart disease (chest pain and heart surgery) are not associated with any of the psychological variables measured in 1996.

**Project**

*Young women, work and inequality: Is it what they want or what they get?*

**PhD candidate**

Ms Lisa Milne (Dept of  
Sociology &  
Anthropology, The  
University of  
Newcastle)

**Supervisors**

Dr Deidre Wicks & Dr  
Gita Mishra

**Funding source**

ARC Small Grant

**Young women's aspirations**

This project focuses on the aspirations of young women for work, their ideal job, relationships (including children), and further education, particularly in the context of gender inequality in labour markets. It combines a survey of 1,400 young women with semi-structured telephone interviews with a subgroup of 100 women who were interviewed in depth. The project is currently in the development and piloting stage

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

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

### Menstrual blood loss

The aim of this study is to conduct research into menstrual blood loss and its correlates in a healthy, employed female population. The research project follows an earlier PhD project by Dr Amanda Patterson which demonstrated that women's serum iron status was not closely related to dietary intake of bioavailable iron and suggested that variations in menstrual blood loss might explain this finding. Direct assessment of menstruation provides an important complement to the self-report data from the main surveys, which suggest that heavy periods and menstrual distress are commonly experienced in both the young and mid-age cohorts.

This project aims to provide population data on normal menstruation, to assess the prevalence of heavy menstrual blood loss (MBL) among working women aged 20-50, and the relationship between MBL and iron status, tiredness, vitality, general well-being and use of sick leave.

Stage I of this project involves the collection of systematic self-report data on menstrual blood loss. Women are provided with standardised menstrual products and asked to complete a pictorial chart of blood loss and product use for one menstrual period, and to complete measures of well-being (SF-36), tiredness, menstrual symptoms, and demographics. A total of 192 women have participated to date. Preliminary results suggest that high MBL is associated with increased reports of tiredness and reduced well-being. Exploration of the relative impact of heaviness of menstrual flow and length of menstrual period on well-being are being undertaken.

Stage II involves the direct assessment of iron intake and loss. Volunteers for this aspect of the project are asked to collect all used menstrual products for one menstrual period, to provide a venous blood sample, and to maintain weighed food records for 12 days, as well as completing self-report data as in Stage I. Extraction of haemoglobin from menstrual products provides a measure of iron lost during menstruation. Arrangements have been made to collaborate with staff of the Department of Obstetrics and Gynaecology at the University of Sydney, who regularly conduct this procedure with clinic patients, to perform these analyses. Test samples have been analysed successfully. Twelve-day weighed food records are sufficient for a reliable assessment of intake of bioavailable iron, and venous blood samples will provide measures of iron status. Seventy women have been recruited so far and data collection is in progress.

### Coping with violence

Research on violence towards women and its health-related consequences is a relatively young and fragmented field in Australia. In 1999, a substudy of the Women's Health Australia project surveyed mid aged women who had been abused to identify the nature and scope of gendered abuse in this country. Whilst information from this research is important, significant gaps of understanding remain. In particular, it was felt that insights and observations from the victims' point of view should be explored. For this reason, the primary focus of this PhD thesis is to develop a framework for understanding women's experiences and the personal meanings of these experiences and to describe the range and effectiveness of coping strategies used by these women. A survey instrument has been mailed to 200 abused women who have already indicated their willingness to take part in further research on the topic. Quantitative and qualitative analyses will be conducted in 2001.

### Project

*Menstrual blood loss, iron deficiency, tiredness and wellbeing in working women*

### PhD candidate

Ms Allison Schmidt (Research Centre for Gender and Health (RCGH), The University of Newcastle)

### Supervisors

Professor Wendy Brown & Professor Christina Lee

### Funding source

ARC Small Grant and The University of Newcastle Postgraduate Scholarship

### Project

*Mid-aged women's experience of relationship abuse: An evaluation of coping responses*

### PhD candidate

Ms Glennys Parker (RCGH, The University of Newcastle)

### Supervisor

Professor Christina Lee

### Funding source

Postgraduate Research Scholarship in Women's Health, RCGH.

*women's health australia*

**Project**

*Factors influencing weight change in the menopausal years*

**PhD candidate**

Ms Lauren Williams  
(RCGH, The University of Newcastle)

**Supervisors**

Professor Wendy Brown & Dr Anne Young

**Funding source**

ARC Small Grant

**Weight gain at mid-life**

This study involves analysis of main survey results and results of a nested cohort study to address the question of why women gain weight in the menopausal years (45-55). The women in the mid-aged cohort who reported their weight at Surveys 1 and 2 (N = 11,306) gained a mean of  $1.12 \pm 7.0$  kilograms, from a mean of  $68.9 \pm 14.6$  kilograms at Survey 1 in 1996 to  $70.0 \pm 15.0$  kilograms at Survey 2 in 1998. More than two thirds (69%) of the cohort had a net weight gain over the two year period. Preliminary analysis suggests that the women who progressed from being premenopausal to post menopausal in that two year period, gained more weight (1.82 kg) than those women who went from being premenopausal to perimenopausal (0.94 kg), or from perimenopausal to postmenopausal (1.02kg).

The extent to which menopause and other factors contribute to weight gain in the mid-aged women is being investigated in a nested cohort study of 1,164 women who experienced a change in menopausal status between 1996 and 1998. 78% of these women completed a questionnaire containing pre-validated measures of dietary intake, exercise, emotional eating and lifestyle factors which might affect weight in mid-aged women. Preliminary analysis shows that 595 (51%) of these women reported weight gain since completing the Survey 1 three years previously. Only two reported that this weight change was intentional. 14% reported having lost weight, and 35% reported weighing about the same as three years previously. Further analysis of the data will elucidate why some women gained weight, while others lost or maintained weight. Recommendations can then be made for avoiding weight gain at menopause.

**Project**

*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

**Funding source**

Internal staff grant, La Trobe University

**Hysterectomy: Choices and outcomes**

Hysterectomy is one of the most commonly performed gynaecological surgical procedures of a non-obstetric nature. Australian statistics indicate that just over one in ten women will undergo a hysterectomy by the age of 40, and around one in five women will undergo a hysterectomy before the age of 50. The appropriateness of hysterectomy to treat non-malignant conditions has been debated in recent years. A variety of procedures, less dramatic than hysterectomy, are available to treat menstrual symptoms successfully. A woman's level of satisfaction is one measure of the successful treatment of symptoms. Other factors such as socio-economic status, social support, geographical location, education, menopause, emotional and sexual consequences, may also influence satisfaction. To investigate these issues, two studies are being conducted. The first is a prospective cohort study which aims to determine women's satisfaction with the outcomes of hysterectomy compared to alternative treatments. The second is a retrospective cohort study which aims to determine women's reasons for electing to have a hysterectomy. Data collection for the prospective study has been completed and analysis has commenced. The follow-up component of the prospective study is due to commence in August 2001. The retrospective study data collection stage has been completed and data entry and analysis is currently under way. The overall response rate for the prospective and retrospective study combined is 82%.

### **Domestic violence and health**

Women who had ever experienced domestic violence were found to be less healthy than women who had never experienced domestic violence. The relationship between domestic violence and physical health was mediated by presence of a qualification, income management, social support, life events, smoking and stress. The relationship between domestic violence and psychological health was also mediated by presence of a qualification, income management, social support, life events, binge drinking, and stress.

The negative effect of domestic violence on both physical and psychological health appears to be reduced among women who have post-secondary qualifications, who are able to manage on their income, who have social support, who have experienced few life events, who do not "binge drink" (more than five drinks at one time), and who have low levels of perceived stress.

Two articles, one concerning the physical health and the other concerning the psychological health of women who have experienced domestic violence, and the mediators in these relationships, are in the final stages of being written up and will be ready for submission by December 2000.

A qualitative follow-up study is planned for early 2001; the research proposal and ethics applications for this study are currently being developed. It is expected that a pilot study will take place in January, with the major data collection and analysis taking place from February to July 2001.

### **Projects**

*The physical and psychological health impact of domestic violence on mid-age women in Australia*

### **PhD candidate**

Ms Deborah Loxton  
(School of Health, The University of New England)

### **Supervisor**

Associate Professor  
Margot Schofield

### **Funding source**

Australian  
Postgraduate  
Research Award, The  
University of New  
England Scholarship

# Publications 2000

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

## Published

Lee C. Health habits and psychological functioning among young, middle-aged and older Australian women. *British Journal of Health Psychology*, 1999; 4: 301-314.

**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 (WHQ; Hunter, 1992).

**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.

Ball K & Lee C. Relationships between psychological stress, coping and disordered eating: a review. *Psychology and Health*, 2000; 14: 1007-1035.

**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.

**Objective.** To determine which sociodemographic factors, health related behaviours and physical health conditions are associated with non-drinking, binge drinking and hazardous/harmful drinking in young Australian women.

**Methods.** Cross-sectional data were obtained from the baseline survey of 14,762 young women (aged 18-23 years) enrolled in the Women's Health Australia study in 1996. Drinking patterns were categorized as "non-drinkers", "low risk", "low intake/binge drink weekly", and "hazardous/harmful". Associations between these drinking patterns and sociodemographic factors, health related behaviours and health conditions were examined.

**Results.** Half the women were "low intake" drinkers, a third "rarely drank" and 9% were non-drinkers; however, 70% reported binge drinking with one quarter of the binge drinkers doing so at least weekly. Non-drinkers were more likely than drinkers to be married, pregnant, non-smokers, born in non-English speaking countries, to live in the Northern Territory, and to have lower levels of education, employment, and private health insurance. "Low intake/binge weekly" drinkers (12%) and "hazardous/harmful" drinkers (5%) were more likely than "low risk" drinkers to be unmarried; to live in shared accommodation, alone or with their parents; to live in rural or remote areas; to have ever had any sexually transmitted infection; to be current smokers or ex-smokers, and to have used unhealthy weight-control practices. "Hazardous/harmful" drinkers were also more likely to report difficulties in managing their incomes.

**Implications.** These results confirm findings from other countries about the importance of social conditions as determinants of alcohol consumption by young women. Health promotion to reduce their alcohol consumption needs to be carefully targeted to take account of their demographics, living environments and beliefs.

Our objective was to examine associations between self-reported sexually transmitted infections (STI) and socio-demographic, lifestyle, health status, health service use and quality of life factors among young Australian women; and their use of family planning and sexual health clinics and associations with health, demographic and psychosocial factors.

The study sample comprised 14,762 women aged 18-23 years who participated in the mailed baseline survey for the Australian Longitudinal Study on Women's Health, conducted in 1996. The main outcome measures are self report of ever being diagnosed by a doctor with an STI including chlamydia, genital herpes, genital warts or other STI, and use of family planning and sexual health clinics.

The self-reported incidence of STI was 1.7% for chlamydia, 1.1% genital herpes, 3.1% genital warts, and 2.1% other STIs. There were a large number of demographic, health behaviour, psychosocial and health service use factors significantly and independently associated with reports of having had each STI. Factors independently associated with use of family planning clinic included unemployment, current smoking, having had a Pap Smear less than two years ago, not having ancillary health insurance, having consulted a hospital doctor and having higher stress and life events score. Factors independently associated with use of a sexual health clinic included younger age, lower occupation status, being a current or ex-smoker, being a binge drinker, having had a Pap Smear, having consulted a hospital doctor, having poorer mental health and having higher life events score.

This study reports interesting correlates of having an STI among young Australian women aged 18-23. The longitudinal nature of this study provides the opportunity to explore the long-term health and gynaecological outcomes of having STIs during young adulthood.

Jonas HA, Dobson AJ & Brown WJ. Patterns of alcohol consumption in young Australian women: associations with sociodemographic factors, health related behaviours and physical health. *The Australian and New Zealand Journal of Public Health*, 2000; 24(2): 185-191.

Schofield MJ, Minichiello V, Mishra G, Plummer D, Savage J. Sexually transmitted infections and use of sexual health services among young Australian women: Women's Health Australia study. *International Journal of STD & AIDS*, 2000; 11: 313-323.

Mishra G, Dobson A & Schofield M. Cigarette smoking, menstrual symptoms and miscarriage among young women. *Australian and New Zealand Journal of Public Health*, 2000; 24(4): 413-420.

**Objective:** To examine associations between cigarette smoking and menstrual symptoms and miscarriage among young women.

**Method:** The study sample consists of 14,762 women aged 18-23 years who participated in the mailed baseline survey for the Australian Longitudinal Study on Women's Health, conducted Australia wide in 1996. The main outcome measures are self-reported menstrual symptoms and miscarriages.

**Results:** Current smokers and ex-smokers had an increased risk of menstrual symptoms and miscarriages compared with women who had never smoked; with the highest risk occurring in heavy smokers (adjusted odds ratios for those smoking  $\geq 20$  cigarettes per day): premenstrual tension 1.43 (95% confidence interval 1.27 to 1.60), irregular periods 1.31 (1.15 to 1.50), heavy periods 1.47 (1.28 to 1.69), severe period pain 1.39 (1.23 to 1.56), one or more miscarriages 4.27 (2.79 to 6.53). The risk of miscarriage for women who smoked compared with those who had never smoked was greater the earlier they started to smoke. The relative risk for most of the menstrual symptoms was the greatest for women who had started to smoke by the age of 13.

**Conclusion:** This study provides clear evidence that young women who smoke are at higher risk of a range of menstrual problems and miscarriage than those who have never smoked. The immediacy of this risk (in contrast to the longer term risks of chronic disease) can be used to improve the relevance of anti-smoking campaigns targeted to young women.

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*, 2000; 71(3): 206-216.

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 to 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.

Chiarelli P, Brown W & McElduff P. Constipation in Australian women: Prevalence and associated factors. *International Urogynecology Journal*, 2000, 11(2): 71-78.

14762 young women aged 18-23 years; 14200 mid-age women (45-50 years) and 12893 older women (70-75 years) completed a mailed health survey. The prevalence of constipation was estimated to be 14.1% (CI: 13.5-14.7) in young women, 26.6% (CI: 25.9-27.4) in mid-age women and 27.7% (CI: 26.9-28.5) in the older women. The prevalence of haemorrhoids was 3.2% (CI: 2.9-3.4; young), 17.7% (CI: 17.1-18.4; mid-age) and 18.3% (CI: 17.6-19.0; older). In the mid-age and older women, those who reported gynaecological surgery were between 18 and 63% more likely to report constipation, while 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 of the mid-age and older women had sought help for constipation, and the majority indicated that they were satisfied with the help available to them.



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.

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.

Maintaining contact with participants is essential to the quality of any longitudinal project. A population-based survey of women ranging in age from 18 to (eventually) 95 years raises particular problems for maintaining contact. Young women frequently move location (our 1999 pilot survey showed that 35% of respondents had moved house three or more times in the past three years), and many of them change their surnames when they marry. While the mid-age women move less often, similar problems arise when they divorce or separate. Younger women may not be registered on the electoral roll, and if they are, their addresses there may be out of date. In tracking older women, the main problems occur when they move to a retirement village or nursing home, or to live with a relative; the identification of those who have died is also important. This paper describes strategies used by the research team to keep track of participants.

Schofield M, Mishra G & Dobson A. Risk of multiple prior miscarriages among middle aged women who smoke. In Lu R, Mackay J, Niu S, Peto R (eds), *Tobacco: The Growing Epidemic*. London: Springer, 2000; 241-243.

Schofield M, Mishra G & Dobson A. Risk of early menopause among Australian women who smoke. In Lu R, Mackay J, Niu S, Peto R (eds), *Tobacco: The Growing Epidemic*. London: Springer, 2000; 243-246.

Lee C, Dobson A, Brown W, Adamson L & Goldsworthy J. Tracking participants. Lessons from the Women's Health Australia project. Practice Notes: *The Australian and New Zealand Journal of Public Health*, 2000; 24(3): 334-336.



Powers J, Ball J, Adamson L & Dobson A. Effectiveness of the National Death Index for establishing the vital statistics of older women in the Australian Longitudinal Study on Women's Health. *The Australian and New Zealand Journal of Public Health*, 2000; 24: 526-528.

**Objective:** To assess the effectiveness of the National Death Index (NDI) in identifying participants in the oldest cohort of the Australian Longitudinal Study on Women's Health (ALSWH) who had died between 1996 and 1998.

**Methods:** Identifying information for each woman was matched with the NDI using a probabilistic algorithm and clerical review. Differences in full name, date of birth, State of residence and date of last contact were used to assess the probability of a true match.

**Results:** NDI identified 410 matches of death records for 409 women; 386 were categorised as true matches and 23 were doubtful matches. Responses to the follow-up survey confirmed for six of the doubtful matches that the women had died, 16 were alive and the vital status of one woman remained unconfirmed at 30 June 1998. Twelve deaths, known to have occurred before July 1998, were not identified through NDI. The sensitivity of the NDI for identifying known deaths was 95%. Detailed identifying information, particularly the middle name, was important for accurate identification of the vital status.

**Conclusions:** Using surname, all given names, gender, date of birth, State of residence and age at last contact as matching variables, the NDI was an effective tool for identifying women who had died.

Young AF, Dobson AJ & Byles J. Access and equity in the provision of general practitioner services for women in Australia. *The Australian and New Zealand Journal of Public Health*, 2000; 24: 474-480.

**Objective:** To assess geographical equity in the availability, accessibility and out of pocket costs of general practitioner (GP) services for women in Australia.

**Method:** Data on general practice consultations during 1995 and 1996 for women aged 18-23 years (n=5,260), 45-50 years (n=7,898) and 70-75 years (n=6,542) in the Australian Longitudinal Study on Women's Health were obtained from the Health Insurance Commission. A substudy of 4,577 participants provided data on access to health services.

**Results:** Older women were more likely to have no out of pocket costs for their GP consultations but in all age groups, the proportion was lower in rural areas than in urban areas (older age: 60% rural areas, 76% capital cities; mid-age: 24% rural areas, 40% capital cities; young age: 35% rural areas, 52% capital cities). Among mid-aged women, the median out of pocket cost per consultation ranged from \$2.11 in capital cities to \$6.48 in remote areas. Women living in rural and remote areas gave lower ratings for the availability, accessibility and affordability of health services than women living in urban areas.

**Conclusions:** This study has shown a striking gradient in financial and non-financial barriers to health care associated with area of residence.

**Implications:** The geographical imbalance in the supply and distribution of GP services in Australia has long been recognised but inequities in the affordability of services must also be addressed. Longitudinal survey data and Health Insurance Commission data provide a means to evaluate policies designed to improve access to health services in rural and remote areas.

**Objective:** To compare estimates of population levels of 'adequate activity' for health benefit in different population age and sex groups using two different measures - kilocalories and Mets.mins.

**Methods:** 10,464 mid-age women (47-52 years) from the second survey of the Australian Longitudinal Study on Women's Health (ALSWH, 1998) and 2,500 men and women (18-75 years) from the 1997 *Active Australia* national survey, answered questions about physical activity. Kcals and Mets.mins were calculated from self-reported time spent in walking, moderate and vigorous activity, and self reported body weight. 'Adequate activity' was defined as a minimum of 800 kcals or 600 Mets.mins.

**Results:** There were differences in the estimates of 'adequate activity' using the two methods among women participants in both surveys, but not among the male participants in the *Active Australia* survey. A significant proportion of the women in both surveys (6.4% of the ALSWH women and 8.5% of the *Active Australia* women, mean weight 60kg) were classified as 'inactive' when the kcals method was used despite reporting levels of activity commensurate with good health. . Fewer than 1% (mean weight 105kg) were classified as 'active' using kcals when reporting lower than recommended levels of activity. Agreement between the two methods was better among men; only 3% were misclassified because of low or very high weight.

**Conclusions:** The Mets.mins method of estimating 'adequate' activity assesses physical activity independently of body weight and is recommended for use in future population surveys, as it is less likely to under-estimate the prevalence of physical activity in women.

**Implications:** Women and men aged 45-59, and women aged >60 should be the target of specific health promotion strategies to increase levels of physical activity

This study was to identify hysterectomy prevalence across urban, rural and remote areas of Australia and across states; to separate these geographic variation from the effect of sociodemographic influences, and also to compare the quality of life of women who have not had hysterectomy. Data were collected from 14,072 women aged 45-49 years participating in the baseline survey of the Australian Longitudinal Study on Women's Health. The estimated prevalence of hysterectomy was 22%. Factors significantly associated with hysterectomy included living in rural or remote area, state of residence, having private health insurance, lower levels of education, being married and having more than two children, having had other gynaecological and non-gynaecological surgical procedures, and more visits to general practitioners. Compared with women who had not had hysterectomy, women who had had hysterectomy had significantly poorer physical and mental health as measured by the SF-36 quality of life profile (adjusted mean PCS = 45.7 vs 49.3,  $p < 0.0001$ ; adjusted mean MCS = 46.9 vs 48.2,  $p < 0.0001$ ).

Brown WJ & Bauman A. Comparison of estimates of population levels of physical activity using two measures. *Australian and New Zealand Journal of Public Health*, 2000; 24: 520-525.

Byles JE, Mishra G & Schofield M. Factors associated with hysterectomy among women in Australia. *Health and Place: An International Journal*, 2000; 6: 301-308.

## Accepted for publication

Lee C & Porteous J. Experiences of family caregiving among middle-aged Australian women. *Feminism and Psychology*, 2000.

Family caregiving is an unpaid activity which fails inequitably on women. As one component of the Women's Health Australia survey, this paper uses quantitative and qualitative methods to examine the impact of family caregiving in a sample of 13,888 women aged 45 to 50, of whom 12.8% (N=1,775) responded to specific items about caring for a frail, ill or disabled family member and 185 made open-ended comments about their experiences. Quantitative analyses showed that caregivers were less likely to be employed full-time and more likely to have financial difficulties. Caregivers rated their health lower than did non-caregivers, reported more physical symptoms, and scored lower on both the physical and the mental components of the SF-36. They also reported higher levels of stress and perceived pressure, were more likely to have been admitted to hospital in the previous year, to be taking medication for "nerves", and more likely to smoke, though less likely to drink alcohol. The qualitative analysis supported these findings, and in addition identified several new themes including difficulties with travel; inadequacies in health and welfare systems; a sense of exploitation; and fear for the future. These findings support the view that interventions to assist family caregivers must address systemic in addition to individual factors.

Lee C. Experiences of family caregiving among older Australian women. *Journal of Health Psychology*, 2000.

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

McFadden M, Powers J, Brown W & Walker M. Vehicle and driver attributes affecting sitting distance from the steering wheel in motor vehicles. *Human Factors*, 2000.

The current study was designed to confirm that female drivers sit closer to the steering wheel than male drivers and to investigate whether this expected difference in sitting position is due to differences in the physical dimensions of men and women. Driver body dimensions and multiple measures of sitting distance from the steering wheel were collected from a sample of 150 men and 150 women. The results confirmed that, on average, women sit closer to the steering wheel than men and that this difference was accounted for by variations in body dimensions, especially height. On the basis of these findings consideration should be given to vehicle design that allows independent adjustment of the relative distance between the driver's seat, the steering wheel and the floor pedals. The results also suggest that height of drivers may provide a good surrogate for sitting distance from the steering wheel when investigating the role of driver position in real world crash outcomes.

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>). High frequency of dieting (rather than dieting *per se*) and earlier dieting onset were associated with poorer physical and mental health (including depression), more disordered eating (bingeing and purging), extreme weight and shape dissatisfaction and more frequent general health problems. The results suggest that there is a need for programmes which will enhance self esteem and weight/shape acceptance and promote more appropriate strategies for maintenance of healthy weight.

**Objective:** To explore relationships between body mass index (BMI, kg.m<sup>-2</sup>) and indicators of health and well-being in young Australian women.

**Design:** Population based longitudinal cohort study – baseline cross-sectional data.

**Subjects:** 14,779 women aged 18-23 who participated in the baseline survey of the Australian Longitudinal Study on Women's Health in 1996.

**Measurements:** Self-reported height, weight, medical conditions, symptoms and SF-36.

**Results:** The majority of women (68.2%) had a BMI in the range  $\geq 18.5$  – <25; 12% had a BMI <18.5; 14.1% had a BMI in the range  $\geq 25$ -<30 and 5.7% had a BMI  $\geq 30$ . After adjustment for area of residence, age, education, smoking and exercise, women in the highest BMI category ( $\geq 30$ ) were more likely to report hypertension, asthma, headaches, backpain, sleeping difficulties, irregular periods, and more visits to their medical practitioner. They were also more likely to have given birth at least once, and less likely to report 'low iron.' Women with low BMI (<18.5) were more likely to report irregular periods and 'low iron'. Mean scores on the SF-36 sub-scales for physical functioning, general health and vitality were highest for women with BMI in the range 18.5 – 25.

**Conclusion:** Acknowledging the limits of the cross-sectional nature of the data, the results show that the deleterious effects of overweight can be seen at a comparatively young age, and that BMI <25 is associated with fewer indicators of morbidity in young women. However, as BMI <18.5 is associated with some health problems, care should be taken when developing strategies to prevent overweight in young women, not to promote weight loss to those who already have a healthy BMI.

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

Kenardy J, Brown WJ & Vogt E. Dieting and health in young Australian women. *European Eating Disorders Review*, 2000.

Brown WJ, Mishra G, Kenardy J & Dobson AJ. What is a healthy weight for young women. *International Journal of Obesity*, 2000.

Lee C. Experiences of family caregiving among older Australian women. *Journal of Health Psychology*, 2000.



Patterson AJ, Brown WJ, Powers JR & Roberts DCK. Iron deficiency, general health and fatigue: results from the Australian Longitudinal Study on Women's Health. *Quality of Life Research*, 2000.

Associations between self-reported 'low iron', general health and well-being, vitality and tiredness in women, were examined using Physical (PCS) and Mental (MCS) Component Summary and Vitality (VT) scores from the MOS Short-form survey (SF-36). 14764 young (18-23yrs) and 14200 mid-age (45-50yrs) women, randomly selected from the national Health Insurance Commission (Medicare) database, completed a baseline mailed self-report questionnaire and 8869 mid-age women completed a follow-up questionnaire two years later.

Young and mid-age women who reported (ever) having had 'low iron' reported lower mean PCS, MCS and VT scores, and greater prevalence of 'constant tiredness' at baseline than women with no history of iron deficiency [Young - PCS: 47.2 and 49.3 respectively, Difference = 2.2 (95% CI: 1.9-2.5); MCS: 41.9 and 46.8, Difference = 4.8 (95% CI: 4.4-5.2); VT: 54.7 and 60.6, Difference = 5.9 (95% CI: 5.3-6.5); Constant tiredness: 63% and 48%, Difference = 15% (95% CI: 13-17%)].

After correcting for number of children, chronic conditions, symptoms and hours worked, mean PCS, MCS and VT scores for mid-age women at follow-up were lowest for women who reported recent iron deficiency (in the last two years) and highest for women with no history of iron deficiency [PCS - Recent: 47.8 (95% CI: 47.3-48.3); Past: 49.4 (95% CI: 49.0-49.8); Never: 49.0 (95% CI: 47.8-49.2)] [MCS - Recent: 45.7 (95% CI: 45.0-46.4); Past: 47.3 (95% CI: 46.7-47.9); Never: 47.9 (95% CI: 47.6-48.2)] [VT - Recent: 54.2 (95% CI: 53.0-55.4); Past: 56.7 (95% CI: 55.8-57.6); Never: 58.2 (95% CI: 57.7-58.7)].

Longitudinal analyses showed that mean PCS, MCS and VT scores were significantly reduced among mid-age women who reported iron deficiency in the follow-up survey but not at baseline (ie recent iron deficiency) [Mean change- PCS: -2.2 (95% CI: -2.7- -1.7); MCS: -2.3 (95% CI: -3.0- -1.6); VT: -5.7 (95% CI: -6.9- -4.5)].

The results suggest that iron deficiency is associated with decreased general health and well-being and increased fatigue.

Hodge A, Patterson A, Brown W, Ireland P & Giles G. The Anti Cancer Council of Victoria FFQ. Relative validity of nutrient intakes compared with diet diaries in young to middle-aged women in a study of iron supplementation. *The Australian and New Zealand Journal of Public Health*, 2000.

**Objective:** To assess the validity of the Anti Cancer Council of Victoria food frequency questionnaire (ACCVFFQ) relative to 7-day weighed diaries in 63 women of child-bearing age.

**Method:** The women completed diet diaries to assess iron intake as part of a study on iron deficiency, providing the opportunity to compare diaries with the ACCVFFQ. Nutrient intakes based on NUTTAB95 were computed independently for the diaries and the FFQs. Nutrient intakes were compared as group means, by correlation and by quintile classification, adjusting for day-to-day variation in intakes, and for energy intake. Individual differences in results were also examined.

**Results:** The strongest associations between diary and FFQ results were energy adjusted, log-transformed and adjusted for day-to-day variability in intake. Correlation coefficients ranged from 0.28 for vitamin A to 0.78 for carbohydrate. Mean intakes from diaries and FFQs were within +/- 20% for 21 of 27 nutrients. Poor agreement between FFQs and diaries for retinol intake was due to the inclusion of liver, which is not included in the FFQ, in two diaries.

**Conclusion:** The ACCVFFQ performs as well as other FFQs for which validation data are available. The relatively poor measurement of retinol is consistent with other data, and with the limited number of foods in which this nutrient is abundant.

**Implications:** The ACCVFFQ is an optically scannable instrument that can be used to assess intake in Australian populations. The availability of such an instrument will facilitate epidemiological studies of diet and disease, an area of current research priority.

This chapter presents quantitative and qualitative data which illustrate the need for a gender-based analysis of family caregiving. Caregiving responsibilities must be seen in the context of contemporary women's lives, and sexist assumptions about women's natural place in the family need to be avoided in seeking solutions to this growing social problem. In particular, the assumption that all women are naturally suited to caregiving and will always be able to find the personal and financial resources to cope with the needs of a family member are questioned by the evidence.

The quantitative data show that caregivers experience poor mental health, are limited financially and in employment opportunities, and feel stressed and overworked. Interestingly, the middle-aged caregivers seem to be in poor physical health while the older women are in relatively good health. This may result from older women in poor health being more able to access professional health care for their family members. The qualitative data present a picture of women coping with difficult situations with little practical support. The middle-aged women describe restrictions on employment opportunities, concerns about their own physical health, and a sense of abandonment and exploitation by the health and social security systems. The older women, reflecting the more traditional gender-role attitudes of women in their age group, appear more likely to have internalized the ethic of care, to the extent that a large number see no alternative to full-time caregiving even when they recognise their own needs for rest or time out, and many continue to care for family members even after they have been institutionalized. Others interpret difficult personal circumstances as simply what should be expected at their age, or describe their arduous lives in positive terms as an opportunity to demonstrate their lifelong devotion to family members.

The findings of this study, although cross-sectional, provide further evidence of the dilemma being faced by women who take on a caregiving role in a society which provides no acknowledgement and very little support for this significant family role. Provision of public services should be combined with adequate financial support for family caregivers, including acknowledgement and support of the travel needs of frail people and their caregivers who live in isolated areas. Such a change to public policy might increase the extent to which caregiving became a genuine choice, and might serve to change the perceived balance between the burdens and satisfactions of caregiving.

This study investigates the use of general practitioner services by women in Australia. Although there is a universal health insurance system (Medicare) in Australia, there are variations in access to services and out of pocket costs for services. Survey data from 2,350 mid age (45-50 years) and 2,102 older (70-75 years) women participating in the Australian Longitudinal Study on Women's Health were linked with Medicare data to provide a range of individual and contextual variables hypothesised to explain general practitioner use. Structural equation modelling showed that physical health was the most powerful explanatory factor of general practitioner use. However, after adjusting for self-reported health, out of pocket cost per consultation was inversely associated with use of services. The out of pocket cost was generally lower for women with low socioeconomic status but cost was also directly related to geographical remoteness. Women living in more remote areas had higher out of pocket costs and poorer access to services. Women who reported better access to care were more likely to be satisfied with their most recent general practice consultation and less likely to be sceptical of the value of medical care. These results show the need for health policies that improve the equitable use of general practitioner services in Australia.

Lee C. Family caregiving: a gender-based analysis on women's experiences. In Payne S & Ellis Hill C (eds.), *Chronic and Terminal Illness: New Perspectives on Caring and Carers*. 2000.

Young AF, Dobson AJ & Byles JE. Determinants of general practitioner use among women in Australia. *Social Science and Medicine*, 2000.

# Presentations 2000

## **Warner-Smith P & Imbruglia C.**

Child care and the health and well-being of young mothers.

POPULATION, GENDER AND REPRODUCTIVE HEALTH: THE MOTHERHOOD QUESTIONS.

Adelaide, South Australia.

10-11 February 2000.

## **Bryson L.**

Motherhood in the new millennium: policy implications of recent social change.

POPULATION, GENDER AND REPRODUCTIVE HEALTH: THE MOTHERHOOD QUESTIONS.

Adelaide, South Australia.

10-11 February 2000.

## **Dobson A, Lee C, Brown W, Byles J, Young A & Warner-Smith P.**

Women's Health Australia.

FAMILY AND COMMUNITY SERVICES. PANEL DATA AND POLICY CONFERENCE.

Canberra, Australian Capital Territory.

1-3 May 2000.

## **Williams L & Brown W.**

How do women explain weight change at menopause?

DIETITIANS ASSOCIATION OF AUSTRALIA ANNUAL CONFERENCE.

Canberra, Australian Capital Territory.

19-21 May 2000.

## **Young AF, Dobson AJ, Byles JE.**

Statistical modelling of psychosocial theory: Can we speak the same language?

15TH AUSTRALIAN STATISTICAL CONFERENCE.

Adelaide, South Australia.

3-7 July 2000.

## **Young AF, Dobson AJ, Byles JE.**

Health services research using linked records – who consents and what is the gain?

15TH AUSTRALIAN STATISTICAL CONFERENCE.

Adelaide, South Australia.

3-7 July 2000

## **Lee C, Young AF, Byles JE & Warner-Smith P.**

Women's Health Australia: Healthy women, healthy families.

FAMILY FUTURES: ISSUES IN RESEARCH AND POLICY. 7TH AUSTRALIAN INSTITUTE OF FAMILY STUDIES CONFERENCE.

Sydney, New South Wales.

24-26 July 2000.

## **Warner-Smith P, Mishra GD & Dobson AJ.**

Marriage, income and women's health.

FAMILY FUTURES: ISSUES IN RESEARCH AND POLICY. 7TH AUSTRALIAN INSTITUTE OF FAMILY STUDIES CONFERENCE.

Sydney, New South Wales.

24-26 July 2000.

## **Brown W & Bauman AE.**

Misclassification biases in assessing population levels of physical activity using two measures of energy expenditure.

INTERNATIONAL COUNCIL OF SPORT SCIENCE AND PHYSICAL EDUCATION AND SPORTS MEDICINE AUSTRALIA. 2000 PRE-OLYMPIC CONGRESS.

Brisbane, Queensland.

7-13 September 2000.

## **Guillemin M & Brown W.**

Menopausal women and cardiovascular disease: Understanding risks and prevention.

MENOPAUSE AT THE MILLENNIUM: THE NEW AND THE NATURAL. AUSTRALASIAN MENOPAUSE SOCIETY: 4TH ANNUAL CONGRESS.

Adelaide, South Australia.

5-7 November 2000.

## **Ball K & Lee C.**

Relationships among psychological stress, coping and disordered eating in young women.

THE 6TH INTERNATIONAL CONGRESS OF BEHAVIOURAL MEDICINE: BEHAVIOURAL MEDICINE AND PUBLIC HEALTH IN THE NEW MILLENNIUM.

Brisbane, Queensland.

15-18 November 2000.

## **Miller YD, Brown WJ & Chiarelli P.**

Urinary incontinence in Australian women: Barriers to and outcomes of help-seeking behaviours.

THE 6TH INTERNATIONAL CONGRESS OF BEHAVIOURAL MEDICINE: BEHAVIOURAL MEDICINE AND PUBLIC HEALTH IN THE NEW MILLENNIUM.

Brisbane, Queensland.

15-18 November 2000.



**Brown WJ, Dobson AJ & Mishra GD.**

Changes in health during the menopausal transition.

THE 6TH INTERNATIONAL CONGRESS OF BEHAVIOURAL MEDICINE: BEHAVIOURAL MEDICINE AND PUBLIC HEALTH IN THE NEW MILLENIUM.

Brisbane, Queensland.

15-18 November 2000.

**Lee C.**

Women's Health Australia: Strategies for maintaining cohorts in longitudinal research.

THE 6TH INTERNATIONAL CONGRESS OF BEHAVIOURAL MEDICINE: BEHAVIOURAL MEDICINE AND PUBLIC HEALTH IN THE NEW MILLENIUM.

Brisbane, Queensland.

15-18 November 2000.

**Patterson AJ, Brown WJ & Roberts DCK.**

Iron deficiency and morbidity in Australian women: Effects on general health and fatigue.

24TH ANNUAL NUTRITION SOCIETY OF AUSTRALIA, SCIENTIFIC MEETING: EMERGING NUTRITION – DIGESTING THE EVIDENCE.

Fremantle, Western Australia.

3-6 December, 2000.

## Members of the NHMRC Project Advisory Committee

**Professor Janet Greeley (Chair)**

Faculty of Social Sciences  
JAMES COOK UNIVERSITY

**Dr David Roder**

Director of Epidemiology  
SOUTH AUSTRALIAN HEALTH COMMISSION

**Dame Margaret Guilfoyle**

Kew VIC

**Dr Helena Britt**

Director, Family Medicine Research Unit  
UNIVERSITY OF SYDNEY

**Mr Andrew Benson**

Acting Director, OATSIH  
DEPARTMENT OF HEALTH AND AGED CARE

**Ms Jean Douglass**

Acting Director, Evaluation Research Unit  
DEPARTMENT OF HEALTH AND AGED CARE

**Dr Adele Green**

Epidemiology Unit  
QUEENSLAND INSTITUTE OF MEDICAL RESEARCH

**Professor Christine Ewan**

Deputy Vice Chancellor  
UNIVERSITY OF WOLLONGONG



# Financial Statement 2000 - 2001

Expenditure January- December 2000

DHAC income July 1999 – June 2000

Based on University of Newcastle Financial Reporting System 20/10/00

Accounts 593-1029 and 593-1023

INCOME			EXPENDITURE			
Source	Details	Income	Items	Actual Expenditure 1/1/00 – 30/6/00	Actual Expenditure 1/7/00 – 20/10/00	Forward Estimate 21/10/00- 31/12/00
DHAC	Contract	485,000 414,000	Shared research (UQ)	70,000	73,000	0
	Additional funds for UQ	28,000	Surveys & data entry	67,961	11,426	20,000 <sup>b</sup>
	Ad hoc analysis/Reports	50,000	Newsletters	0	0	33,000 <sup>b</sup>
			Data linkage (AEC, HIC)	0	0	10,528 <sup>a</sup>
			Computer h'ware, s'ware	7,667	1,373	3,000 <sup>b</sup>
			Equipment & maintenance	5,316	470	500 <sup>b</sup>
			Postage & freight	8,273	18,875	4,000 <sup>b</sup>
			Telephone	2,531	1,636	2,500 <sup>b</sup>
			Printing, stationery, office supplies	2,968	6,706	3,000 <sup>b</sup>
			General consumables/ Repairs	1,041	790	500 <sup>b</sup>
			Travel/ Hospitality	11,101	2,061	5,000 <sup>b</sup>
			Salaries	139,097	138,078	98,450 <sup>a</sup>
			On-costs	32,147	25,810	27,122 <sup>a</sup>
			Annual Report	5,153	0	5,000 <sup>a</sup>
			University O'head charge		70,340	62,100 <sup>a</sup>
U of N	Research Contribution	50,000	Postgraduate scholarships/ fees	14,001	14,602	7,000 <sup>a</sup>
	Research Quantum	103,000	Postdoctoral Fellowship	16,079	13,043	3,036 <sup>a</sup>
			Project Manager salary	49,950	31,706	18,700 <sup>a</sup>
			On costs	12,833	7,698	5,200 <sup>a</sup>
	Research Infrastructure Grant	11,142	Student research costs	5,540	1,000	3,000 <sup>b</sup>
	Conference Travel Grants	5,034	Replacement photocopier	10,135	0	0
			Additional conference travel			
<b>TOTALS</b>		<b>\$1,146,176</b>		<b>\$461,793</b>	<b>\$418,614</b>	<b>\$311,636</b> <b>(\$46,867)</b>

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

## Inquiries

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## Web site

<http://www.fec.newcastle.edu.au/wha>

A detailed description of the background, aims, themes, methods and progress of the study is given on the project web page. Survey 1 questionnaires are also available on the website, along with contact details for the research team.

Abstracts of all papers published, accepted, and submitted for publication and submitted to or presented at conferences are also on the project website.



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