

report 18

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



The Australian Longitudinal Study on Women's Health

10 June 2002



The UNIVERSITY
of NEWCASTLE
AUSTRALIA

in association with



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

REPORT 18

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EXECUTIVE SUMMARY

1. A major activity in the reporting period has been the preparation of documents for the review of the project which is currently in progress. This provided an opportunity for the Investigators to develop a strategic plan that draws on the existing strengths of the project, on current policy concerns, and on prospects for future collaborations and research activities. The resultant plan identifies three themes for research, that cut across cohorts and methodologies, and that are already beginning to guide research planning. The themes are Chronic Disease; Roles and Relationships; and Measurement and Analysis. Research in all these areas is planned that will position women's health and health service use in their social and family contexts and will be able to inform policy and practice.
2. Research activities completed during this period include a large substudy focusing on mid-age and older women with diabetes, combining an analysis of existing survey data, a targeted substudy, and the use of linked Medicare/DVA data to develop a picture of the health, health service use, and well-being of diabetic women in Australia. Data analysis is in progress, but it appears that there is wide variability in use of appropriate screening and management services, and in the well-being of diabetic women.
3. The main survey activity for this year is Survey 3 of the older cohort, which was initially mailed in March and is still under way. The response rates to date is 75%, with postal and telephone reminders still to be conducted. Response is strong, and the project staff are impressed by the ability of many older women to maintain a good quality of life despite major physical problems. Data from Survey 3 of the mid-age cohort, conducted in 2001, are cleaned and ready for use, and the Food Frequency data from that survey are in the early stages of analysis. Survey 3 of the younger cohort is scheduled for 2003, and the questionnaire is currently in the developmental stages.
4. Substudies under way at the moment include one which surveys younger women's effective use of contraceptives, and another which surveys younger women on two topics, weight change and maintenance, and the timing of important life transitions. Further substudies involving contact with participants later this year will include telephone interviews with younger women who combine work, motherhood and a permanent relationship, and a mailed survey of mid-age women who have never had a child.
5. Other research activities carried out and in progress include analyses of data on illicit drug use by the younger women, explorations of correlates of the use of complementary and alternative medicines, studies of healthy weight and weight change among the younger and mid-age cohorts, time use and health, and the assessment of socio-economic status and its relationship with health. The number of postgraduate research students has grown steadily, and we currently have fifteen postgraduates at various stages from research planning to thesis writing. Thesis topics include weight change and maintenance during menopause; psychological factors in heart disease; violence, well-being and coping; social class and aspirations for work and motherhood; health and transitions in early adulthood; childlessness; menstrual symptoms, hysterectomy and other treatments; sociodemographic and lifestage factors related to use of different forms of contraception; contraceptive use and pregnancy risk-taking; and development of statistical methodologies.
6. A total of eleven papers have been published in peer-reviewed academic journals in this six-month period. An additional seven papers have been accepted for publication, and ten papers have been presented at national and international academic conferences. The published papers reflect the diversity of research work that underlies this multidisciplinary and multi-faceted

project. Subjects include perceived time pressure, leisure and health; dietary treatment of iron deficiency; analyses of motherhood, employment, and the socio-economic and health implications of life choices; stress and disordered eating; urinary incontinence and its impact of health, physical activity and quality of life; nutrition and well-being in older women; and family caregiving. Other papers address measurement issues and focus on the assessment of stress among young women and of vulnerability to abuse among older women.

7. Methodological work with the survey data is continuing. In the reporting period, preliminary analysis has been conducted of responses to questions about illicit drug use by the younger cohort, and a large amount of work has been done on the development of methods and procedures for calculating transition variables. Cohort maintenance activities, quality assurance, and archiving have continued according to protocols already developed. There continue to be concerns at the lack of satisfactory response from the Health Insurance Commission concerning three matters: checking of consents to access claims data; access to claims data for those women who have given consent; and most importantly, archiving and documentation of files that are central to the integrity of the project. We are still unable to obtain any assurances that any of these tasks can be done.

1 COLLABORATIVE RESEARCH ACTIVITIES

1.1 SCIENTIFIC MEETINGS AND TELECONFERENCES AMONG RESEARCH TEAM

Until the end of 2001, formal four-weekly teleconferences were held for all Project Investigators. From 2002 the research team is trialling a system with a smaller Steering Committee who participate in the teleconferences and other planning activities, and report to the broader group of Investigators. The number of Investigators has increased, and there is a need to recognize Investigators' other commitments. Investigators will vary in the extent to which they are able to contribute to the day-to-day activities of the Project, as they move in and out of major roles in their academic departments. The Steering Committee concept has arisen as a method of acknowledging increased workloads, and ensuring that Investigators who have other commitments at particular times do not feel pressured into either taking on more work than can be managed, or withdrawing from the Project team. The Steering Committee consists of a core group of Investigators who are able, at the time, to commit considerable effort to the project. It is intended that membership will be flexible and decided on an annual basis, so that a group of about six people are involved at this level at any one time. Other Investigators receive copies of notes, agendas, minutes and reports, comment on these as they see fit, and participate in teleconferences if the topics raised are of particular relevance to them, but have less of an obligation to be involved in all aspects of the day-to-day management of the Project. The Steering Committee's role is to ensure that all voices are heard. Current Steering Committee members are: Annette Dobson (Chair), Wendy Brown, Julie Byles, Gita Mishra, Christina Lee and Anne Young.

Appendix 1.1 includes minutes for the last of the larger teleconferences, held on 10 December 2001, and for Steering Committee teleconferences held on 14 January, 11 February, 11 March, 8 April, and 20 May 2002.

Other regular meetings include a fortnightly meeting in the Newcastle office for Project Staff, a monthly meeting of the research group at the University of Queensland, and a fortnightly meeting of the Data Management group (held in the Newcastle office with a telephone link to the University of Queensland). The Data Management Group currently consists of Anne Young (Chair, Project Statistician), Annette Dobson (Project Director), Christina Lee (Project Manager), Jean Ball (Data Manager), Jenny Powers (Statistician), Sandra Bell (Data Assistant), Anne Russell (Senior Data Analyst, University of Queensland) and Nadine Smith (PhD student). A summary report of progress overall on all aspects of the Project is also circulated to researchers, staff, students and associates on a monthly basis.

1.2 RESEARCH PLANNING 2003-2008

A major activity for the research team during the reporting period has been preparation for the current Project Review. The current contract with the Commonwealth Department of Health and Ageing runs until June 2003, and under its terms an independent review of progress to date and plans for the following five-year period is being conducted.

In developing the research plan for the next five years, the researchers have been mindful of the importance of building on current strengths and of ensuring that research is informed by policy and by the concerns of the Department of Health and Ageing. Section 1.2.1 outlines the relationships between previous, current and planned research directions, and describes the intended Research Themes over the next five-year period. Section 1.2.2 goes on to examine the extent to which the Project, now and in the future, is informed by current issues in policy and in strategic planning.

1.2.1 Aims, objectives and themes

In considering strategic research directions and specific timelines over the next five-year funding period, the Investigators have identified three main, overarching themes: Chronic Diseases, Roles and Relationships, and Measurement and Analysis of Health Outcomes. These correspond to areas in which knowledge of health issues for women is lacking. They also link current and projected research interests to policy and strategic issues, and represent research questions that this project is particularly well positioned to address.

The Project has developed considerably in scientific scope and in policy relevance over the current five-year funding period. Emerging strategic and policy issues have shaped scientific questions, and basic methodological and statistical work has highlighted substantive issues of importance. The previous few years of the Project have seen a steady development from a collection of semi-independent investigations, each focusing on one aspect of health within one cohort within the framework of the Project, to a more integrated and strategic approach to women's health in its social and biomedical context that draws on the unique characteristics of the project. The three themes underlie a strategic plan that maximizes policy relevance and builds on existing strengths.

The Project is well positioned to provide research results with relevance for policy and strategic planning in these three areas, for the following reasons.

1. The Project collects data on medical conditions and symptoms, health service use, health behaviours, physical and emotional well-being, time use, family circumstances, and socioeconomic factors. This permits statistical analyses to explore the complex relationships among variables at different levels of explanation, and to draw links between social and policy changes and specific health endpoints
2. The large sample size, by comparison with most Australian (and international) longitudinal studies, has several benefits at a statistical level. It provides statistical power to detect small effects or changes that have important implications for policy and practice or that have the potential to guide preventive interventions. The sample size also makes it feasible to control for a wide range of potential confounders and stratify results by a range of variables, allowing a focus on specific groups within the broader community.
3. The Project is able to link self-report data with HIC records and (potentially) other administrative databases. This provides the potential to link individual and structural factors in understanding health and the health care system, and enables a much richer and more complex analysis.
4. The longitudinal design of the Project makes it possible to map the effects of changes in individuals' lives (e.g., employment, menopause, widowhood) and of changes in policy (e.g., changes in Medicare rebates, legislation regarding maternity leave) on women's health and use of health services, using both self-reports and administrative data.

Table 1 illustrates the way in which these three proposed themes have developed out of the five themes originally identified in 1995 and the research questions identified in the 1998 Report to Reviewers.

Table 1 Relationships between themes and research questions identified in 1995, 1998 and 2002.

1995 Themes	1998 Research Questions	Emerging Research Questions	2002 Proposed Themes
Health Service Use	Access to health and community services and older women's quality of life	Chronic Disease Cardiovascular disease (Mid) Diabetes (Mid/Old) Asthma (Mid)	Chronic Disease
	Geographic location and older women's well-being		
Healthy Weight and Exercise	Underweight and body dissatisfaction and younger women's physical health (includes stress, disordered eating)	Symptoms and Risk Factors Continence and incontinence (Mid/Old) Iron deficiency (Young/Mid) Screening (Mid) Smoking & gynaecological health (Young/Mid) Menstrual problems & hysterectomy (Mid) Sexually transmitted infections (Young) Physical activity (Young/Mid/Old) Weight (Young/Mid) Diet (Mid) Alcohol (Young) Recreational drugs (Young) Mental health (Mid)	
	Menopause and weight gain (includes well-being over menopausal transition)		
	Characteristics promoting and maintaining quality of life in older women (includes psychological variables, sleep, medications)		
Time Use and Social Roles	Stress among younger women	Roles and Relationships Life stages, transitions and health behaviours (Young) Social supports and emotional health Retirement (Mid, Old) Widowhood (Old) Leisure (Young, Mid) Work/life tensions (Young, Mid)	Roles and Relationships
	Multiple roles, health and use of health services		
	Social capital and quality of life for older women		
Life Stages and Key Events	Health and timing of motherhood	Miscarriages and terminations (Mid)	
	Health outcomes of medical treatment during menopause	Menopausal transitions (mid)	
Violence and Abuse against Women		Violence and abuse (Young/Mid)	
		Elder abuse/neglect (Old)	
	Methodological and statistical issues	Statistical Issues Scale validity Multicollinearity Missing data and imputation Data linkage	Measurement and Analysis of Health Outcomes

Chronic Disease

This theme reflects current concerns, both in health policy and in clinical practice, that recognize the role of quality of life, and of the experience of living with chronic disease, in assessing of the burden of disease. Increasingly, health budgets are consumed not by the major causes of death but by chronic conditions that reduce quality of life and increase health service use.

Policy concerns are most clearly reflected in the National Health Priority Areas of cancer, cardiovascular disease, asthma, diabetes, mental health and injury. All of these, except arguably injury, represent chronic disease. Additionally, bone and joint disease comprise a major cause of morbidity, and arthritis is currently being considered as an additional National Health Priority Area. The Project is able to shed new light on the extent to which all of these conditions impact on women's lives across physical, emotional, cognitive and social domains. The longitudinal design means that the time course of illness can be traced. The wide geographical coverage means that social, vocational and jurisdictional differences in response to their conditions, by the women themselves and by health services, can be mapped. In this way the project can inform policy in relation to the burden of disease and the appropriateness of health care.

Chronic illness is often characterized by comorbidity: overlapping risk factors mean that women with one major chronic disease are likely to have others. The extent of risk factors, how women perceive them, and the impact on morbidity is a common thread across all the conditions listed below, that we plan to study in detail. Psychological and social characteristics associated with primary prevention (such as cancer screening, smoking cessation, or physical activity) underlie modern approaches to disease control. Through analysis of data from the main surveys, we are able to document lifecourse factors that enhance or inhibit health behaviours. Through targeted substudies we can find out from women their perceptions of these behaviours and obtain population-based evidence of the effectiveness of various interventions to change behaviour (which may differ substantially from efficacy demonstrated in randomized trials). The broad perspective of the project ensures that the influence of environmental and social factors on behaviour can be taken into account, as well as women's individual characteristics.

A number of health behaviours also contribute to risk of several major diseases. The role of the so-called SNAP variables (smoking, nutrition, alcohol and physical activity) in chronic diseases such as cancer and cardiovascular diseases is well established. The Project collects data on all of these variables, using AIHW standard measures and an Australian food frequency questionnaire (with the mid-age women only so far, because of its length and complexity, but perhaps with the younger cohort in future surveys). Measures of the adequacy of food and nutrient intake are important with respect to dietary recommendations and for examining relationships between diet and markers/risk factors of chronic disease.

With the development of chronic disease, especially in the older and mid-age women, comes the importance of their understanding of, and interpretation and opinions about, their conditions, secondary prevention and self-management. This background provides an essential consumer perspective to complement provider input to planning and delivery of health services.

The appropriateness of medical management, in relation to guidelines for best practice, will be documented through selected substudies of specific conditions (such as the one underway on diabetes). This will involve linkage of survey, Medicare/DVA and PBS data. To obtain a more complete picture, data will be obtained not only on conventional medical treatment, continuity of care and rehabilitation, but also on women's use of complementary and alternative therapies and self-management of their conditions.

Diabetes

Approximately 2% of the mid-age women and 8% of the older women reported a diagnosis of diabetes by Survey 2, and work already underway is exploring these women's understandings of the condition and the extent to which they are receiving optimal care. Linkage with HIC data is being used to explore the use of diabetes-appropriate screening and management. The Project provides an excellent opportunity to examine changes in uptake of screening, as well as the exploration of risk factors for diabetes such as obesity (itself a major target for DoHA programmes).

Cardiovascular disease

Over half the older women report having been diagnosed with or treated for hypertension. More than half the older and mid-age women are overweight or obese, report low levels of physical activity, or both. Between Survey 1 and Survey 2, ischaemic heart disease was the main cause of death for women in the older cohort. Research to date has focused mainly on lay understandings and prognosis of women with self-reported diagnosis of heart disease, and on risk factors such as obesity, smoking and sedentariness. Although traditionally regarded as a disease of men, cardiovascular disease (CVD) is the leading cause of mortality and morbidity for older women. As improvements in effective medical treatment of acute episodes have escalated in the last 20 years, so too has the proportion of older people living with CVD, especially heart failure. This is resulting in increased costs to the health system and increased burden of disease. To examine ways in which the burden can be reduced, we plan a substudy of CVD in the older women, covering appropriateness of the treatment they receive (compared to best practice guidelines), self-management (including secondary prevention such as dieting and weight control) and levels of disability. In this way, the Project aims to identify discrepancies between women's experiences of CVD and optimal care, to inform policy-makers of the health-care needs of older Australians.

Cancer control

Apart from prevention of smoking and excessive sun exposure, the main factors relevant for cancer control among participants in the Project are risk factors, prevention and screening; relatively few of the women report having had cancer themselves. We plan to extend our collaborative work (e.g. with Breastscreen), to identify factors that enhance or inhibit use of mammography and Pap tests among different groups of women. Analyses of main survey data will compare screening behaviour among women characterized by geographic location, educational and ethnic background, perceptions of vulnerability, medical scepticism, time available to attend to their own health, and other factors. In this way we can identify characteristics of hard-to-reach women and recommend how they might be encouraged to participate in screening. When we obtain more detailed Medicare data (i.e. for 2001 onwards) we will also be able to investigate the characteristics of women who appear to have made high use of screening services. In this way it might be possible to distinguish the "worried well" from those women whose use of screening and diagnostic investigations is well justified. Such work could inform policy about "over-use", although our previous analyses of GP services showed overwhelmingly that high users of services were those with high levels of physical ill-health.

Recent analyses of cigarette smoking among younger women in the Project have identified marriage and pregnancy as key opportunities for smoking cessation, and use of Cochrane reviews has identified "best-bets" for effective interventions. Although cigarette smoking is much less prevalent among the mid-age women (and very rare in the older cohort), these women are likely to be long-term users with nicotine addiction. We propose to undertake detailed analyses of the main survey data to investigate life changes and other factors that may be used to trigger quitting (or would lead to recidivism in ex-smokers). Such work could inform the targeting of anti-smoking interventions of known effectiveness (including nicotine replacement therapy and behavioural treatment).

Asthma

Approximately 10% of women participating in the Project have been diagnosed with asthma, and this is a chronic disease with a high level of economic, personal and social burden that can again be the focus of Project research. There is particular scope to examine self-management strategies and the extent to which women combine traditional and complementary treatments in this, as in other major chronic diseases.

Mental health

The high levels of stress identified among the younger women at Survey 1 have not dissipated over time and Survey 2 provides data on high levels of depression, suicidality and self-harm that are of concern for the well-being of this cohort. Depression is increasingly a priority area at Commonwealth and State levels, for example with the recent establishment of the National Depression Initiative beyondblue. We plan to examine predictors, mediators and correlates of depression among younger and mid-age women in order to contribute to the debate over policy and practice in this area; there is also scope for assessing the impact of further policy initiatives that target specific age groups. It is also proposed to broaden the assessment of mental health to include anxiety, since anxiety is strongly related to depression, yet its impact has not been effectively evaluated. The Goldberg Anxiety and Depression Scale is being used with the older cohort in Survey 3 (2002), and the inclusion of this or another appropriate measure of anxiety into surveys of the younger and mid-age cohorts will be explored.

Musculoskeletal conditions

A focus on musculoskeletal conditions is extremely relevant to the oldest cohort of women in particular. Arthritis is currently being considered as an additional National Health Priority Area in its own right, because of its impact of quality of life, independence, and health service use. Almost half the older cohort report being diagnosed with arthritis and 25% have osteoporosis. Muscular and joint pain is a common symptom among both mid-age and older women. Exploration of treatments and their effectiveness, and of strategies for living with musculoskeletal pain, will be complemented by continuing work on risk factors such as obesity and sedentariness, and on an exploration of the possible role of dietary factors.

Research on this theme will be characterized by the following issues.

- The epidemiology, predictors and correlates of chronic diseases among Australian women, at biomedical, familial, social, and structural (health services) levels.
- Early intervention, primary prevention, screening and risk factors associated with the development of chronic disease.
- Comorbidity and its effects on women's well-being
- Access to health care, satisfaction with health care, and continuity of care, particularly for multiple conditions and including urban/rural differences in access and satisfaction.
- Exploration of "usual care" conditions in different regions of Australia; relationship between "best practice" and usual care, and identification of barriers to best practice.
- The experience of "living well" despite chronic conditions; secondary and tertiary prevention and health behaviours; identification of who lives well and under what circumstances; personal and structural variables associated with quality of life; use of prescription and non-prescription medications as well as use of complementary and alternative medicine

Roles and Relationships

This theme reflects contemporary models of health that emphasize the relationships among the social, environmental, personal and biological determinants of well-being and of illness. The health and well-being of Australia's women intersect with policy in a range of areas both within and beyond those narrowly defined as "health" – for example, family and community services, employment and workplace relations, arts and sport. As well as women's own health, the health of their children and family members has a major impact on their lives. The majority of family caregivers to chronically ill or disabled Australians are women, usually mothers, wives and daughters. Women are more likely than men to take responsibility for their families' health, for example in buying and preparing food and in negotiating the health service system on their behalf. Other aspects of women's lives, that might be viewed as relevant to social policy rather than narrowly as health, are influential in health and well-being. These include childcare and employment policies; policies and programs promoting active leisure; legal practices relating to violence and abuse within families; and policies that impact financially on ageing Australians and those encountering retirement, such as pensions and subsidies for health, housing and social services.

This theme has relevance to health services and health and well-being and thus to the core activities of DoHA; it also has important overlaps with the policy concerns of the Department of Family and Community Services, the Department of Employment and Workplace Relations, the Department of Arts and Sport, and the Office for the Status of Women. The research team has already developed collaborative links with these Departments and plans to further interdepartmental uses for outcomes of the Project.

Topics identified in this area include:

Life stages and transitions

Role changes, such as the transition to motherhood, movements in and out of the paid workforce, and widowhood, are associated with major changes in health behaviours and in social and financial supports that may affect health and well-being, in both the short and longer term. Analysis to date, for example, has shown that pregnancy and motherhood are associated with cessation of smoking (as well as possible re-adoption over the slightly longer term) but also with sedentariness and weight gain, suggesting that this is a transition that is associated with major changes in health behaviour.

There is currently considerable public debate about falling fertility rates. Survey data suggest that almost all young Australian women want children, but that they are choosing to delay motherhood because of competing financial and employment concerns. Those women who do have children at a young age have low levels of education and high levels of unemployment, suggesting that these women may continue to find it difficult to combine motherhood and financial security. In the next five years the Project will be able to compare the health and well-being of women who start having children at different stages of their working lives. This will have relevance to policy for both women and children. Policy-relevant work will be conducted on the factors which appear to be making women less willing to take on family caregiving roles in middle age. This work has relevance to policy in areas such as childcare (if grandmothers provide less help than at present), the provision of respite care and other community options for dependent family members, and employment and superannuation practice.

Social transitions at mid-life revolve around changing relationships with adult children; the arrival of grandchildren; development of chronic diseases or disability among parents and other family members; and the individual's own planning for later life. Women at this time of life may have to deal with traditional expectations that they will be available to provide support to parents, partners,

children and grandchildren, while at the same time needing to deal with their own paid jobs or careers and plan for financial independence in later life. Some mid-age women are likely to experience high levels of stress and perceptions of loss of control, and some will be developing chronic disease that will affect their quality of life.

Among older women, the transition to widowhood is normative, with half of the older cohort now being widows. The immediate impacts of becoming a widow include grief, anxiety, depression and changes in social and financial circumstances. Most women eventually make a successful adjustment to widowhood, albeit with changes in social roles, needs for material and social support, and possible relocation from the marital home. Other women do not cope well, and suffer major health consequences including chronic depression, long-term use of sleeping medication (which increases their risk of falls), poor eating habits, and social deprivation. We are planning a substudy of the dynamic cohort of new widows in the older cohort (almost 700 between Surveys 1 and 2, and another 500 expected between Surveys 2 and 3) to identify ways in which women can be helped to make this transition successfully.

Multiple social roles

There is considerable existing work on issues relating to work/life balance including motherhood, family caregiving, paid employment, unemployment and underemployment, marriage and other relationships, active leisure and access to free time, and how these interact with each other to affect physical and emotional well-being, health behaviours, and health service use. Such work needs to be positioned within a policy context, and the Project allows the impact of changes in policy and practice on women's health and well-being to be assessed.

Violence and abuse

Women's experiences of violence and abuse have already been extensively examined within the Project, and future work will focus on identifying women who have coped successfully with these experiences and specifying personal, social and structural variables associated with successful coping. This information is valuable to DoHA and to other agencies concerned with preventing, and dealing with the consequences of, family violence in its broadest sense. The government has recently expanded the Office of the Status of Women's focus on health-relevant topics, particularly sexual assault and domestic violence, and Project staff are working with OSW to explore commonalities of interest and possible research directions in this area.

Social capital

Meanings of the term "social capital" are varied, but the broad area of social support, family relationships, community networks, and neighbourhood quality is closely related to emotional well-being and to health behaviours, and may also affect physical health. Issues in this area overlap with the Measurement and Analysis of Health Outcomes theme, as the assessment of social capital among women at different life stages requires investigation and validation. There is a particular focus on social capital for women living in different regions, and the differing needs of women in rural and urban areas.

Access to health care

There is good evidence that rural women have lower access to health services and lower levels of satisfaction than do urban women. Questions remain about the causes of these differences; while government policy aims to increase the number of practitioners in rural areas, these initiatives may not address country women's needs if they fail to take into account the social roles and family responsibilities of these women and the social structure of country areas (which may affect confidentiality with respect to health problems, for example). Women who combine paid work and family relationships may rely on after hours access which may be more available to city than to country women.

Measurement and Analysis of Health Outcomes

Large and complex data sets, especially longitudinal ones, present methodological challenges in terms of measurement, data quality and statistical analysis. As a research theme, Measurement and Analysis of Health Outcomes covers the more basic research aspects of the Project underpinning its scientific quality. Its relationship with policy and health service delivery is less immediate but just as crucial as the other two specified Themes.

For some of the challenges we face, the task is to translate existing theory into practice. For other statistical and interpretive challenges, we need to develop original solutions. Over the next five years, the Project team plans to work on the topics listed below.

All of these methodological topics have relevance beyond this project. There has been recent growth worldwide in the number of longitudinal studies, including some newly established by Australian Government Departments (e.g., the Household Income and Labour Dynamics in Australia (HILDA) and Longitudinal Study of Australian Children (LSAC) in the Department of Family and Community Services). Expertise developed by the Project team is transferable to these other projects, particularly methodology for evaluating the impact of policy interventions and population changes.

Attrition and other sources of bias

Estimates of change and of relationships between variables based on data from respondents may be biased if women who are lost to the study (through death, withdrawal or loss to follow-up) differ from those who continue to participate. For example, non-respondents to Survey 2 for the mid-aged and older cohorts are more likely to have been born overseas, have less education, lower income and poorer self-reported health than respondents. In contrast, there were fewer differences in sociodemographic characteristics and health between respondents and non-respondents in the younger cohort. To take account of non-response in the statistical analysis of the data it is necessary to identify systematic and random effects and to understand the reasons for non-response. We will continue to perform comparative analyses of respondents and non-respondents at all stages to estimate the extent of bias and threats to the generalizability of our findings due to non-response.

From another perspective, exploring the impact of cohort attrition will provide information about 'healthy survivor' effects. By the end of Survey 3, about 10% of the older cohort will have died and their characteristics will be compared with characteristics of women who have survived, using up to three phases of survey data and six years of Medicare/DVA data. These analyses are necessary for the correct interpretation of findings relevant to the impact of chronic disease and roles and relationships on health outcomes.

Declining cognitive function in the older cohort presents another challenge. For example, only about 50% of respondents in the older cohort adequately completed the CESD (Center for Epidemiological Studies Depression Scale) at Survey 2. Our analyses suggest that part of this non-response could be related to cognitive function (and level of depression). A brief measure of memory changes has been included in Survey 3 and it may be possible to use the results in other analyses for this cohort; for example, to down-weight responses for women with low scores on this and other indicators of cognitive function. The methods for doing this, and the sensitivity of the results, will be investigated systematically during 2003 and 2004.

Missing data and multiple imputation

With successive surveys, problems of inconsistent responses and missing data grow. We put considerable effort into resolving inconsistencies by routine data management procedures such as cross-tabulation and logic checks. For the last three years we have been exploring the computer intensive methods called 'multiple imputation' (MI) to 'fill in' missing data based on responses to

other correlated items (e.g., imputing weight from height, desired weight change and dieting behaviour).

We are currently using MI to adjust for the differences in self-reported health between women who complete full paper-and-pencil survey forms and those who complete a briefer survey by telephone. The strategy, or something similar, is likely to be increasingly used to reduce bias.

Alternative approaches for imputing missing data, without underestimating variability, use Bayesian methods, simulation and neural networks. We propose to conduct a series of empirical investigations of these methods and MI to study the robustness of the results under different conditions (e.g., using indirect observations of closely related variables, and in situations where missingness is unlikely to be random).

Validity of measurements

The Project team puts considerable effort into psychometric assessment of the instruments we use. Using longitudinal data, we have now commenced studies of the prospective validity of several measures (e.g., elder abuse score, domains of SES and life event scores). As more data accumulate we also plan to conduct empirical studies of the responsiveness of our measures in different age cohorts and different settings.

To support the theme of Chronic Disease it will be necessary to conduct validation studies to substantiate self-reported diagnoses, investigations and treatment. For example, Medicare/DVA data on HbA_{1c} (glycosylated haemoglobin) tests can be used to validate self-reported diagnosis of diabetes. Before studying the management of cardiovascular disease (CVD) we will conduct validation studies of self-report versions of standard instruments (e.g., Rose angina questionnaire and the New York Heart Association symptoms of heart failure) and lay descriptions of clinical investigations and procedures, with older women for whom medical histories can be confirmed (e.g., hospital clinic patients and general practice patients). The results will be used to refine instruments for the planned ALSWH substudy of CVD. Similar strategies will be used for other common chronic conditions, such as arthritis and osteoporosis, before investigating self-management and medical management for women throughout Australia.

As comorbidity is relevant to most of the work in the theme of Chronic Disease, we will examine how this is best measured. For the purposes of this Project, an index based on a checklist of diagnoses and symptoms is unlikely to describe adequately the limitations to women's physical and mental health and social functioning caused by physical ill-health. Research will be needed to determine whether generic measures (including SF-36, scores for functional capacity or activities of daily living, or quality of life scales) or condition-specific measures (e.g. limitations due to CVD or musculoskeletal pain) are more useful.

Record linkage

The value of linked data for policy development, strategic planning, clinical practice and public health is now widely recognised. There is considerable discussion and debate about current and future data linkage activities in Australia and this project is well placed to contribute to this discussion.

The Project has made extensive use of linked survey and Medicare records for the women who have consented to the release of their individual records from the HIC. Health research using linked data needs to ensure individual privacy but maximise the use of the increasing amount of administrative and other data that are becoming available. Hence the issue of record linkage without consent needs to be explored. In particular we have the opportunity to link the ALSWH survey data with the Western Australian Health Services Research Linked Database. This database commenced in 1995 and is the largest health-related linked database in Australia. It includes discharge extracts of all

admissions to public and private hospitals in Western Australia since 1970, mortality records for all deaths registered in Western Australia since 1969, records of all inpatient and outpatient contacts with the Western Australian Mental Health system since 1966, malignancies diagnosed in persons living in Western Australia since 1981 and all hospital and home births in Western Australia since 1980. The project has more than 3000 participants living in Western Australia. By linking their longitudinal survey data and Medicare data with the WA linked database, we will be able to perform a more complete analysis of health outcomes, health service use and expenditure, and the social determinants of health. For example, measures of continuity of care can be developed and patterns of use of healthcare services can be studied. This will enable women's consulting behaviour over time to be better understood, so that better healthcare can be planned for women, according to their medical conditions and social circumstances.

Geocodes

Since the Project began, the issue of describing the environment in which the participants live has been important. The spatial referencing of localities has improved substantially over recent years so that each address within Australia can now be geocoded and linked to databases containing measures of access to a range of social, health and education services. We have contracted the National Key Centre for Social Applications of Geographic Information Systems (GISCA) to geocode the addresses of all women at each phase of the study so that more refined measures of remoteness and access to services can be obtained. ALSWH survey data and spatial information from GISCA can be combined to inform planning and policy decision making by providing results based on women's perceptions, as well as objective data measured at a locality level.

Understanding the extent of geographical mobility and factors contributing to migration is important in planning the provision of health services. Over the next five years, we aim to continue to describe the migration of women in the study and to examine the age-specific determinants of migration, as well as health and social outcomes for women who move.

Measuring change

Many of the key variables in this Project are subjective and cannot be directly and unambiguously measured; for example, quality of life, socioeconomic status, stress. These can be regarded as latent variables measured indirectly, often by composite scales calculated from several questionnaire items (e.g., the 8 dimensions of SF36). Sometimes the instruments used to measure the latent variables need to be changed for successive surveys; for example, the questions for physical activity have changed in light of national improvements in self-report measurements, a development to which we have contributed.

We are beginning to investigate the use of ordinal data (obtained by grouping continuous scale scores) to measure relative changes among participants, even if the underlying latent variable is measured by different instruments at different times. This would overcome scale differences, but responsiveness and the probability of misclassification are likely to be affected by the choice of ordinal categories. The development of robust methods to handle this problem will be of universal applicability.

Changes in health outcomes may be interpreted in different ways: in absolute terms; relative to previous levels; relative to baseline levels; relative to changes in a reference group; and so on. The choice will depend on both the question being addressed and the particular outcome. There is a need for systematic exploration and documentation of the appropriateness of alternative approaches for different situations. This will be undertaken over the next five years and the results disseminated to inform other longitudinal studies, as well as to ensure that longitudinal ALSWH results are interpreted appropriately.

Statistical analyses

Statistical theory for analysis of longitudinal data is evolving rapidly as, worldwide, health researchers are facing similar issues to those faced by the Project team. For example, the use of linear models for normally distributed, repeated measures has been replaced by multilevel models, generalized mixed models and the use of generalized estimating equations. Now these newer methods are being extended to accommodate missing data resulting from various non-response mechanisms, effectively incorporating imputation into the modelling.

To take advantage of these theoretical developments, we plan to implement them for particular ALSWH analyses. By using several different methods and comparing and contrasting the results, the Project Investigators and staff will keep abreast of the latest developments and gain practical experience in their implementation. Additionally, the publications of these comparative analyses as didactic or empirical papers means that our experience is disseminated to other people analysing data from longitudinal studies, and that consumers of the data (including DoHA staff and other research teams) are well informed about the complex statistical issues that underlie the data analyses and results.

1.2.2 Policy relevance

The Project provides an evidence base for the development and evaluation of health services and practices in policy-relevant areas. In considering ways in which the Project might best inform current and future policy concerns, the Project team has reviewed DoHA policy documents (such as the National Health Priority Areas and the National Mental Health Strategy), the current Government's priorities as they relate to women's health, and comments provided by members of the Departmental Reference Group.

The previous Section has already outlined the relationships between the planned Research Themes and the National Health Priority Areas, but other policy documents have also been consulted in the development of this report. The Chronic Disease Framework developed by the National Public Health Partnership in response to those Priority Areas, for example, stresses the importance of focusing on prevention, of identifying high-risk groups, and of acknowledging the interaction of biological, psychological, social and environmental factors. The many levels of data collected by the Project exemplify this multidisciplinary, multilevel approach to public health.

The Coalition Government's priorities with relevance to women's health are well matched by the Project's current and planned research directions. The Government's continuing focus on the National Health Priority Areas, and its consideration of the inclusion of arthritis as an additional Priority, is well served by the proposed Chronic Disease theme and by existing research that focuses on heart disease, diabetes and asthma. This theme is also consistent with the inclusion in the 2001 Budget of initiatives to enhance GPs' options for caring for patients with asthma, diabetes and mental illness, the government's plans to enhance services for patients with arthritis, and the increasing policy focus on depression through the National Depression Initiative. The Project is well positioned to evaluate the effectiveness of these new initiatives, by examining patterns of health service use, satisfaction, and well-being across all regions of Australia. Systemic changes designed to enhance access to health care services, focusing on after-hours services, on rural areas and outer suburbs, and on indigenous persons, can also be assessed through analysis of these variables.

The Government's Regional Health Strategy, designed to increase the number of GPs, specialists and allied health professionals working in rural Australia, can be evaluated directly through assessments of health service use and satisfaction among rural women and more generally through a

continuing research focus on differences in well-being across different areas of Australia. Plans to assess the impact of the Rural Women's Fly-in Fly-Out GP service, set up in 1999, are also in train.

Currently, Government policies that concern women's health are put into practice not only through the Department of Health and Ageing but also through the Office for the Status of Women (OSW). In particular, the issues of sexual assault and domestic violence are addressed through the Health and Wellbeing section of OSW. The Project already has a strong track record in research outcomes concerning violence and abuse and plans to continue this focus, with several PhD students working on aspects of domestic violence and of the identification of successful strategies for dealing with these experiences.

Aspects of the Project address other of DoHA's current strategies and concerns. The Project continues to provide essential evidence for the development and evaluation of the National Continence Management Strategy, with a focus on early intervention. It also provides input to the National Tobacco Strategy, specifically with evidence on the relationships between smoking and gynaecological health that is being used in the development of health promotion messages, and it is providing valuable evidence underpinning the Strategy for an Ageing Australia. Acting on Australia's Weight, a strategy of the National Public Health Partnership, also draws on evidence from the project on obesity, physical activity and lifestyle.

While the Project is funded by the Commonwealth, the priorities of State and Territory Governments are also of relevance. These priorities are generally informed by the National Women's Health Policy and National Health Priority Areas, and thus the aims of the Project address the issues that have been identified at a State level. The Victorian Women's Health and Well-Being Strategy, for example, stresses the need for a better understanding of the social determinants of health, and focuses on issues of violence against women and mental health. In New South Wales, the Women's Health Outcomes Framework emphasizes reproductive health, mental health, violence, employment-related health issues, and gender issues. The Project is well positioned to provide both national and State-based data on these and related issues, and the research team would welcome a stronger role for State instrumentalities, for example by the inclusion of a State-based representative of the National Public Health Partnerships on the Project Advisory Committee.

1.2.3 Plans for conduct of the Project for 2003-2008

Overview

Table 2 summarizes the overall proposed timeline for surveys for 2003-2008. This timeline is consistent with practice over the previous 5-year period. It continues with an annual schedule of main cohort surveys, together with annual piloting and other preparatory work for the following year's main survey, a structured programme of substudies, and a programme of other contacts and requests.

The timing of the main studies and associated pilot work is relatively fixed; the substudies may be subject to some alteration within the constraints of the Project. This work programme will be supplemented by two newsletter mailouts per year, which will provide information and feedback to study participants as well as assist in tracking of changes in address.

Table 2 Proposed survey timeline 2003-2008

Cohort	2003	2004	2005	2006	2007	2008
Younger	* Survey 3 (age 25-30)			* Survey 4 (age 28-33)		
		* Request for consent to HIC data linkage	* Pilot Survey 4 * Social roles and motherhood substudy wave 1		* Social roles and motherhood substudy wave 2 * Request for consent to HIC data linkage	* Pilot Survey 5
Mid		* Survey 4 (age 53-58)			* Survey 5 (age 56-61)	
	* Pilot Survey 4	* Request for consent to HIC data linkage	* Chronic disease and comorbidity substudy	* Pilot Survey 5	* Request for consent to HIC data linkage	
Older			* Survey 4 (age 79-84)			* Survey 5 (age 82-87)
		* Chronic disease and comorbidity substudy. * Pilot Survey 4 * Request for consent to HIC data linkage			* Pilot Survey 5 * Request for consent to HIC data linkage	
Additional substudies (students/ collaborators)*	* Up to 4	* Up to 2	* Up to 2	* Up to 4	* Up to 2	* Up to 2

**Additional substudies are dependent on financial support*

1.3 SUMMARY OF COLLABORATIVE RESEARCH ACTIVITIES

1.3.1 Projects completed by WHA investigators and collaborators

Project	Quality and accessibility of health care for women in Australia with diabetes
WHA Investigators:	Dr Anne Young, Dr Amanda Patterson, Associate Professor Julie Byles & Dr Julia Lowe
Funding:	Diabetes Australia

This project, which has been under way since early 2001, has been the subject of detailed progress reports in Reports 16 and 17. The data collection and main analysis stages of this project are now complete, and the following report was prepared for Diabetes Australia.

Stage 1

Aim: To report on the prevalence of diabetes; risk factors for diabetes (such as inactivity, overweight and obesity); and the health, functional status and access to health care services for women with and without diabetes.

Method: At the time of Survey 1 in 1996 the women in the three age cohorts were 18-23 years (young), 45-50 years (mid-age) and 70-75 years (older). Survey 2 was conducted in 1998 for the mid-age cohort and 1999 for the older cohort. Responses to the questions on diabetes in Survey 1 and Survey 2 for the mid-age and older women were used to define diabetes status. The surveys also included questions about whether the women had conditions such as hypertension and heart disease. Health related quality of life was measured at Survey 1 and Survey 2 using the SF-36 scale, which includes eight dimensions of health such as general health and physical functioning. Self reported height and weight were used to compute body mass index (BMI), and functional status was also assessed by asking whether the women needed help with daily tasks because of long-term illness, disability or frailty. Other measures at both Survey 1 and Survey 2 included use of health services and medications, smoking and alcohol use, and sociodemographic variables.

Results: At the first survey 236 (2%) of the 12,230 mid-age and 840 (8%) of the 10,421 older women reported they had “ever” been diagnosed with diabetes. Women who reported having been diagnosed with diabetes by Survey 2 but not Survey 1 were considered to be diagnosed after Survey 1 (n=141 mid-age and n=266 older women) and the remaining women were defined as not having been diagnosed with diabetes (n=11,853 mid-age and n=9,315 older women).

Women diagnosed with diabetes prior to Survey 1, and those diagnosed after Survey 1, reported poorer health and greater use of health services and medications than women without diabetes (see Table 3). The women who were diagnosed with diabetes after Survey 1 also had higher levels of risk factors such as hypertension and obesity at Survey 1 than women who did not go on to develop diabetes.

Stage 2

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

Method: Medicare/DVA data for 1997-1999 were analysed for women who gave consent for the release of their information. Use of general practice and specialist services, as well as use of specific pathology services such as HbA1c and lipid tests, were examined for each year.

Results: Medicare data showed increased health service use and expenditure over time (for services outside hospital) for women with diabetes (see Table 4). Only half the women with established diabetes had a HbA1c test at least annually (see Table 4).

Stage 3

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

Method: A substudy questionnaire was developed, based on items from existing diabetes questionnaires and using focus group discussions at urban and rural Diabetes Education Centres. The survey was designed to measure the type and duration of diabetes, level and frequency of diabetes care including home blood glucose monitoring, foot and eye care, measurement of HbA1c, lipids, microalbuminuria and retinal screening, and access to diabetes-related health services such as nutrition advice, podiatry services and diabetes education services. Items were also included to measure emotional adjustment in women with diabetes. The survey was pilot tested by mail during June and July 2001. In September 2001, a 16-page survey was mailed to 366 mid age and 1008 older women who said they had ever had diabetes and who were participants in the longitudinal study. Following a protocol of mail and telephone reminders, the response rate was 91% of the mid age and 75% of the older women.

Results: One third of the mid-age women and 15% of the older women who responded said they had only experienced gestational diabetes or that they were "borderline", and did not complete the survey. Of the remainder of the respondents, 30% of the mid age and 40% of the older women had had diabetes for more than ten years. More than half the women were diagnosed when they went to the doctor for another reason. The relationship between quality of diabetes care for these women, their complications and comorbidities, and their social and economic circumstances is being examined. A full report on the diabetes survey findings is in preparation and selected findings are shown in Table 5.

General conclusion: The longitudinal data provide insight into the development of diabetes and its impact on the health and well being of women. The data indicate clear differences in risk factor profiles, health and health service use of women who do and do not develop diabetes, that are evident even before diagnosis. Medicare data showed increased health service use and expenditure over time (for services outside hospital) for women with diabetes although only half the women with established diabetes had a HbA1c test at least annually. This substudy has enabled an assessment of the extent to which the women with diabetes receive recommended medical services and screening, as well as their perspectives on the condition. These findings can be examined in relation to their health, well being and social circumstances. These results will provide a sound basis for health promotion messages and intervention strategies to reduce the burden of diabetes among women.

Table 3 Profile of mid-age and older respondents to Survey 1 (1996), according to diabetes status.

	Mid age women			Older women		
	Diabetes before Survey 1 (n=236)	Diabetes after Survey 1 (n=141)	No diabetes (n=11853)	Diabetes before Survey 1 (n=840)	Diabetes after Survey 1 (n=266)	No diabetes (n=9315)
	%	%	%	%	%	%
Demographic variables						
Urban residence	35	41	36	37	38	40
Indigenous	4	4	1	0.5	0.8	0.3
No formal qualifications	27	24	17	43	41	31
Impossible/difficult to manage on income	56	52	42	33	22	25
Private hospital insurance	42	40	49	38	37	48
Comorbidity						
Hypertension	46	40	20	66	62	46
Heart disease	6	6	2	31	19	15
Eyesight problems	53	54	44	59	51	46
Risk factors						
Body mass index >30	48	52	17	26	27	13
Inadequate physical activity	57	70	58	64	63	55
Current smoker	17	19	17	5	6	7
Alcohol (some risk)	6	4	6	1	5	4
Measures of health						
Need help with daily tasks –						
Survey 1	7	4	2	12	10	6
Survey 2	9	8	3	21	13	9
More than three medications -						
Survey 1	25	12	6	54	35	23
Survey 2	32	17	6	65	52	33
SF-36 mean scores *						
general health - Survey 1	58	66	73	56	64	68
Survey 2	57	63	73	57	62	68
physical functioning - Survey 1	78	78	86	53	57	66
Survey 2	75	78	84	52	57	64

* higher score indicates better health

Table 4 Measures of health service use from 1997-1999 according to diabetes status, for mid-age and older women who consented to Medicare/DVA linkage

	Mid age women			Older women		
	Diabetes before Survey 1 (n=158)	Diabetes after Survey 1 (n=94)	No diabetes (n=8253)	Diabetes before Survey 1 (n=551)	Diabetes after Survey 1 (n=156)	No diabetes (n=6418)
	%	%	%	%	%	%
More than six GP visits						
1997	48	49	25	72	73	53
1998	42	40	25	76	79	56
1999	47	36	26	74	75	59
At least one specialist visit						
1997	48	44	31	62	69	50
1998	47	45	31	66	69	52
1999	46	39	31	66	63	53
At least one HbA1c test						
1997	44	23	0	46	26	0
1998	45	27	0	51	41	1
1999	51	27	1	51	47	1
At least one lipid study						
1997	38	35	16	42	44	25
1998	39	38	18	43	56	28
1999	46	40	21	46	53	31

Table 5 Selected findings for mid age and older women in the diabetes survey

	Mid age women (n=221)	Older women (n=650)
<i>Treatment/control</i>	%	%
Blood tested by meter at home	84	78
Sugar levels tested at least daily	41	40
At least one hypoglycaemic episode in past year	8	11
Taking more than seven medications	9	24
<i>Preventive care</i>		
Heard of HbA1c (long term sugar) tests	57	31
Feet examined in past year	58	72
Back of eyes examined in past year	53	62
Been to a Diabetes Education Centre	66	66
<i>Comorbidity/complications</i>		
Currently being treated for hypertension	51	67
Had heart bypass surgery	2	9
Suffered from/treated for retinopathy	13	25
Poor circulation to the feet/legs	18	43

Conference presentations

1. The Australian Diabetes Society Conference, Gold Coast, September 2001. *The Burden Of Diabetes: Findings From The Australian Longitudinal Study On Women's Health*.
2. The Australasian Epidemiological Association conference, Sydney, September 2001. *Using record linkage in the Australian Longitudinal Study on Women's Health to study the impact of diabetes*.
3. Symposium On Health Data Linkage, Sydney, March 2002. *Putting Data Into Context: Findings From Linking Medicare Health Service Use And Expenditure Data With Longitudinal Health Survey Data*.
4. 16th Australian Statistical Conference, Canberra, July 2002. *Current Challenges In The Measurement And Analysis Of Health Outcomes In The Australian Longitudinal Study On Women's Health* (abstract accepted).
5. Health Outcomes Conference, Canberra, July 2002. *Keeping Diabetes under Control: using Record Linkage to Evaluate Health Care and Health Outcomes for Women with Diabetes* (abstract accepted).
6. International Congress of Behavioral Medicine, Helsinki, August 2002. *How can longitudinal data inform diabetes prevention strategies? Findings from the Australian Longitudinal Study on Women's Health* (abstract accepted).

Papers in preparation

Two papers are in preparation and will be submitted to peer reviewed journals in 2002.

1.3.2 Projects in progress by WHA investigators and collaborators

Project: Illicit drug use by young women
WHA Collaborators: Anne Russell & Professor Wendy Brown
Collaborators: Dr Catherine Turner & Professor Jake Najman (School of Population Health, University of Queensland)

Aim

Consistent with one of the themes of Women's Health Australia, health related behaviour; this proposal is for research into patterns of illicit drug use among young cohort participants. Information on illicit drug use was collected in the second survey to the young cohort (n=9512) in 2000 when these women were aged 22-27 years.

Outcomes to date

We have defined an illicit drug user by excluding women who reported only having used analgesics and steroids. Initial analysis provided evidence that the majority of these women were reporting medicinal uses of these two drugs during their childhood.

We have established that 57% (n=5372) of women have reported drug use at some time, with 54% of these women reporting past use (n=2897) and 46% reporting drug use within the last twelve months (n=2475). The demographic profile of the illicit drug users, in terms of mean age, country of birth, education, occupation and income does not differ from the demographic profile of the women who reported never using illicit drugs (n=4140, 44%).

We have compared the prevalence of ever having used illicit drugs or having used drugs in the last 12 months, and the mean age of initiation, of the WHA cohort to the national AIHW data, which includes males and females and were collected in 1998. The two studies report similar findings (see Section 3.1).

Preliminary univariate analyses of associations between illicit drug use and other variables indicate that current users were more likely to be current smokers, to have intermediate or high alcohol intake, and to be frequent binge drinkers. They appear to be more sexually active, as indicated by higher rates of pregnancy, younger age at first sexual intercourse, higher probability of having had at least one female sexual partner, and a higher rate of sexually transmitted infections (including HIV) and abnormal Pap smears. They differ from others on psychosocial variables, with higher levels of depression and use of prescription drugs for nerves, sleep or depression, and lower social support. They are less likely to be married, and less likely to aspire to marriage than de facto relationships. They are also more likely to have experienced abuse but, unexpectedly, have high levels of physical activity.

Work in progress

Longitudinal data is planned to be used to further explore associations between patterns of drug use (age of initiation, types of drugs being used) and:

- (i) physical, emotional and sexual wellbeing and/or abuse; and
- (ii) relationships and living circumstances from both Surveys 1 and 2 of the young cohort.

Project: Complementary and alternative medicines (CAM) consumption and women's health in Australia
WHA Investigator: Dr Anne Young
Collaborators: Dr Jon Adams, Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle) & Associate Professor Gary Easthope (Department of Sociology and Social Work, University of Tasmania).

This sub-study explores the factors associated with women's consumption of complementary medicines (focusing upon the question 'How many times have you consulted the following people for your own health in the last twelve months?' as the outcome variable). Drawing upon data from Surveys 1 and 2 and also data collected in a substudy undertaken by Dr Young, the study provides a preliminary analysis of all possible predictors of women's CAM consumption followed by focused analyses of a number of variables identified as key predictors. While focus is upon all predictor variables, a number of areas are of particular interest: age, urban/non-urban residence, socio-economic status, utilisation of conventional health services, particular conditions/illnesses, women's self perceptions of health status.

Project: Who does not gain weight? Prevalence and prediction of weight maintenance in young women.
WHA Collaborators: Dr Kylie Ball & Professor Wendy Brown
Collaborator: Dr David Crawford (School of Health Sciences, Deakin University)

Longitudinal analyses of Young Surveys 1 and 2 data have been completed and results identify several behavioural factors (takeaway food, sedentary behaviour) predictive of weight maintenance over time. A paper based on these analyses was submitted for publication to the International Journal of Obesity and favourable reviewers' comments have been received and addressed in April. We anticipate a final decision on the paper's acceptability for publication by June 2002.

Project: BMI and aspirations analyses: young cohort.
WHA Collaborators: Dr Kylie Ball & Associate Professor Justin Kenardy
Collaborator: Dr David Crawford (School of Health Sciences, Deakin University)

This study aims to investigate associations over time between BMI and young women's aspirations for family, education and career, controlling for socio-economic status. Preliminary cross-sectional analyses of BMI, aspirations and young women's life satisfaction have been conducted. Analyses, including longitudinal analyses of associations between these variables, are continuing.

Project: Time use in Australia and Canada
WHA Collaborator: Professor Lois Bryson
Collaborator: Dr Michael Bittman (Social Policy Research Centre, University of New South Wales)

This analysis involves comparison of WHA responses to the questions “How often do you feel rushed/pressured/too busy?” and “How often do you have time on your hands that you don’t know what to do with?”, to Canadian responses to identical questions. It also involves longitudinal analysis to identify characteristics of people who continue to feel rushed/pressured/ too busy across two or more surveys.

Project: Analyses of socioeconomic predictors of women's health
WHA Collaborators: Dr Gita Mishra, Dr Kylie Ball, Professor Annette Dobson & Associate Professor Julie Byles

A number of analyses have been completed in this area and three papers based on these analyses have been written. Results show complex relationships between different domains of socioeconomic status and women's physical and mental health; health service utilisation; and health change over time. One paper has been accepted for publication in the International Journal of Behavioral Medicine and two others will be submitted for publication shortly.

1.3.3 Completed postgraduate theses (since December 2001)

Project: Multiple imputation for multivariate continuous data
Candidate: Helen Parker (Department of Mathematics, University of Queensland)
Degree: BMath(Honours)
Supervisor: Professor Annette Dobson

Missing data are a problem in many data sets and are especially common in the medical and social sciences. Until recently, the only available methods for analysing incomplete data have been relatively ad hoc procedures such as case deletion and simple mean imputation. These ad hoc methods, while simple to implement, have serious drawbacks. Modern missing data techniques, which substantially improve upon old ad hoc methods, are now becoming available to data analysts and amongst these new procedures is multiple imputation. Multiple imputation is a simulation technique that replaces each missing datum with a set of $m > 1$ plausible values drawn from their predictive distribution producing m versions of the complete data. The m multiply imputed data sets are identically analysed using standard complete data methods and the results are combined using simple rules to yield overall estimates, standard errors, and p -values that reflect missing data uncertainty. This thesis reviews the essential features of multiple imputation and presents a practical application using data from the Women’s Health Australia study.

1.3.4 Student projects in progress

Project: Contraceptive behaviour of young women in Australia
Degree: Master of Public Health
Candidate: Dr Samantha Hollingworth (School of Population Health, University of Queensland)
Supervisors: Professor Annette Dobson & Ms Anne Russell
Expected Completion: June 2002

Objective

To determine which socio-demographic factors and health-related behaviours are associated with contraceptive use and type used in young Australian women.

Methods

The study sample comprised 14779 women aged 18-23 who participated in Survey 1 in 1996 of the Women's Health Australia study. Of these, 9683 women aged 22-27 participated in the second survey in 2000. Self reported use and type of contraceptive and other factors were measured. Associations between contraceptive behaviours and socio-demographic and health-related behaviours are being examined.

Results

71% of young women reported being contraceptive users in 1996 compared to 77% in 2000. Of the contraceptive users, the oral contraceptive pill alone (OCP) comprised 51% in 1996 and 55% in 2000. Women in de facto relationships were much more likely to use contraception than married or never married women at both times. Immigrant women and women of NESB (non-English speaking background) were much less likely to use contraception but of those who did, they were more likely to use condoms and other methods compared to OCP use alone. Among women aged 18-23 those in rural and remote areas were more likely to use contraception and more likely to use OCP alone compared to urban women, but this difference decreased for women aged 22-27.

Conclusions

Most young Australian women use contraception. They are more inclined to take the OCP than any other method. Women in lower socio-demographic groups, however, appear to be lower users and tend to use less reliable methods.

Implications

Health promotion, education, and the improvement of availability may increase the uptake of more reliable methods of contraception in young women of the lower socio-demographic status.

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

This study addresses the question of why many women gain weight in mid-life (45-55 years) through analysis of the main WHA survey results and a nested cohort study of weight change in menopausal women. Longitudinal analysis of the weight data for the mid-aged WHA cohort showed that mid-age is a time of weight gain for at least some Australian women. After excluding women with surgical menopause, the mean weight gain of the cohort was 1.0 ± 4.7 kilograms. One

third of these women gained 2.25 kg or more in just two years, an amount shown to be clinically significant in terms of contributing to the “metabolic syndrome”. Sixteen percent of these weight gainers increased their weight by twice that amount or more. Fifteen percent decreased their weight by 2.25 kg or more in the two year period. Half the cohort maintained their weight within the range of ± 2.25 kg (~5lb).

Previous reports documented the finding that women in the late stages of peri-menopause (amenorrhoea for 3 months but less than 12 months) have significantly higher body mass index than women at other stages of menopause. Longitudinal analysis of weight gain according to menopause transition has now been conducted. A general linear model of the relationship between menopausal transition status and weight gain showed that women who progressed through menopause (pre to post) in the two year period experienced the highest mean weight gain (1.5 kg), followed by those going through stage two (peri to post) (1.1 kg) after controlling for age, height, weight, geographic location, smoking and exercise at baseline. Women who maintained premenopausal status or those who progressed from pre to peri menopausal had the lowest mean weight gain (0.9 kg). Analysis is continuing on the sub-study comparing weight-gaining with non-weight-gaining menopausal women, expected to be completed during 2002.

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

Data collection for study 2 (prospective study of 200 unstable angina patients over a one year period) has been completed and data analysis is being undertaken. Data collection for study 3 (cross-sectional study relating psychophysiological measures with angina frequency in 36 stable angina patients) has also been completed. The thesis should be submitted at the end of the year.

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

Aim

To elaborate on quantitative models of domestic abuse developed from the Mid-aged Surveys 1 and 2, as described in previous reports. These models showed that women who had ever lived with a violent partner/spouse experienced worse psychological and physical health than other women. Furthermore, stress, life events, social support, education, income, and smoking mediated the relationship between domestic violence and health.

Method

In order to determine the context and temporal location of domestic violence and to further elaborate on the occurrence of the mediating factors, qualitative interviews were conducted by telephone with 28 women from the mid-age sample, who had left a violent relationship.

Preliminary outcomes

The women who were interviewed experienced physical, verbal, emotional, and/or sexual abuse. Frequency of abuse ranged from intermittent to every day, abuse onset varied from prior to the start of the relationship to beginning several years into the relationship. Duration of abusive relationships ranged from 18 months to 30 years. The age range of entering into the relationship was from 16-34, with most women entering into the relationship in their late teens and early twenties. Of the 28 interviews, 27 concerned heterosexual relationships, and 1 concerned a same sex relationship.

Domestic abuse had a direct relationship with poorer physical and psychological health both during and after the relationships. In all cases health was improved when the relationship ended. However, this was not an immediate effect, and recovery took from a few weeks, to around five years.

Stress was increased both during and after the abusive relationship. Life events tended to be increased when women left the relationship, which resulted in moving house, looking for work, starting new jobs, having contact with the legal system, and so forth. Both increased stress and increased life events impacted negatively on health. Social support was often low during the abusive relationship, largely because women were socially isolated by their abusive partners. Decreased social contact and a lack of social support were related to feelings of low self worth, and to feelings of hopelessness. Most women reported an increase in social contact prior to leaving their partners, and this was related to an increase in confidence and self esteem. However, the direction of this relationship is currently unclear. Destructive social contact, whereby women reached out to family members for support and were rejected, resulted in increased self-blaming, and to women staying in relationships longer than they otherwise would have.

Income management was difficult for some women during the relationship because of income restrictions imposed by their partners. A lack of financial independence was linked to feelings of low self worth, and a lack of financial resources was linked to delayed leaving.

Education did not seem to be related to domestic abuse, however, after leaving many women undertook various education courses that they found to be beneficial to their self-esteem and confidence. The relationship between lower education and domestic violence found by the quantitative research may reflect the age of women entering relationships, many of whom had not finished high school beforehand.

Smoking tended to increase during the relationship, with some women taking up smoking during the relationship. Some women reported that they started to smoke and drink at the end of their relationships as a form of defiance or rebellion, while other women reported that they began drinking heavily or binge drinking after the end of the relationship. Additional factors that emerged as potential mediators included area of residence, the presence of children in the relationship, responses from legal and health professionals, and the social and historical contexts in which abuse had occurred.

Current status

Qualitative analyses will be completed by 30 June 2002. The period of PhD candidature at the University of New England expires February 2003.

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

This PhD thesis continues to evaluate abuse experience among Australian women, and its effect on general health and well-being. To date, reports have included general descriptive data, predictors of poor physical and emotional health, assessment of health and socio-economic status, and qualitative assessment of respondents' insights and observations from the 1999 survey. Examination of the qualitative responses to the November 2000 abuse survey on coping strategies has commenced, and will be followed by analysis of objective measures in the same survey. The aim is to formulate a conceptual model of coping repertoires used by abused women to accommodate and positively manage adversity, in order to develop intervention strategies to assist other women in similar situations.

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

This project aims to investigate childlessness amongst Australian women. It seeks to develop a better understanding of why childless women have not given birth to a child, the role of choice in this reproductive outcome, and their feelings about being childless. To complement data already collected by Women's Health Australia, a survey is to be sent to women in the mid-age group of Women's Health Australia who have previously indicated they have never given birth to a child.

Since December 2001, after extensive review, the survey questions were further developed and finalised for ethics approval. Ethics applications have been submitted to both the University of Melbourne and the University of Newcastle, and approval has been granted. Pre-pilot formative interviewing, using a convenience sample in Melbourne, is currently under way.

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

Hysterectomy is one of the most common gynaecological surgical procedures performed of a non-obstetric nature. Australian statistics indicate that just over one in ten women will undergo a hysterectomy by the age of 40, and around one in five women will undergo a hysterectomy before the age of 50. The appropriateness of hysterectomy to treat non-malignant conditions has been debated in recent years. A variety of procedures, less dramatic than hysterectomy, are available to treat menstrual symptoms successfully. Factors such as socio-economic status, social support,

geographical location and education, menopause, emotional and sexual consequences, may also influence a women's satisfaction with the outcomes of hysterectomy. To investigate these issues, two studies are being conducted.

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

The second study is a cross-sectional study and aims to determine the characteristics of women who choose hysterectomy as a treatment for menstrual symptoms and to identify relationships and pathways from menstrual symptoms to hysterectomy. The cross-sectional study data collection, data entry and analysis have been completed. The preliminary results indicate that the women are generally satisfied with their hysterectomy. However, very few of the women had tried other treatments for their menstrual symptoms prior to hysterectomy. Some of the characteristics and relationships that have been identified include the amount of information available about treatments for menstrual symptoms and the number of treatments tried, geographic location and the influence of friends on the decision-making process, geographic location and access to health professionals and the number of treatments tried, menstrual symptoms experienced or diagnosed.

Project: Young women, health, class, neighbourhood and health
PhD Candidate: Ms Lisa Milne (Department of Sociology and Anthropology, University of Newcastle)
Supervisors: Dr Deirdre Wicks, Dr Gita Mishra & Dr Pam Nilan
Funding Source: Departmental Grant, Department of Sociology and Anthropology, University of Newcastle
Expected Completion: November 2003

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

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

Survey returns are complete and the data are being analysed at present. The response rate was around 50%. Initial results have been encouraging, in terms of increasing confidence in the general applicability of the earlier qualitative results.

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

The four key life stage transitions being studied - living arrangements, employment, relationships and motherhood - have been defined. A combined variable for all four life stages has also been defined. These variables are currently being utilised in conjunction with stress, health and health behaviour variables to describe the WHA young cohort at Survey 1, Survey 2 and the transition in between.

A substudy targeting the exact order and timing of transitions is about to begin. The substudy has ethics approval, and has been combined with other researchers to ensure a larger sample of the original cohort can be included. Questions on the timing and spacing of transitions in the four key life stages have been included along with stress and life satisfaction questions. Participants are also asked if they would like to participate in a phone interview. Phone interviews will take place around August 2002 for around 20 to 40 participants

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

This study aims to identify psychosocial risk factors of late adolescent pregnancy and pregnancy risk-taking. Two stages to this project will be combined in order to achieve this aim. Firstly existing WHA data from Surveys 1 and 2 of the young cohort are being analyzed for participants aged 18 to 20 at Survey 1. Variables such as depression, mental health and psychological well-being, educational qualifications, vocational aspirations, geographical location and socioeconomic status will be examined as possible predictors of subsequent pregnancy and contraceptive use. This stage of the project is currently underway. Secondly, a substudy is being conducted, in which approximately 150 of the youngest women from the young cohort will be surveyed to determine their level of pregnancy risk-taking. Pre-existing information on their psychological status will then be used to identify possible risk and protective factors for pregnancy risk-taking, which is defined as inconsistent and non-optimal use of contraception. Currently, a pilot study of the survey for the substudy is being conducted, the main planned for the second half of 2002.

Project: Methodological issues in the analysis of the Australian Longitudinal Study on Women's Health data.
PhD Candidate: Ms Nadine Smith (School of Population Health, University of Queensland)
Supervisors: Professor Annette Dobson, Professor Wendy Brown, Professor Gail Williams
Funding Source: NHMRC Public Health Postgraduate Research Scholarship
Expected Completion: January 2005

Aims

The broad research aim is to refine statistical tools for use in longitudinal analysis. More specifically the goals are to identify and refine statistical tools to examine the complex relationships between personal characteristics and environmental factors of participants in the older cohort of the Australian Longitudinal Study on Women's Health (ALSWH).

The substantive research questions surrounding health issues in the older cohort of the ALSWH will be assessed not only for their contribution to the understanding of the health and well-being of older Australian women but also for their contribution to statistical methodology.

Method

The study sample includes women in the older cohort and may be extended to include women in the young and mid-age cohorts. Data collected from Survey 1 (1996), Survey 2 (1999) and Survey 3 (2002) of the old cohort will be used for analysis.

Statistical modelling and data simulation will be conducted to address statistical issues in the ALSWH data set. These issues include analysis of the treatments of missing data, the creation of composite variables and the measurement of latent variables. Of particular interest is investigation into factor analysis of scales that have both positively and negatively phrased items.

Outcomes so far

Scales often contain items which are worded in opposite directions and are intended to reflect both ends of the continuum of the construct of interest. Factor analysis of scales that contain both positively and negatively worded items often suggest the existence of two distinct factors, one representing the positive items and the other representing the negative items.

The *ideal point* theory states that people will agree with items close to their trait or "true" score and disagree with items far from their trait in either direction. For example, a person with a moderate negative view may agree with moderate negative items and disagree with moderate and extreme positive items. Further, they may also disagree with extreme negative items even though the items are in direction of their viewpoint.

The *ideal point* theory will be tested using item data simulations to determine if this theory accounts for data that has one "true" factor forming two factors based on item wording. The study will investigate whether the suggested distinct factors are substantially meaningful or just a reflection of response style. Further, it will determine which item response conditions lead to data that have one "true" factor forming two factors based on item wording. The simulated item responses incorporated components of trait or "true" viewpoint on construct of interest, random error (standard normal), item direction (positive or negative) and item distribution (ranged from symmetric to very skewed). Factor analyses were conducted on 4, 8, 16 and 32 items for each trait and item distribution combination.

Results so far suggest that very skewed items can lead to a "fake" factor based on item direction. It seems that the underlying distribution of the trait or "true" score has little effect on apparent factor

structure. It is very important to look at item response distributions for scales with positive and negative items. It is inappropriate to rotate the principal components unless the initial solution factor loadings suggests a two factor structure. This is true even when the second eigenvalue is well above 1.

Further simulation of data with a “true” two factor structure will be carried out, to enhance knowledge of conditions leading to “fake” factors because of item direction. This section of the project will focus on how a “true” two factor solution in a two factor model differs to a “fake” two factor solution in a one factor model.

2 CONDUCT OF SURVEYS

2.1 MAIN COHORTS

2.1.1 Mid-age cohort Survey 3 (final stages)

Survey 3 of the mid-age group was conducted during 2001, and the process was described in detail in Reports 16 and 17. Table 6 provides a summary of response rates to Survey 3 at 6th May 2002. Two batches of completed surveys were sent from the Project office in Newcastle to NCS in Melbourne for scanning. The resultant database has now been cleaned and checked by Jean Ball, the WHA data manager. Anomalies have been identified and resolved, and the data are now available for analysis by the research team. Preparation of the data book for this cohort will begin in the second half of 2002.

Table 6 Final response rates for Mid-age Survey 3 (at 6 May 2002)

	Freq	%
Surveys mailed	13,148	
Completed surveys	11,224	85.4
Deceased	26	0.2
Withdrawals	152	1.2
Lost	418	3.2
Will not do survey this time	1,142	9.3
No contact	186	1.5

A feature of Survey 3 of the mid-age cohort was the inclusion of the Cancer Council of Victoria’s Food Frequency Questionnaire (FFQ). This was scanned as part of the main survey, and data on the survey responses will be included in the databook for Mid-age Survey 3. As well as this, the Cancer Council of Victoria has developed an algorithm which allows estimates to be made of total caloric intake and of a range of macro- and micronutrients. A database of FFQ responses was extracted from the Mid 3 database and sent to the Cancer Council of Victoria in April 2002. A total of 11,102 scanned responses were sent for analysis. The first round of analysis produced 8,111 coded responses, plus 2,991 with missing data that could not be processed at this stage. Work on reducing missing data is currently under way. Analysis of these data is planned to begin in the second half of 2002, with a meeting between Kylie Ball, Wendy Brown, Gita Mishra, and Amanda Patterson to be held in the UK in September.

2.1.2 Older cohort Survey 3 (in progress)

Following the process of development and piloting described in Reports 16 and 17, Survey 3 for the older cohort was finalized in December 2001. The letter to participants, survey and reminder card are included in Appendix 2.1. These were approved by the University of Newcastle Human Research Ethics Committee, and following the tender process, NCS was selected to print, pack, mail and scan the materials.

Table 7 summarizes the timetable for Survey 3 of the Older Cohort, and Table 8 the response rates at 6th May 2002.

Table 7 Timetable for Older Survey 3

Date	Mailout	Items	Number
8 March 2002	Mailout 1	Package mailed including survey, reply-paid envelope, letter of invitation and change of details card	10,220 mailed
8 April 2002	Mailout 2	Thank you/reminder leaflet mailed to all in Mailout 1, except recent withdrawals and deceased	9,980 mailed
8 May 2002	Mailout 3	Reminder leaflet to all non-responders	2,270 mailed
June and July 2002	Extra mailouts	Packages will be mailed (as Mailout 1) to: <ul style="list-style-type: none"> those previously not sent surveys because of no current contact details, who have since have given new contact details; those who elected to have telephone interviews; those who rang to say they received a reminder but did not receive the first survey. 	Approx 300
June – August 2002	Phone reminder	Reminder phone calls to all non-respondents will be carried out	Approx 1,800

Table 8 Response rates for Older Survey 3 (at 6th May 2002)

	N	%
Completed surveys	7,649	74.8%
Deceased	42	0.2%
Withdrawn	141	1.4%
Not this time	19	0.2%
No contact to date	2,359	23.1%
Lost to follow-up	10	0.1%
TOTAL	10,220	

Survey 3 of the older cohort is progressing smoothly. Use of the National Death Index, as well as use of PostMan mail barcoding software which checks the legitimacy of addresses, appears to have been extremely successful in producing a clean database, and the number of return-to-senders and newly identified deceased is very low.

2.1.3 Younger cohort Survey 3 (in development stages)

Preparation for the third survey of the younger cohort, which is scheduled to take place from March 2003, began in March 2002. The younger women will be aged between 25 and 30, and the research team are confident that tracking will become easier as these women become older. The response rate to Survey 2 (76%) of the younger cohort was considerably lower than those obtained for the other cohorts. This was explained by the very high degree of mobility among young women.

The research team is currently identifying questions which may be excluded from Survey 3 of the younger cohort because the information will not have changed (e.g. birth weight) or because they are of peripheral interest (e.g. Inventory of Psychosocial Balance); questions which need modification (e.g., contraception and gynaecological items); and questions which might usefully be added (e.g. a measure of dietary intake). Restrictions on modification include the necessity of maintaining consistency for longitudinal analysis; a perception that a longer survey might be unacceptable to many respondents; additional costs for printing and postage of a longer survey; and the need to pay copyright holders for some materials.

A meeting on the research team is scheduled for 14th June 2002 in order to finalize the content of Young Survey 3. This will be submitted to University of Newcastle Human Research Ethics Committee in July, and piloted during August to October. Analysis of pilot responses will include assessment of overall response rates, and identification of questions with high rates of missing data, those with no or negligible variance, and those identified by pilot respondents as problematic. Revision of the survey and ethics clearance are scheduled for November, with calls for tenders to go out in December.

2.2 SUBSTUDIES

The diabetes substudy, of all older and mid-age women with a diagnosis of diabetes, is described in detail in Section 1.3.1. A number of papers and conference presentations from this work are planned.

Several smaller substudies are in progress, or are planned for the second half of the year. Lauren Miller (PhD student at Flinders University) is working on a substudy that investigates contraceptive risk-taking among young women. This involves administration of a detailed survey on use of contraception to women who have never been pregnant. Ethics clearance from Newcastle and Flinders has been obtained, and piloting is currently under way with a sample of 20 young women. The responses so far indicate that as many as a third of those who had never been pregnant at Survey 2 (main cohort in 2000, piloted in 1999) are now mothers, pregnant, or actively seeking to become pregnant.

Kylie Ball and Sandra Bell are working together on a single substudy that will address two questions. Kylie's work, funded by an NHMRC grant, focuses on the characteristics of young women who maintain a healthy weight. Sandra's is a component on her PhD and involves the collection of detailed information on the timing of important life transitions. The survey will go to 1,200 of the younger women, half of whom will have maintained a steady body weight (Survey 2

weight within the range of 95% - 105% of Survey 1 weight) and half of whom will have gained weight (Survey 2 weight more than 105% of Survey 1 weight). The selection criterion is necessary to test Kylie's hypothesis and is irrelevant to Sandra's, and thus it is possible to combine two investigators' needs for information into a single mailout to one group. This project has received clearance from human research ethics committees at Deakin and Newcastle Universities and is in the final stages of survey layout, tendering for printing, and sample selection.

Heather McKay, a PhD student at the Key Centre for Women's Health at the University of Melbourne, has obtained ethics clearance for a substudy of mid-age women who have never had a child, and is working on pre-pilot exploratory interviews in Melbourne. Beverley Lloyd, a PhD student at the University of Sydney, is at much the same stage with a proposed substudy that will involve qualitative interviews with young women who combine motherhood, paid work, and a relationship. Both these substudies are planned for the second half of 2002.

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

3.1 ITEMS ON RECREATIONAL DRUG USE – YOUNG SURVEY 2, 2000

Survey 2 of the younger cohort included questions on the recreational use of drugs. These items had not been included in Survey 1 because of concerns about perceived intrusiveness and legal questions relating to the confidential status of information about illegal activities. The items were included in Survey 2 as a result of continuing evidence for the prevalence of illicit drug use among young Australians, as well as a number of comments from the young women themselves on the importance of this issue to young Australians' health. Changes to the legal responsibilities of researchers who become aware of illegal activities also meant that these data could be maintained confidentially.

The items were selected on the basis of then-unpublished data from the National Drug Strategy Household Survey ((NDSHS) see Miller & Draper 2001). The twelve drugs/drug categories with the highest reported level of use among young Australians were listed, and respondents indicated for each whether they had ever tried the drug, their age when they had first tried it, and whether they had used it in the previous year. The item began with a statement that "The following question asks about the use of drugs for NON-MEDICINAL purposes". Respondents had the option of stating that they had "never used any of these drugs" and leaving the entire item blank; this option was marked by 34.8% of participants, with another 0.9% leaving all drug-related items blank.

This report, prepared by Anne Russell with input from Sandra Bell and Christina Lee, examines responses to the drug-related items and identifies potential problems in the interpretation of responses to two specific sub-items.

Table 9 compares findings from the National Drug Strategy Household Survey (1998) and Young Survey 2 (2000). Rows are arranged in order of decreasing prevalence of lifetime use in the national survey. The rank order for prevalence of use is similar in the two samples, but WHA young survey prevalences are generally higher than the NDSHS data for Australians aged 14 years and older. Mean age of initiation is consistently lower in the WHA sample. Differences in means generally range from 0.1 to 1.9 years, with higher mean differences for tranquillisers (3.6 years), steroids (4.9 years) and analgesics (7.2 years). The standard deviation for age of initiation of drug use is similar for most drugs (2.3 to 2.9), with higher SDs for analgesics (4.2) and steroids (5.7).

The data on analgesic and steroid use need to be interpreted cautiously. As well as the high standard deviations, the minimum reported age of initiation for these two drugs (0 and 2 years respectively) is implausible for recreational drug use (see Table 9). These initial data comparisons suggest that some respondents may not have understood that the question focuses on *non-medicinal* use. This is particularly a concern with analgesics and steroids, two drugs that are legally available for medicinal purposes (while tranquillisers are also used medicinally, they are a widely used and well-known class of recreational drug, and the same is not the case for analgesics and steroids).

It is proposed that analyses that focus on illicit drug use (ever and in the last 12 months) are based not on the 12 drugs originally included but on the remaining 10, excluding analgesics and steroids.

Table 9 Prevalence of recreational drug use in Young Survey 2 (2000) and AIHW surveys

	Prevalence of drug ever used			Prevalence of drug used in last 12 months			Mean (SD) age of initiation (years)	
	WHA	AIHW ¹	AIHW ²	WHA	AIHW ¹	AIHW ²	WHA	AIHW ²
	F 22-27	F 20-29	M & F 14+	F 22-27	F 20-29	M & F 14+	F 22-27	M & F 14+
a Marijuana	55.4	59.2	39.1	22.9	29.3	17.9	17.2 (2.5)	18.7
b Analgesics	37.6		11.5	29.6		5.2	12.5 (4.2)	19.7
d LSD ³	12.5		9.9	2.7		3.0	18.7 (2.3)	18.8
e Natural hallucinogens	4.8			0.7			18.5 (2.7)	
c Amphetamines	14.6		8.8	7.4		3.7	19.6 (2.6)	19.9
f Tranquillisers	4.6		6.2	1.7		3.0	19.8 (2.9)	23.4
h Ecstasy/designer drugs	12.5		4.8	7.8		2.4	20.8 (2.5)	22.7
g Cocaine	5.0		4.3	2.2		1.4	21.1 (2.4)	22.3
i Inhalants	1.7		3.9	0.2		0.9	16.2 (2.8)	17.5
j Heroin	1.2	6.2	2.2	0.4	2.9	0.8	19.9 (2.4)	21.5
k Barbiturates	0.5		1.6	0.1		0.3	18.9 (2.7)	19.7
l Steroids	0.4		0.8	0.1		0.2	16.7 (5.7)	21.6
Any Illicit drug	64.0		46.0			22.0		18.8

¹ Australian Institute of Health and Welfare. 1998 *National Drug Strategy Household Survey: First results*. AIHW cat no. PHE 15. Canberra: AIHW (Drug Statistics Series), 1999.

² Miller M & Draper G. *Statistics on drug use in Australia 2000*. AIHW cat no. PHE 30. Canberra: AIHW (Drug Statistics Series no. 8), 2001.

³ National Drug Strategy Survey used the category 'Hallucinogens' which may combine WHA categories d & e

WHA data: N=9,468 (those who completed the full version of Survey 2 and did not leave this entire item blank)

Table 10 Age of initiation of drug use, from WHA Young Survey 2 (2000). N=9,468

Age of initiation (years)	Mean (SD)	Range	N	N missing
a Marijuana	17.2 (2.5)	8-27	5213	46
b Analgesics	12.5 (4.2)	0-27	2968	613
d LSD	18.7 (2.3)	14-26	1150	34
e Natural hallucinogens	18.5 (2.7)	9-26	427	25
c Amphetamines	19.6 (2.6)	10-26	1357	29
f Tranquillisers	19.8 (2.9)	12-27	411	26
h Ecstasy/designer drugs	20.8 (2.5)	13-27	1150	31
g Cocaine	21.1 (2.4)	13-26	456	21
i Inhalants	16.2 (2.8)	9-24	148	15
j Heroin	19.9 (2.4)	13-27	99	16
k Barbiturates	18.9 (2.7)	14-27	37	14
l Steroids	16.7 (5.7)	2-25	26	13

3.2 ASSESSMENT OF PHYSICAL ACTIVITY AT SURVEYS 1, 2 AND 3

This section, prepared by Anne Russell, summarizes the work of the data management group to reach consensus on the scoring of physical activity items.

3.2.1 Survey 1

Survey items

Source

Modified from Commonwealth Department of the Arts, Sport, the Environment and Territories. *Pilot survey of the fitness of Australians*. Canberra: Australian Government Publishing Service, 1992.

Item description: Items are identical for the young, mid and older age cohorts.

Item 1

In a NORMAL week, how many times do you engage in VIGOROUS exercise lasting for 20 minutes or more? (exercise which makes you breathe harder or puff and pant, such as netball, squash, jogging, aerobics, vigorous swimming, etc.)

Response	Code
Never	0
Once a week	1
Two or three times a week	2.5
Four, five or six times a week	5
Once every day	7
More than once every day	10

Item 2

In a NORMAL week, how many times do you engage in LESS VIGOROUS exercise which lasts for 20 minutes or more? (exercise which does not make you breathe harder or puff and pant, like walking, gardening, swimming and lawn bowls)

Response	Code
Never	0
Once a week	1
Two or three times a week	2.5
Four, five or six times a week	5
Once every day	7
More than once every day	10

Data processing

Data processing is identical for the young, mid and older age cohorts.

Summary measure

A recreational physical activity summary variable is calculated as the weighted sum of the codes for these 2 items. The variable name in WHA datasets is *exstat*.

$$\text{Exstat} = 5 * \text{Item 1(vigorous exercise)} + 3 * \text{Item 2(moderate exercise)}$$

Exstat has a theoretical range of 0 to 80. This variable has no units of measurement and is not comparable in any way with measures used in later phases of the study.

Categories: The variable name in WHA datasets is *exgrp*

Exstat score	Activity equivalent	Category (Exgrp)	Code
<5	No activity or moderate activity once per week	None or very low	1
5 - <15	Moderate activity 2-4 times or vigorous activity 1-2 times per week or equivalent combination	Low - Moderate	2
15 - <25	Moderate activity 5-8 times or vigorous activity 3-5 times per week or equivalent combination	Moderate - High	3
2 - <40	Moderate activity 8-13 times or vigorous activity 5-8 times per week or equivalent combination	High	4
40 +	Vigorous activity more than 8 times per week or equivalent moderate activity	Very High	5

Reference

Brown WJ, Mishra G, Lee C & Bauman A. Leisure time physical activity in Australian women: relationship with well-being and symptoms. *Research Quarterly for Exercise and Sport*, 2000; 71: 206-216.

3.2.2 Surveys 2 and 3

Survey items

Source

Modified from Commonwealth Department of the Arts, Sport, the Environment and Territories. *Pilot survey of the fitness of Australians*. Canberra: Australian Government Publishing Service, 1992.

Item description

Items are identical for the young, mid and older age cohorts.

The next three questions are about the amount of physical activity you did *LAST WEEK*. The types of activity we are interested in are:

- WALKING (fairly briskly, including walking to and from work);
MODERATE Leisure-time activities (like golf, social tennis, moderate exercise classes, recreational swimming or cycling, and gardening); and leisure-time activities (the ones that make you puff and pant) ,
VIGOROUS Like vigorous aerobics, competitive sport, vigorous cycling, running, swimming etc.

Please write '0' in the box for each activity you DO NOT do

Item 1

How many times did you do each type of activity LAST WEEK?

Only count the number of times when the activity lasted for 10 minutes or more

- a. Walking (briskly)*
- b. Moderate activity*
- c. Vigorous activity*

Response: Number of times.

Item 2

If you add up all the times you spent in each activity LAST WEEK, how much time did you spend ALTOGETHER doing each type of activity

Example: Walking 3 times for 30 mins each time = 3 x 30 = 90 mins or 1 hour 30 minutes

- a. Walking (briskly)*
- b. Moderate activity*
- c. Vigorous activity*

Response: Time in hours & minutes

Item 3

During the *LAST WEEK*, how much time did you spend *ALTOGETHER* in your *WORK* (paid or unpaid) doing VIGOROUS activity (that is, activity which made you puff or pant such as labouring, farm work, gardening, heavy work around the yard, heavy housework, etc.)?

TOTAL TIME in vigorous work-related activity last week

Response: Time in hours & minutes

Data processing

Data processing is identical for the young, mid and older age cohorts.

Coding missing values and zeros

a) Number of times doing leisure activities (Item 1)

If some items in this group have a non-zero response and no items in this group have a response of 'zero' then code missing values to zero

b) Hours & minutes spent doing each leisure activity (Item 2).

If hours spent doing activities is not missing and the corresponding minutes are missing then code the missing value in minutes to zero. Use the same procedure for minutes not missing and hours missing.

c) Total minutes doing each leisure activities (Item 2) or vigorous paid work (Item3)

If some items in this group have a non-zero response and no items in this group have a response of 'zero' then code missing values to zero.

Item 3 is included in this group because editing of surveys strongly suggested that respondents treated these questions as a single block. Including Item 3 in the process of coding to zero here is also consistent with subsequent surveys, in which these 4 items are presented as a block.

d) Cross-referencing values for number of times (Item 1) and total minutes (Item 2).

If the number of times is zero and the corresponding total minutes is missing then code the missing value for total minutes to zero. Similarly, for zero in Item 2 and missing in Item 1.

Outliers

Some of the responses lay outside plausible limits and the following general principles and specific rules have been applied.

Item 1

Principle: The plausible maxima were set at 21 (3 times a day * 7) for walking and moderate exercise and 14 (2 times a day * 7) for vigorous exercise, giving a maximum plausible number of times for the total of the 3 activities of 56. These maxima are acknowledged as generous.

Rule: If the total of number of times reported for leisure activity (sum of parts a, b and c of Item 1) exceeds 56, then reduce the number of times for each activity in the proportion reported, to give a total of 56. Also, if total number of times cannot be calculated (ie. the number of times for 1 or 2 activities is missing) then those values that are reported should be proportionally reduced, to give a total of 56.

Item 2

Principle: The maximum plausible value for all leisure exercise types was set at 8 hours a day (480 minutes a day) on 5 days per week, ie. 40 hours per week. Eight hours on all 7 days was deemed too extreme. This maximum is acknowledged as generous.

Rule: If the total of leisure time reported (Item 2 hours-a+b+c) exceeds 40 then reduce the hours for each activity in the proportion reported, to give a total of 40. Also, if total leisure time cannot be calculated (ie. the time for 1 or 2 activities is missing) then those values that are reported should be proportionally reduced, to give a total of 40.

Combinations of items 1 and 2

For each type of activity, a number of cases of unusual combinations of the number of times (Item 1) and the amount of time (Item 2) reported are found in the data. Some examples are:

- i) Number of times is zero but amount of time is greater than zero
- ii) Amount of time is zero but number of times is greater than zero
- iii) Relatively high values of minutes per time
- iv) Relatively low values of minutes per time
- v) Specific combinations: more than 480 minutes when the number of times reported is 1
- vi) Specific combinations: number of times greater than 24 and total time less than 240minutes

No systematic methods for dealing with these extremes were found.

Summary measure

Processes are identical for data from the young, mid and older age cohorts.

Rationale and calculation

Physical activity (PA) can be assessed in terms of energy used, and measured in either kilocalories (kcal) or METS. METS is a unit of resting metabolic rate (RMR) that varies with sex, age, height and weight and is usually taken to be 3.5ml oxygen/kg/minute. As each litre of oxygen provides approximately 5 kcal energy/minute, 1 MET is equivalent to 0.0175 kcal/minute.

MET values have been estimated for many activities and “generic” values of 3.5, 4 and 7.5 have been assigned for walking, moderate activity and vigorous activity respectively. The MET values for moderate and vigorous activities are based on published values of actual activities (Ainsworth, Haskell, Leon et al) and on the actual activities reported in responses to questions about moderate and vigorous activity in a 1996 NSW physical activity survey (Bauman, Chey, Brown and Booth). The value of 3.5 for walking is the mean of values for slow, moderate and brisk walking.

A score for PA, in mets.minutes, has been developed from the questions used by WHA (Brown and Bauman) and is calculated as

$$\begin{aligned} \text{METs.minutes} &= 3.5 * \text{minutes walking} \\ &+ 4.0 * \text{minutes moderate activities} \\ &+ 7.5 * \text{minutes vigorous activities} \end{aligned}$$

Statistical use of the mets.minutes variable

Many women do not exercise at all, and so have zero mets.minutes of recreational physical activity. There are in fact so many zeros that the variable cannot be used as continuous variable for statistical analyses. Options for analysis are:

- a) Create a binary variable that takes the value 0 when mets.minutes is zero and 1 when mets.minutes is positive, that is, classify women as exercisers or non-exercisers. Further analyses of exercisers alone could be undertaken, using mets.minutes as a continuous variable. However, neither the raw or log transformed values were approximately normally distributed and so this approach is also unsuitable.
- b) Define ordinal categories of exercise use. This is the recommended method for analysis.

Categories

Categories are identical for the young, mid and older age cohorts.

For purposes of categorisation, moderate activity for 30 minutes 5 times per week (150 minutes) has been defined as a 'threshold' for health benefit. So the cut-point for health benefit versus no healthy benefit is 150 mins * 4 METs, or 600 mets.minutes. This threshold can be achieved through combinations of walking, moderate and vigorous activities.

The conversion from kcals to mets.minutes is based on the assumption that 1kcal is equivalent to 1 MET for a 60kg person.

Categories commensurate with those used in previous national PA surveys have been assigned in terms of kcal, mets.minutes and minutes of moderate intensity activity per week (see table). Categories for kcal were developed by Bauman, Bellew, Booth et al and are based on calculations for an 80kg person. The mets.minutes variable is independent of body weight.

PA Categories	kcal/week	mets.minutes /week	Mins of moderate activity/week
Nil/sedentary	0 - <50	0 - <40	0 - 10
Low	50 - <800	40 - <600	11 - 150
Moderate	800 - <1600	600 - <1200	151 - 300
High	> = 1600	> = 1200	>300

Reference

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.

4 MAINTENANCE OF COHORTS

4.1 GENERAL PROCEDURES

Cohort maintenance and tracking of “return-to-sender” mail continues according to the strategies outlined in previous Reports. The research team continues to explore additional strategies, but the literature suggests that we are already using every possible strategy that has been identified by others. In a comprehensive review of best practice, Hunt and White (1998) identified the strategies used by the Multicenter AIDS Cohort Study; Nurses’ Health Study; Women’s Health Initiative Observational Study; and St Louis Effort to Reduce the Spread of AIDS Study. We already use all methods identified as useful in maximizing retention, with the exception of some which are impractical or prohibitively expensive. These include cash payments for response (a possibility that was canvassed in focus groups at the commencement of this project, and rejected overwhelmingly by participants); and use of special commemorative stamps on mailings (prohibitively expensive in Australia by comparison with pre-sorted franked mail).

We also use the majority of methods identified by Hunt and White (1998) as useful for locating nonrespondents. We are unable to use some of the suggested methods (e.g. contact participant’s physician, employer, landlord, letting agent) because we consider it unlikely that participants would provide these details to us, or that third parties would provide information to us, and again this would be seen as excessively intrusive by institutional ethics committees. Other methods suggested, such as using driving licence records, marriage records, credit bureaux, taxation records, and social security, are prohibited by the Privacy Act in Australia.

In conclusion, we are satisfied that we currently use every legal and ethical strategy in an effort to maintain the cohorts and to track non-respondents.

Reference

Hunt JR & White E. Retaining and tracking cohort study members. *Epidemiologic Reviews*, 1998; 20: 57-70.

4.2 NATIONAL DEATH INDEX

In January 2002, the National Death Index (NDI) was used for the second time to identify participants who were deceased. The first use of this database, in 1999, had concentrated on the older cohort, but this time WHA provided a list of all women from all cohorts, including the pilot cohorts. A list was provided to NDI, including names and other identifying information (date of birth, state of residence) for all cohorts, including those who we had previously been notified were deceased.

In February we received a file containing 1,230 potential matches of WHA women with those on the National Death Index. This file had two records for each matched participant - one NDI record and one WHA record. Some of the matches were duplicates, which were either one WHA woman matching with two NDI women or one WHA woman matching with one NDI woman twice, presumably because her name appeared twice on the NDI register. The surname had to match exactly, and there were different levels of matching in other fields, namely first name, middle name, date of birth, NDI state of death (matched with WHA state of residence), and NDI date of death (matched with WHA date of last contact).

The first step was to remove from checking all those who were previously identified by WHA as deceased. The next step was to view those who appeared to be total mismatches (every field other

than surname did not match). After clerical checks, these were all classified as not deceased. Next, all those with every field matching were classified as deceased. These steps classified over 85% of matches from the list. The remaining 15% had other checks performed before being classified. Individual consent forms and other details were consulted, including some of the methods normally used for tracking such as electronic white pages checking.

From these results, 221 additional names of older participants were removed from the mailing list for Survey 3 of the Older cohort. As well, 22 mid-age women and 4 younger women, plus one from each age group in the pilot cohorts, were newly identified as deceased.

Tables 11 and 12 summarise the results.

Table 11 Results of matching WHA participant databases with National Death Index

Status	Deceased since withdrawal	New decease notification	Not deceased	Known at WHA to be deceased
Surname matches, all other fields different			9	
Total match of all fields, with first or first and middle names	56	183		
Contact dates inconsistent, all other fields match		8	1	
State differs, all other fields match	1	4	1	
All names match, Date of birth differs	6	16	3	
First name and surname match, middle name missing on one	2	13	15	
First or middle name spelling different or first and middle names transposed	6	20	2	
Middle name differs		6	2	
Contact dates don't match			16	
Match with known WHA deceased				860
TOTAL	71	250	49	860

Table 12 Summary of WHA - National Death Index results by age cohort

Age group	Deceased since withdrawal	New decease notification	Not deceased	WHA known deceased
Young		4	4	19
Mid	3	22	10	102
Older	68	221	34	726
Young pilot		1		1
Mid pilot		1		1
Older pilot		1	1	11
TOTAL	71	250	49	860

5 DATA LINKAGE

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

This report, prepared by Anne Young, summarises the work done so far in analysing the Medicare/DVA claims data for the five-year period 1995-1999. Data for 1995-1996 relating to 19,700 women in the study who consented for their information to be released (consenters) were received in December 1997. These data have already been summarised in previous reports, linked to survey data and the results reported in several publications.

Following a further request in 1999 for women in the study to consent to the release of their identified Medicare/DVA claims data to the research team, the number of consenters rose to 22,633. The Health Insurance Commission (HIC) was contracted in May 2000 to extract details of all services provided during 1997-1999 to these women and these data were provided to the research team in May 2001. The data sets for 1997-1999 contain a relatively small number of services provided in hospital. These services are not a complete measure of hospital use, as services provided in hospital to public patients are not processed by the HIC. Hence this report refers to the analysis of the services provided out of hospital. All analyses were performed using SAS Version 8.

Table 13 shows the number of Medicare/DVA services provided to consenters by age group and year for the five years 1995-1999. The number of services provided to women increased over time, particularly for women in the older age group.

Table 13 Number of services provided to the women who gave consent for their Medicare/DVA data to be released, by age group and year.

Services out of hospital	n	1995	1996	
Young	5,260	48,790	53,217	
Mid	7,898	85,955	87,733	
Older	6,542	115,272	118,314	
Total	19,700	250,017	259,264	

Services out of hospital	n	1997	1998	1999
Young	6,219	62,554	63,375	64,989
Mid-Age	8,883	100,963	103,924	107,687
Older	7,531	147,765	156,396	161,948
Sub-Total	22,633	311,282	323,695	334,624
Services in-hospital		27,739	28,530	30,347
Total		339,021	352,225	364,971

Of the 1,478,882 services provided outside hospital during 1995-1999, the proportion in each broad type of service category for each year and age group is shown in Table 14. The broad type of service categories, and the Medicare Benefits Schedule item numbers in each category, are defined by the HIC and this field is added to each record by the HIC. Unreferred attendances to vocationally registered general practitioners (VRGP) and general practitioners (GP) accounted for the greatest proportion of services. Unreferred attendances to “other medical practitioners” (without specific

general practice qualifications) were more common among younger women. As expected, among women in the young age group, the proportion of services for obstetrics increased over the five-year period.

Table 14 Proportion of services in each broad type of service category, by age group and year.

Broad Type of Service	1995	1996	1997	1998	1999
	%	%	%	%	%
Young					
Unreferred attendances - GP/VRGP	47.8	47.3	46.1	44.4	42.7
Unreferred attendances – other	6.6	6.6	6.8	6.5	5.9
Pathology	29.3	29.3	29.6	31.0	32.1
Specialist attendances	5.7	6.0	6.0	5.8	6.2
Diagnostic imaging	4.0	4.1	4.3	4.6	4.9
Optometry	2.9	2.7	2.7	2.6	2.5
Operations	1.5	1.4	1.5	1.4	1.4
Miscellaneous	0.7	0.7	0.8	0.7	0.9
Obstetrics	1.3	1.8	2.2	2.8	3.2
Radio and nuclear therapy	0	0.0	0	0	0
Anaesthetics	0.2	0.2	0.2	0.2	0.2
	100	100	100	100	100
Mid-age					
Unreferred attendances - GP/VRGP	41.3	40.8	41.1	39.8	39.4
Unreferred attendances – other	4.4	4.6	4.2	4.0	4.0
Pathology	30.0	30.4	30.7	31.6	32.3
Specialist attendances	9.8	9.9	9.4	9.4	9.2
Diagnostic imaging	6.9	6.5	6.6	6.9	7.0
Optometry	3.4	3.4	3.5	3.4	3.5
Operations	2.3	2.3	2.3	2.3	2.4
Miscellaneous	1.5	1.7	1.9	2.0	2.0
Obstetrics	0.0	0.0	0	0	0
Radio and nuclear therapy	0.5	0.4	0.3	0.5	0.3
Anaesthetics	0.1	0.1	0.1	0.1	0.1
	100	100	100	100	100
Older					
Unreferred attendances - GP/VRGP	44.4	44.5	42.8	42.1	41.1
Unreferred attendances – other	3.9	3.6	3.6	3.1	3.0
Pathology	26.9	26.8	29.0	30.3	31.1
Specialist attendances	10.9	10.7	10.5	10.4	10.4
Diagnostic imaging	6.3	6.3	5.9	5.8	6.0
Optometry	2.1	2.3	2.3	2.3	2.3
Operations	2.7	2.8	2.7	2.8	2.7
Miscellaneous	2.6	2.6	2.9	2.9	3.1
Obstetrics	0	0	0	0	0
Radio and nuclear therapy	0.3	0.3	0.3	0.3	0.4
Anaesthetics	0.1	0.1	0.1	0.1	0.1
	100	100	100	100	100

5.1.1 Complexity of a general practice consultation

The Medicare Benefits Schedule (MBS) has several item numbers for use by recognised GPs. The common consultation services provided by recognised GPs are:

- level A obvious problem requiring short history, possible examination and management
- level B selective history, examination and implementation of a management plan for one or more problems or service of less than 20 minutes involving components of level C or level D service
- level C detailed history, multiple system examination, arranging investigations and implementing a management plan for one or more problems, all of this lasting at least 20 minutes or service of less than 40 minutes involving components of level D service
- level D exhaustive history, comprehensive examination of multiple systems, arranging investigations and implementing management of one or more complex problems

Each of these services can be provided at a number of sites such as the surgery, at home, in a hospital, nursing home or other institution and these services are defined by items 3-51 in the Medicare Benefits Schedule. Medical practitioners providing non-referred consultations who are not recognised GPs (eg young locum practitioners) use items 52-96 which are based on the time spent (not on the level of complexity) and the site of the consultation and have lower financial payments. After-hours attendances are classified separately. The item numbers used in these analyses for unreferral attendances are shown in Table 15. All these items are combined in the remainder of this report as a measure of “general practice” attendances, which is the more common term given to “unreferred” attendances.

Table 15 Medicare item numbers corresponding to different levels of general practice consultation, as used in WHA analyses

GP/VRGP	Item numbers	Other medical practitioner	Item numbers
Level A	3, 4, 13, 20	Brief	52, 58, 81, 92
Level B	23, 24, 25, 35	Standard	53, 59, 83, 93
Level C	36, 37, 38, 43	Long	54, 60, 84, 95
Level D	44, 47, 48, 51	Prolonged	57, 65, 86, 96
After hours	1, 2, 601, 602	After hours	97, 98, 697, 698

Table 16 shows the proportion of general practice consultations by complexity/length for consenters over the five-year period, by age group. While most consultations were of standard complexity/length, the proportion of more complex (Level C / long) consultations increased over the five years for all age groups.

The proportion of these general practice consultations each year to qualified general practitioners, rather than to other medical practitioners, is shown in Table 17. Older women were most likely to see qualified general practitioners.

Table 16 Complexity/length of general practice consultations, by age group and year 1995-1999.

	Number of GP consultations*	Level A/ Brief	Level B/ Standard	Level C/ Long	Level D/ Prolonged	Emergency after hours	Total
YOUNG							
(n=5260)							
1995	26,498	1.9	89.5	7.5	0.7	0.6	100
1996	28,526	1.8	88.0	8.9	0.9	0.5	100
(n=6219)							
1997	32,916	1.6	87.3	9.7	0.9	0.5	100
1998	32,082	1.6	86.0	10.8	1.3	0.4	100
1999	31,458	1.3	86.3	11.0	1.1	0.3	100
MID-AGE							
(n=7898)							
1995	38,680	2.2	85.9	10.0	1.4	0.5	100
1996	39,000	1.9	84.8	11.5	1.4	0.4	100
(n=8883)							
1997	45,104	2.0	84.1	11.8	1.7	0.4	100
1998	44,869	2.1	83.2	12.7	1.7	0.4	100
1999	45,777	1.8	83.0	13.0	1.8	0.4	100
OLDER							
(n=6542)							
1995	54,570	2.5	87.3	9.1	0.8	0.4	100
1996	55,912	2.5	86.8	9.7	0.6	0.4	100
(n=7531)							
1997	67,300	2.1	86.8	9.9	0.8	0.4	100
1998	69,553	2.3	86.0	10.8	0.6	0.4	100
1999	70,320	2.1	85.1	11.6	0.9	0.4	100

Table 17 Type of practitioner consulted (as a proportion of all unreferred consultations) by age group and year 1995-1999.

	Recognised GP/VRGP	Other medical provider	Total
YOUNG			
1995	88.1	11.9	100
1996	88.2	11.8	100
1997	87.6	12.4	100
1998	87.7	12.3	100
1999	88.1	11.9	100
MID			
1995	91.7	8.3	100
1996	91.8	8.2	100
1997	92.0	8.0	100
1998	92.2	7.8	100
1999	91.5	8.5	100
OLDER			
1995	93.7	6.3	100
1996	94.2	5.8	100
1997	93.9	6.1	100
1998	94.6	5.4	100
1999	93.9	6.1	100

5.1.2 Summarising general practice consultations for each woman

Part of the program that we have written to summarise the Medicare/DVA data calculates a large number of new variables for each woman for each year. These new variables include the number of GP attendances, total GP charges, total number of bulk-billed attendances, total out of pocket costs for GP visits, total number of visits to registered GPs and other medical providers, total number of GPs visited, greatest number of attendances to one GP (to measure continuity of care), number of female GP attendances, proportion of visits to female GPs, proportion of GP visits bulk-billed, proportion of visits to registered GPs, and average out of pocket cost per GP attendance. As a small proportion of records from 1997-1999 require data cleaning (for example, some have extremely high charges), the results for the financial data are not yet complete.

Table 18 shows the distribution of the number of GP consultations per woman by age group for each year. The distribution is extremely skewed with a small number of women having very high use of GP services. The characteristics of the non-consulters and the very frequent consulters are currently being described, using the WHA survey data. The dynamic nature of the movement of women into and out of the small group of very frequent consulters will also be investigated, so that the medical and social needs of long-term frequent consulters can be better understood.

Table 18 Distribution of number of general practice consultations per woman, by age group and year 1995-1999.

	Number of consultations per woman							
	Total GP visits	Min	First quartile	Median	Third quartile	Max	Mean	Standard deviation
YOUNG								
(n=5260)								
1995	26,498	0	2	4	7	85	5.0	4.7
1996	28,526	0	2	4	7	44	5.4	4.8
(n=6219)								
1997	32,916	0	2	4	7	50	5.3	4.6
1998	32,082	0	2	4	7	55	5.2	4.7
1999	31,458	0	2	4	7	63	5.1	4.8
MID-AGE								
(n=7898)								
1995	38,680	0	2	4	7	70	4.9	5.2
1996	39,000	0	2	4	7	95	4.9	5.3
(n=8883)								
1997	45,104	0	2	4	7	61	5.1	5.2
1998	44,869	0	2	4	7	98	5.1	5.2
1999	45,777	0	2	4	7	149	5.2	5.5
OLDER								
(n=6542)								
1995	54,570	0	4	7	11	129	8.3	7.1
1996	55,912	0	4	7	11	106	8.5	6.8
(n=7531)								
1997	67,300	0	4	7	12	81	8.9	7.1
1998	69,553	0	4	8	12	82	9.2	7.1
1999	70,320	0	4	8	12	145	9.3	7.3

5.1.3 Information relating to medical practitioners

The proportion of services provided to each woman by individual medical practitioners was determined using the anonymous provider number on each claim. The number of different GPs consulted each year was calculated for each woman and is summarised in Table 19.

Table 19 Number of different practitioners seen for general practice consultations, by age group and year 1995-1999.

	Number of practitioners seen per year						Total
	0	1	2 to 3	4 to 5	6 to 7	8 or more	
YOUNG							
1995	9	25	40	17	6	3	100
1996	7	22	42	20	6	3	100
1997	7	22	41	20	7	3	100
1998	8	22	42	19	6	3	100
1999	8	23	43	18	6	3	100
MID-AGE							
1995	10	37	42	9	2	1	100
1996	10	36	43	9	2	1	100
1997	9	36	43	9	2	1	100
1998	9	37	43	9	2	0	100
1999	9	37	43	9	2	0	100
OLDER							
1995	3	41	46	8	1	0	100
1996	3	40	46	9	2	0	100
1997	2	38	47	10	2	0	100
1998	3	37	47	10	2	0	100
1999	4	36	47	11	2	0	100

The older women were most likely to consult a GP at least once in any one-year period. The older women also had the strongest continuity of care, as measured by the proportion of women who only consulted a small number of GPs. The factors associated with consulting multiple GPs, including residential mobility, will be investigated using the linked Medicare/DVA and longitudinal survey data.

Analysis of these data is continuing.

5.2 PROGRESS IN OBTAINING MEDICARE/DVA DATA FOR THE CALENDAR YEARS 2000 AND 2001

Health service use and financial data processed by HIC for the most recent two-year period (2000-2001) are required for several projects within WHA. Firstly, in 2001, almost 900 women completed the diabetes substudy survey and their self-reported use of medical and diabetes-specific services needs to be compared with the administrative data held by HIC. Trends in the use of health services are being investigated, according to the development of chronic conditions, and access to female general practitioners is being assessed using Medicare/DVA data. A new project has been proposed by Julie Byles and Anne Young to describe the uptake of the new Enhanced Primary Care items introduced recently to the Medical Benefits Scheme. These projects all need timely data.

The consent forms completed by women in the study in 1997 and 1999, allowing the research team to have identified Medicare/DVA claims data, only provided consent to access data relating to the seven-year period 1995-2001. Because of this, it was necessary to approach all women who were still participating in WHA, during 2001, and invite them to consent to further data linkage. Requests

for consent were mailed with the annual newsletter in 2001, and to date around 18,000 signed consent forms have been received (see Reports 16 and 17 for details of this process). Almost 3,500 of these consent forms were completed by women who had not previously given consent and 15,000 are “re-consenters”. The revised consent forms cover the release of data for the duration of the woman's involvement with the study. Hence data for the time period 2000-2001 could now also be obtained for the 3,500 “new consenters” in addition to data for the 22,633 women who had previously consented.

In order for HIC to release identified Medicare/DVA claims data, staff in the Privacy Section must check the completed consent forms and verify that the personal details match those on the HIC enrolment database, so that the correct claims data are released. This process requires staff in their Statistics Section to prepare a database of details from the enrolment file, matching each Study ID number in the WHA study against Medicare PIN and personal details, and Privacy Staff perform a clerical check. This process was conducted in 1997 for almost 20,000 consent forms and again in 1999 for 3,000 new consenters. However, as there are frequent staff changes, there have been considerable delays in arranging for this process to be completed for the 18,000 consent forms (for re-consenters and new consenters) received during 2001.

In November 2001, a test batch of 200 consent forms was sent to HIC for processing. Once we have been notified that the process of checking the forms is underway, we plan to send the remaining 18,000 forms. As before, we have followed all instructions from HIC relating to the design, completion, checking, sorting and batching of the consent forms. An electronic file containing the Study ID numbers for each form in the bundle accompanies each bundle of 200 forms. However, by May 2002 we have still not been advised that the test batch of 200 forms that has been at HIC for six months has been checked, despite our repeated attempts, by telephone and in writing, to do whatever we can to help move the process along.

We require the Medicare/DVA data for 2000 and 2001 to be extracted soon to ensure that the analyses for our research projects remain timely. Hence we will have to forego receiving data for the 3,500 new consenters, as their consent forms will not be processed in time. Data for the 22,633 previous consenters can be obtained, as their previous consent is still valid for data to the end of 2001. However, the costs for the study to extract data for 2000 and 2001 for the new consenters, in a second extraction at a later date, would be prohibitive. The revised consent forms also include consent for the release of Pharmaceutical Benefits Service (PBS) and Repatriation Pharmaceutical Benefits Service (RPBS) records. These records would be extremely valuable for the diabetes substudy and the assessment of the new Medicare preventive care items. However, the release of these records is also dependent upon the revised consent forms being checked.

Despite being advised by staff at HIC that all processes, computer files and programs developed by HIC for this study have been documented thoroughly and backed-up, there has been little evidence of this in our dealing with the HIC in the last six months. We continue to be extremely concerned that HIC is unable to provide the support that has been promised, and are concerned at the extent to which this may compromise the scientific integrity of the project as a whole.

6 DATA ANALYSIS

6.1 PROCEDURES FOR DATA CHECKING AND RELATED QUALITY ASSURANCE ACTIVITIES

6.1.1 Transition variables

An essential aspect of the data management and analysis of a longitudinal project is the development and standardization of variables that measure transitions between surveys. The data management group has been working for some time on the development of transition variables and the documentation of standard procedures. While changes in continuous variables such as the SF-36 are relatively easy to compute, changes of status within categorical variables become extremely complex. Appendices 6.1 and 6.2 include summaries of work undertaken by Anne Russell, with input from Sandra Bell and other members of the Data Management Group, with data from the younger cohort to develop standard transition variables and categories for smoking status, marital/relationship status, alcohol risk status and binge frequency, living arrangements, parenthood, timing of first pregnancy, employment status, area of residence, educational qualifications, weight/BMI category, extent of feeling “rushed or busy”, extent of “having time on one’s hands”, and contraceptive use.

6.1.2 Data cleaning: height and weight

Participants are asked to write in their height and weight in every main survey. Responses can be written in either centimetres or in feet and inches for height, and in kilograms or in stones and pounds for weight. Imperial measurements are later converted to metric. Body mass index (BMI) is calculated as: $BMI = \text{weight (kilograms)} / (\text{height (metres)} * \text{height (metres)})$. If either height or weight is missing, the BMI is set to missing.

Height, weight and BMI are important as predictors, outcomes or confounders in many analyses, and thus the accuracy of this variable is important to the quality of the project. Our policy has been to transcribe whatever is written by the respondent, even though many women report heights and weights which seem extremely unlikely to be correct. It is clear, however, that the use of data which are outside the range of biological possibility will introduce error, and that the more extreme values should be set to missing.

Jean Ball inspected the extreme values in the data set individually, and compared responses at Surveys 1 and 2 to assess the possible extent of errors. Data were also sought on height and weight ranges in other populations, in order to decide on biologically plausible limits to data that could be accepted as feasible. Table 6.1 shows the limits which were set. It was agreed that each age group could have different feasible limits, as the data supported such a decision. Once the limits were set for height and weight, the BMI was calculated and checked for feasible limits. Decisions were based on biological feasibility and may be amended during particular analyses if statistically necessary.

Table 20 Final limits for heights, weights and BMI

	Young	Mid-age	Older
Lower limit Height (cms)	120	120	120
Upper limit Height (cms)	200	190	190
Lower limit Weight (kgs)	30	30	30
Upper limit Weight (kgs)	140	140	120
Lower limit BMI	14	15	14
Upper limit BMI	55	55	50

6.1.3 Diagnoses and response rates in the Diabetes Substudy

This report, prepared by Anne Young, demonstrates the processes that were followed in identifying new and existing cases of diabetes for the Diabetes Substudy (see Section 1.3.1), as well as outlining the response rates to the substudy. It demonstrates the complexity of calculating transition variables even in apparently simple instances such as this.

Older cohort

The Survey 1 question in 1996 was:

16 Have you ever been told by a doctor that you have:		
<i>(Circle one number on each line)</i>		
	Yes	No
a Diabetes (high blood sugar)	1	2

The Survey 2 question in 1999 was:

1 In the LAST 3 YEARS have you been told by a doctor that you have:	
<i>(Mark all that apply to you)</i>	
	Yes - in the last 3 years
b Diabetes (high blood sugar)	O

The estimated number of cases based on analysis of data from Surveys 1 and 2 is shown in Table 21, according to the completeness of the data and the patterns of responses observed.

Table 21 Identification of existing and new cases of diabetes from Survey 1 and 2 data – older cohort

<i>Completed Survey 1 and Survey 2</i>			
Diabetes status	Definition	Number	%
Existing case	Yes O1, Yes O2	489	3.8
Inconsistent	Yes O1, Not yes O2	324	2.5
Incomplete	Yes O1, Missing O2	27	0.2
New	No O1, Yes O2	256	2.0
Maybe new	Missing O1, Yes O2	10	0.1
No	No O1, No O2 (n=9017) <i>or</i> No O1, Missing O2 (n=197) <i>or</i> Missing O1, No O2 (n=99) <i>or</i> Missing O1, Missing O2 (n=1)	9314	72.0
<i>Did not complete Survey 2</i>			
Diabetes status	Definition	Number	%
diab, no O2	Yes O1, Did not do O2	345	2.7
no diab, no O2	No O1, Did not do O2	2174	16.8
Total		12939	

Table 22 shows the response status to the diabetes substudy (2001) of women in these groups. That is, whether they were sent the substudy survey in 2001 (and if not, why not), whether they said they had diabetes in 2001, and whether they completed the substudy survey. It is notable that a total of 116 women who had been identified as having diabetes on the basis of responses to Surveys 1 and 2 now stated that they did **not** have diabetes. The largest number of these (61, 53%) had already been identified as “inconsistent”, having responded at Survey 1 that they had “ever” had diabetes and at Survey 2 that they had **not** been told by a doctor in the past three years that they had had diabetes. A high proportion of these may have had only ever had gestational diabetes, decades earlier. This could also be the case for 7 women who had had diabetes at Survey 1 but did not respond at all, or did not respond to the “diagnoses” item, at Survey 2. Another 10 substudy respondents stated that they did not have diabetes, but their open-ended comments suggested that in fact they did, although it might be controlled by diet only and not medication. Thus, 78 of the 116 have responded in ways that are potentially consistent with their main study data and only 28 (3.6% of substudy respondents) are potentially problematic.

Table 22 Responses to the Diabetes Substudy (2001) of women identified as having diabetes, according to identification status from Surveys 1 and 2 – older cohort

Response status 2001	Diabetes status Older age group												Total
	Existing case		Inconsistent		incomplete		new		maybe new		diab, no O2		
	yes/yes		yes/no		yes/missing		no/yes		missing/yes		yes/no phase2		
	n	%	n	%	n	%	n	%	n	%	n	%	
Responded													
Diabetes, completed survey	321	65.6	132	40.7	22	81.5	148	57.8	5	50.0	25	7.3	653
Now says no diabetes	10	2.0	61	18.8	2	7.4	24	9.4	2	20.0	7	2.0	106
Now says no diabetes, but may have*	2	0.4	4	1.2	0	0	4	1.6	0	0	0	0	10
<i>Sub-total</i>	<i>333</i>	<i>68.0</i>	<i>197</i>	<i>60.8</i>	<i>24</i>	<i>88.9</i>	<i>176</i>	<i>69.8</i>	<i>7</i>	<i>70.0</i>	<i>30</i>	<i>8.7</i>	<i>769</i>
Mailed but not eligible													
<i>Deceased</i>	<i>10</i>	<i>2.0</i>	<i>6</i>	<i>1.9</i>	<i>0</i>	<i>0</i>	<i>2</i>	<i>0.8</i>	<i>0</i>	<i>0</i>	<i>6</i>	<i>1.7</i>	<i>24</i>
Non respondents													
No contact, or “will do” but no survey returned	35	7.2	34	10.5	0	0	11	4.3	2	20.0	28	8.1	110
Not this time	14	2.9	23	7.1	1	3.7	16	6.3	1	10.0	21	6.1	76
Withdrew	3	0.6	10	3.1	0	0	10	3.9	0	0	11	3.2	34
Declared lost to f/up	5	1.0	7	2.2	0	0	1	0.4	0	0	6	1.7	19
<i>Sub-total</i>	<i>57</i>	<i>11.7</i>	<i>74</i>	<i>22.8</i>	<i>1</i>	<i>3.7</i>	<i>38</i>	<i>14.8</i>	<i>3</i>	<i>30.0</i>	<i>66</i>	<i>19.7</i>	<i>239</i>
Not sent survey													
In recent substudy	49	10.0	28	8.6	2	7.4	29	11.3	0	0	0	0	108
Known to be deceased	23	4.7	7	2.2	0	0	5	2.0	0	0	91	26.4	126
Known to be withdrawn	12	2.5	9	2.8	0	0	5	2.0	0	0	86	24.9	112
Known lost to f/up	2	0.4	0	0.0	0	0	0	0	0	0	5	1.5	7
No substudies	3	0.6	3	0.9	0	0	1	0.4	0	0	0	0	7
No contact details	0	0	0	0	0	0	0	0	0	0	59	17.1	59
<i>Sub-total</i>	<i>89</i>	<i>18.2</i>	<i>47</i>	<i>14.5</i>	<i>2</i>	<i>7.4</i>	<i>40</i>	<i>15.6</i>	<i>0</i>	<i>0</i>	<i>241</i>	<i>69.9</i>	<i>419</i>
Total	489		324		27		256		10		345		1451

* marked 'no' to substudy question about having diabetes but wrote comments that indicate that they probably do have it.

Mid-age cohort

The Survey 1 question in 1996 was:

15 Have you ever been told by a doctor that you have: (Circle one number <u>on each line</u>)		
	Yes	No
a Diabetes (high blood sugar)	1	2

The Survey 2 question in 1998 was:

20 Have you EVER been told by a doctor that you have: (Mark as many as applicable. Leave blank if you have never had this problem)			
		yes in the last 2 years	yes more than 2 years ago
a	Insulin dependent (type 1) diabetes	O	O
b	Non-insulin dependent (type 2) diabetes	O	O

The estimated number of cases based on analysis of data from Surveys 1 and 2 is shown in Table 23, according to the completeness of the data and the patterns of responses observed.

Table 23 Identification of existing and new cases of diabetes from Survey 1 and 2 data – mid-age cohort

<i>Mid age group: Completed Survey 1 and Survey 2</i>			
Diabetes status	Definition*	Number	%
existing case	Yes M1, Yes M2	234	1.7
Inconsistent	Yes M1, Not yes M2	108	0.8
new	No M1, Yes M2	141	1.0
maybe existing	Missing M1, Yes M2 >2 yrs ago	2	0.0
no	No M1, No M2 (n=11802) <i>or</i> Missing M1, No M2 (n=51)	11853	84.1
<i>Mid age group: Did not complete Survey 2</i>			
Diabetes status	Definition	Number	%
diab, no M2	Yes M1, Did not do M2	69	0.5
no diab, no M2	No M1, Did not do M2	1692	12.0
Total		14099	100.00

* Yes and No refer to either Type 1 or Type 2 diabetes or both

Table 24 shows the response status to the diabetes substudy (2001) of women in these groups. That is, whether they were sent the substudy survey in 2001 (and if not, why not), whether they said they had diabetes in 2001, and whether they completed the substudy survey.

Again, some women (a total of 113) who had been identified as having diabetes on the basis of responses to Surveys 1 and 2 now stated that they did **not** have diabetes. As for the older cohort, the largest number of these (48, 42%) had already been identified as “inconsistent”, having responded at Survey 1 that they had “ever” had diabetes and at Survey 2 that they had **not** been told by a doctor in the past three years that they had had diabetes. A high proportion of these may have only ever had gestational diabetes. This could also be the case for 4 women who had had diabetes at Survey 1 but did not respond at Survey 2. Another 8 substudy respondents stated that they did not have diabetes, but their open-ended comments suggested that in fact they did. Thus, 60 of the 113 have responded in ways that are potentially consistent with their main study data and 43 (13% of substudy respondents) are potentially problematic. While this is a small number of women, it has prompted interest in conducting a general quality audit of Mid-age Survey 2 data, and a systematic sample and review is planned for the second half of 2002.

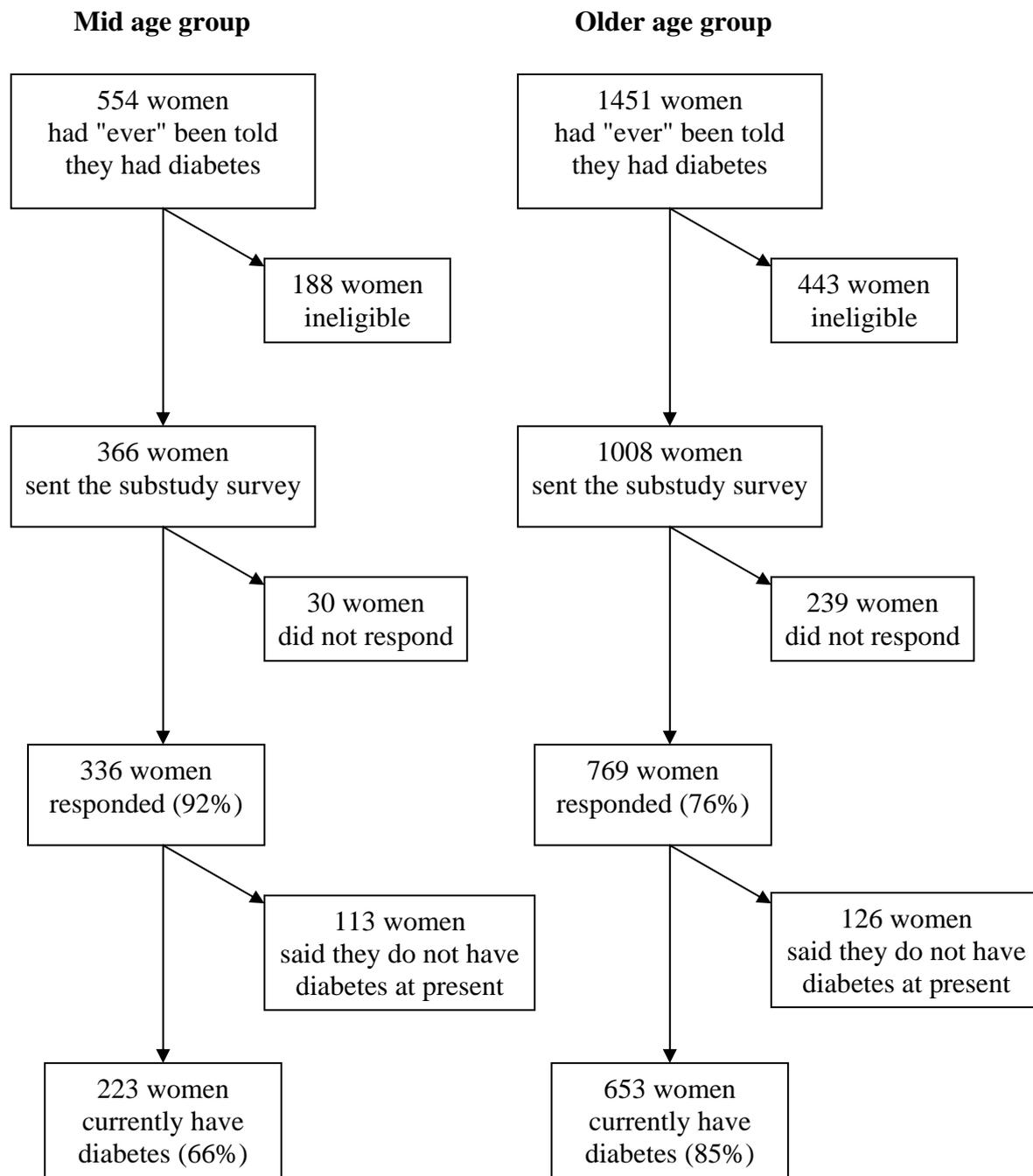
Table 24 Responses to the Diabetes Substudy (2001) of women identified as having diabetes, according to identification status from Surveys 1 and 2 – mid-age cohort

Response status 2001	Diabetes status mid age group										Total
	existing case		inconsistent		new		maybe existing		diab, no M2		
	yes/yes		yes/no		no/yes		missing/yes >2yrs		yes/no phase2		
	n	%	n	%	n	%	n	%	n	%	
Responded											
Diabetes, completed survey	146	62.4	21	19.4	48	34.0	1	50.0	7	10.1	223
Now says no diabetes	15	6.4	48	44.4	38	27.0	0	0	4	5.8	105
Now says no diabetes, but may have*	2	0.9	3	2.8	3	2.1	0	0	0	0	8
<i>Sub-total</i>	<i>163</i>	<i>69.7</i>	<i>72</i>	<i>66.6</i>	<i>89</i>	<i>63.1</i>	<i>1</i>	<i>50.0</i>	<i>11</i>	<i>15.9</i>	<i>336</i>
Mailed but not eligible											
<i>Deceased</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Non respondents											
No contact or said would do	8	3.4	4	3.7	9	6.4	0	0	0	0	21
Not this time	3	1.3	1	0.9	3	2.1	0	0	1	1.5	8
Withdrew	0	0	0	0	0	0	0	0	0	0	0
Declared lost to f/up	1	0.4	0	0	0	0	0	0	0	0	1
<i>Sub-total</i>	<i>12</i>	<i>5.1</i>	<i>5</i>	<i>4.6</i>	<i>12</i>	<i>8.5</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1.5</i>	<i>30</i>
Not sent survey											
Mid 3 not completed	29	12.4	13	12.0	22	15.6	1	50.0	12	17.4	77
In recent substudy	17	7.3	16	14.8	13	9.2	0	0	0	0	46
Known to be deceased	2	0.9	1	0.9	0	0	0	0	7	10.1	10
Known to be withdrawn	3	1.3	1	0.9	1	0.7	0	0	10	14.5	15
Known lost to f/up	4	1.7	0	0	3	2.1	0	0	9	13.0	16
No substudies	1	0.4	0	0	0	0	0	0	3	4.4	4
Overseas	2	0.9	0	0	0	0	0	0	1	1.5	3
In 4 substudies	1	0.4	0	0	1	0.7	0	0	0	0	2
No contact details	0	0	0	0	0	0	0	0	15	21.7	15
<i>Sub-total</i>	<i>59</i>	<i>25.3</i>	<i>31</i>	<i>28.6</i>	<i>40</i>	<i>28.4</i>	<i>1</i>	<i>50.0</i>	<i>57</i>	<i>82.6</i>	<i>188</i>
Total	234		108		141		2		69		554

* marked 'no' to substudy question about having diabetes but wrote comments that indicate that they probably do have it.

The tables of response status and diabetes status for each age group are summarised in Figure 1.

Figure 1 Summary of response rates to Diabetes Substudy



6.2 AD HOC ANALYSES FOR DOHA AND OTHER AGENCIES

6.2.1 Pap and mammographic screening by country of birth

A report was prepared by Annette Dobson and Anne Russell for BreastScreen Queensland and Queensland Health on screening participation rates among women of different countries of birth. The data analyzed for this report were responses to questions concerning cancer screening behaviour (cervical and breast) among all three age cohorts. For young women, the data are from Survey 2 in 2000 when they were aged 22-27 years. Data were not collected on mammograms in this age group. Data for mid-age women are from Surveys 1 and 2 (1996 and 1998) when they were aged 45-50 years and 47-52 years respectively. Screening data were collected from older women at Survey 1 only. Tables 25 to 29 show the percentage of women giving each response in each cohort, by major migrant groups (and non-indigenous Australians). Indigenous Australians were omitted from this analysis because of small numbers.

Table 25 Younger cohort: response distribution (%) in 2000 among young women then aged 22-27, by country of birth. When did you have your last Pap smear?

Country of Birth	Never	Less than 2 years ago	2-5 years ago	More than 5 years ago	Not sure	Total Number
<i>Australia (non-indigenous)</i>	17	69	13	0.6	0.4	8 731
United Kingdom	14	74	11	0	0.7	148
Papua New Guinea	13	70	17	0	0	23
New Zealand	16	68	15	0.9	0.9	116
Republic of South Africa	28	56	15	0	0	39
Vietnam	48	43	7	0	2	44
Philippines	50	39	11	0	0	18
Hong Kong	68	32	0	0	0	25
Malaysia	58	31	12	0	0	26

Table 26 Mid-age cohort: response distribution (%) in 1996 and 1998 among mid-age women then aged 45-50 and 47-52 years, by country of birth. When did you have your last Pap smear?

Country of Birth	1996 When did you have your last Pap smear?					Total Number	1998 In the last 2 years, have you had a Pap test?	
	Never	Less than 2 years ago	2-5 years ago	More than 5 years ago	Not sure		Yes	Total Number
<i>Australia (non-indigenous)</i>	2	71	14	11	2	10 384	68	8 698
Netherlands	1	74	10	14	0.5	195	71	164
Scandinavia	4	73	23	0	0	26	83	24
Greece	2	73	14	6	5	63	57	37
New Zealand	2	72	16	7	2	274	71	230
Philippines	3	72	12	12	0.9	109	68	79
USA	2	71	17	9	2	65	58	53
United Kingdom	2	71	14	11	2	1 404	69	1 183
Malaysia	10	71	12	8	0	51	65	37
Italy	5	66	17	10	2	126	66	98
Germany	2	66	13	15	4	241	65	195
Yugoslavia	13	62	17	6	2	47	88	26
India	12	57	24	7	0	42	57	35

Table 27 Mid-age cohort: response distribution (%) in 1996 and 1998 among mid-age women then aged 45-50 and 47-52 years, by country of birth. When did you have your last Mammogram?

Country of Birth	1996 When did you have your last Mammogram?					Total Number	1998 In the last 2 years, have you had a Mammogram?	
	Never	Less than 2 years ago	2-5 years ago	More than 5 years ago	Not sure		Yes	Total Number
<i>Australia (non-indigenous)</i>	31	53	11	4	0.2	10 343	63	8 686
India	37	54	5	5	0	41	56	34
Netherlands	30	53	12	5	0	192	65	165
New Zealand	31	52	10	6	0	271	61	230
Greece	29	52	15	3	2	62	63	38
United Kingdom	31	52	12	5	0.4	1 396	64	1 181
Italy	32	49	15	3	0.8	120	59	96
USA	25	48	19	8	0	64	42	53
Germany	34	46	11	9	0.8	240	64	195
Philippines	45	43	10	3	0	103	54	78
Yugoslavia	41	43	4	9	2	46	73	26
Scandinavia	19	41	30	11	0	27	58	24
Malaysia	49	37	10	4	0	51	42	38

Table 28 Older cohort: response distribution (%) in 1996 among older women then aged 70-75 years, by country of birth. When did you have your last Pap smear?

Country of Birth	Never	Less than 2 years ago	2-5 years ago	More than 5 years ago	Not sure	Total Number
<i>Australia (no-indigenous)</i>	19	28	22	23	9	9 198
Germany	22	39	20	13	6	190
Poland	24	35	10	13	18	88
Italy	20	33	21	17	10	187
USSR	25	32	9	19	15	53
Netherlands	14	25	24	24	13	147

Table 29 Older Cohort: Response distribution (%) in 1996 among older women then aged 70-75 years, by country of birth. When did you have your last Mammogram?

Country of Birth	Never	Less than 2 years ago	2-5 years ago	More than 5 years ago	Not sure	Total Number
<i>Australia (no-indigenous)</i>	33	51	12	4	1	9 227
USSR	27	53	12	4	4	51
Germany	31	47	16	4	2	193
Netherlands	35	45	11	7	2	150
Italy	37	43	9	7	5	184
Poland	40	39	14	3	5	88

8 DISSEMINATION OF STUDY FINDINGS

8.1 WEB SITE

Restructuring of the University of Newcastle and of its website means that we have a new URL (<http://www.newcastle.edu.au/centre/wha>). Joy Goldsworthy has completely revised and updated the entire ALSWH website at the University of Newcastle. Survey data for Young 2 have been added and data for Mid 2 and Old 2 will follow shortly. The site has an average of 42 hits per day with an overall total of 24348 hits (from 9 March 2000 – 9 May 2002).

8.2 PUBLICATIONS

8.2.1 Papers published

Brown PR, Brown WJ & Powers JR. Time pressure, satisfaction with leisure and health among Australian women. *Annals of Leisure Research*, 2001; 4: 1-18.

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. Explorations 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 the baseline survey of the Women's Health Australia project are 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 seems to impact adversely on health, the effects seem to be attenuated in women who are happy with the amount of leisure time available to them.

Patterson AJ, Brown WJ, Roberts DCK & Seldon MR. Dietary treatment of iron deficiency in women of childbearing age. *American Journal of Clinical Nutrition*, 2001; 74: 650-656.

Background: The Australian Iron Status Advisory Panel advocates the use of dietary intervention as the first treatment option in mild cases of iron deficiency (serum ferritin 10-15 μ g/L). However, there appear to be no studies examining the efficacy of dietary treatment of iron deficiency.

Objective: To compare the effects of iron supplementation and a high iron diet on serum ferritin (SF) and haemoglobin (Hb) in iron deficient women of childbearing age.

Design: 44 iron deficient (SF<15 μ g/L or SF 15-20 μ g/L, plus two of: serum iron <10 μ mol/L; total iron binding capacity >68 μ mol/L; or transferrin saturation <15%) and 22 iron replete (Hb \geq 120g/L and SF >20 μ g/L) women, matched for age and parity categories, had iron studies performed and completed 7 day weighed food records (T0). Iron deficient women were randomly allocated to either iron supplementation (105mg/d) or a high iron diet (recommended intake of absorbable iron 2.25mg/d) for 12 weeks. Haematological and dietary assessments were repeated at the end of the intervention phase (T1) and again after a 6 month non-intervention phase (T2).

Results: Mean SF for the supplement group increased from 9.0 \pm 3.1 μ g/L to 24.8 \pm 10.0 μ g/L during the intervention phase and remained stable during the non-intervention phase (24.2 \pm 8.8 μ g/L), while increases in SF for the diet group were smaller during the intervention phase (8.9 \pm 3.1 μ g/L to 11.0 \pm 5.9 μ g/L), and continued to improve during the non-intervention phase to 15.2 \pm 9.5 μ g/L. Mean Hb improved similarly for both intervention groups but the change was only significant for the supplement group [Supplement: T0=125.2 \pm 9.1mg/L, T1=130.4 \pm 6.8mg/L, T2=131.4 \pm 6.6mg/L; Diet: T0=127.6 \pm 8.5mg/L, T1=130.6 \pm 7.1mg/L, T2=130.8 \pm 6.9mg/L].

Conclusions: A high iron diet produced small increases in SF and Hb relative to iron supplementation for iron deficient women of childbearing age during a 12 week intervention, but resulted in continued improvements in iron status during a 6 month non-intervention phase.

Bryson L. Motherhood and gender relations: where to in the twenty-first century? *Just Policy*, 2001; 24: 12-23.

In Australia, the birthrate is just under 1.8, and fertility issues and motherhood are becoming a focus of interest for both academics and policy makers. This paper sets motherhood within its broad historical context, and discusses young women's aspirations about motherhood at a time when public concern about falling birth rates may well generate pressures for policies which deliberately encourage women to have more babies. Relevant empirical research findings, which have already been published, are drawn from the Women's Health Australia study. They relate specifically to women's aspirations about family size and career, and use of contraception. The data are used to reflect specifically on issues relating to fertility and motherhood and their complex and contradictory implications for social policy in Australia at the beginning of the twenty-first century. The bigger picture demonstrates a degree of change which challenges most former taken-for-granted notions of family and parenthood. This changing context would render futile any attempt to prevent further decline in fertility by trying to recapture a largely mythological era of women living in 'contented suburban domesticity'. The extent of change also suggests that even sensible and modest policy approaches, such as promoting family friendly workplace policies, while necessary, alone are not likely to be adequate either for arresting the decline in fertility or for promoting women's rights to freely choose the direction of their lives.

Warner-Smith P & Imbruglia C. Motherhood, employment and health: is there a deepening divide between women? *Just Policy*, 2001; 24: 24-32.

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

Ball K & Lee C. Psychological stress, coping and symptoms of disordered eating in a community sample of young Australian women. *International Journal of Eating Disorders*, 2002; 31: 71-81.

A longitudinal study was designed to investigate the relationships between stress, coping, and symptoms of disordered eating in a community sample of young Australian women. Two mail-out surveys were completed six months apart by 415 young women. Strong cross-sectional relationships between the study variables were found. Results of longitudinal analyses, however, demonstrated only tenuous relationships between stress, coping and later symptoms of disordered eating. These results did not support the hypothesis that stress and coping strategies would predict

disordered eating over time. Some evidence was found for the reverse relationship between stress and disordered eating; this relationship, however, was not strong. While contrary to generally accepted theoretical models of disordered eating, these findings are consistent with those of the few previous longitudinal studies reported. Theoretical implications of these findings are discussed.

Brown WJ & Miller YD. Too wet to exercise? Leaking urine as a barrier to physical activity in women. *Sports Medicine*, 2002; 4(4): 373-378.

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

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

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

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

Patterson AJ, Young AF, Powers JR, Brown WJ & Byles JE. Relationships between nutrition screening checklists and the health and well being of older Australian women. *Public Health Nutrition*, 2002; 5(1): 65-71.

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

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

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

Conclusions: Higher scores on both the ANSI and NSI are associated with poorer health. The simpler unweighted method of scoring the ANSI (TSI) showed better discrimination for the

identification of 'at risk' women than the weighted ANSI method. The predictive value of individual items and the checklist scores need to be examined longitudinally.

Lee C & Porteous J. Experiences of family caregiving among middle-aged Australian women. *Feminism and Psychology*, 2002; 12(1): 79-96.

Family caregiving is an unpaid activity which falls 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.

Bell S & Lee C. Development of the perceived stress questionnaire for young women. *Psychology, Health and Medicine*, 2002; 7(2): 189-201.

The Perceived Stress Questionnaire for Young Women (PSQYW) was developed for the Women's Health Australia (WHA) project as a measure of the level and perceived sources of stress. A total of 14,779 women aged 18-23 completed the baseline survey. The PSQYW scale was shown to be internally reliable, unifactorial, and to have content validity. Convergent construct validity was demonstrated most strongly with measures of mental health, life events and symptoms, and more weakly with the health behaviours of smoking and alcohol bingeing. There was no relationship with physical activity. Multiple regression showed that illness, physical health, mental health and life events explained 44% of the variance, with mental health explaining the most. Construct validity for the life domains indicated 5 factors relating to family of origin, relationships with others, own health, work/money and study. The PSQYW was proposed to be an adequate measure of overall perceived stress and to be able to indicate broad life domain perceived stress sources for young women. Further research with broader demographic samples is proposed to enable the PSQYW to be used as a succinct method of assessing perceived stress levels and sources by GPs, and other health practitioners.

Schofield MJ, Reynolds R, Mishra GD, Powers JR & Dobson AJ. Screening for vulnerability to abuse among older women: Women's Health Australia study. *Journal of Applied Gerontology*, 2002; 21(1): 24-39.

The validity of a brief self-report screening measure for elder abuse was examined on a nationally representative sample of more than 12,000 older women, in the baseline survey of the Australian Longitudinal Study on Women's Health. The screening instrument was a modification of the Hwalek-Sengstock Elder Abuse Screening Test. Construct validity was examined using factor analysis and correlation with a wide range of socio-demographic, psychological and health related variables. Four factors, each of three items, were identified representing the following domains:

Vulnerability, Dependence, Dejection and Coercion. The Vulnerability and Coercion factors had the highest face validity for abuse and demonstrated moderate to good construct validity. The six items comprising these factors may provide a simple screening tool for elder abuse. The identified correlates of abuse indicators have the potential to enhance policy development, screening, intervention and carer support programs.

Warner-Smith P & Brown P. ‘The town dictates what I do’: the leisure, health and wellbeing of women in a small country town. *Leisure Studies*, 21(1): 39-56.

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

8.2.2 Papers accepted

Parker G & Lee C. Predictors of physical and emotional health in a sample of abused Australian women. *Journal of Interpersonal Violence*.

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

Ball K & Kenardy J. Body weight, body image and eating behaviours: relationships with ethnicity and acculturation in a community sample of young Australian women. *Eating Behaviors*.

A study was conducted to investigate associations between ethnicity and acculturation status, and risk factors for eating disorders among young adult women. A community sample of 14,779 women aged 18-23 completed a comprehensive mail-out survey which incorporated questions on country of birth, length of time spent in Australia, body weight, weight dissatisfaction, dieting, binge eating and compensatory disordered eating behaviours. Results showed that risk factors for eating

disorders were present across a range of ethnic groups. Further, a strong acculturation effect was observed, such that the longer the time spent in Australia, the more women reported weight-related values and behaviours similar to those of Australian-born women. Results challenge claims that risk factors for disordered eating are restricted to Caucasian females in Western societies. Implications for understanding ethnic and sociocultural influences on body weight, dieting and disordered eating are considered.

Schofield M, Hussain R, Loxton D & Miller Z. Psychosocial and health behavioural covariates of cosmetic surgery: Women's Health Australia study. *Journal of Health Psychology.*

Current psychosocial and health behavioural covariates of past cosmetic surgery was assessed in a population-based sample (N=14,100) aged 45-49 years, from the baseline survey of the Women's Health Australia study. Seven percent (n=978) reported having ever had cosmetic surgery. Multivariate analysis found that self-reported dieting frequency in the past year and body mass index were highly significant covariates of cosmetic surgery; perception about body weight was moderately significant, and satisfaction with body weight was unrelated. A higher likelihood of cosmetic surgery was also found for women who had ever been in a violent relationship, who had been verbally abused recently, smokers, those taking medication for sleep or nerves, and those with private hospital insurance. There were moderate associations between cosmetic surgery and state of residence, higher occupational status, alcohol use, higher stress, and poorer mental health. Life satisfaction, social support, recent life events, physical health, area of residence, country of birth, and marital status, though all significant at the univariate level, were unrelated in multivariate analyses. The psychological and health implications of the findings are discussed.

Mishra GD, Ball K, Dobson AJ, Byles JE & Warner-Smith P. Which aspects of socioeconomic status are related to health in mid-aged and older women? *International Journal of Behavioral Medicine, Special Issue on Women's Health.*

A population-based study was conducted to validate gender- and age-specific indices of socioeconomic status (SES) and to investigate the associations between these indices and a range of health outcomes in two age cohorts of women. Data from 11,637 women aged 45-50 and 9,510 women aged 70-75 were analysed. Confirmatory factor analysis produced four domains among the mid-aged cohort (employment, family unit, education and migration) and four domains among the older cohort (family unit, income, education and migration). Overall the results supported the factor structures derived from another population based study (Australian National Health Survey 95), reinforcing the argument that SES domains differs across age groups. In general, the findings also supported the hypothesis that the SES domains would be associated with physical and mental health for mid-aged women but not for older women. The main exception was that in the older cohort, the education domain was significantly associated with all specific health measures.

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

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

Method: Women in their 70s participating in the Australian Longitudinal Study on Women's Health responded in 1996 (aged 70-75) and in 1999 (aged 73-78). Cross-sectional data were analyzed for 10,063 women and longitudinal data for 6,472. Self-reports were used to categorize women into

four categories of physical activity at each time point, as well as to define four physical activity transition categories across the three-year period. Outcome variables for the cross-sectional analyses were the mental health component score, and mental health subscales, of the SF-36. The longitudinal analyses focused on changes in these variables. Confounders included the physical health component scale of the SF-36, marital status, body mass index, and life events. Adjustment for baseline scores was included for the longitudinal analyses.

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

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

Lee C & Powers JR. Social roles, health and well-being in three generations of Australian women. *International Journal of Behavioral Medicine*, 2002.

The relationship between multiple social roles and health is a particular issue for women, who continue to take major responsibility for childcare and domestic labour despite increasing levels of involvement in the paid workforce. This paper analyzes Survey 1 data from the Australian Longitudinal Survey on Women's Health to explore relationships between role occupancy and health, well-being and health service use in three generations of Australian women. A total of 41,818 women in three age groups (young, 18-23; mid-age, 40-45; older, 70-75) responded to mailed surveys. Young and mid-age women were classified according to their occupancy of five roles – paid worker, partner, mother, student and family caregiver – while older women were classified according to occupancy of partner and caregiver roles only. Common symptoms (headaches, tiredness, back pain, difficulty sleeping), diagnosis of chronic illness, use of health services, perceived stress, and the physical and mental component scores of the SF-36 were compared across groups characterized by number of roles. Among young women, the best health was associated with occupancy of one role; among mid-age women, those with three or more roles were in the best health; and for older women, those with one role were in the best health. Young women with none or with four or more roles, and mid-age and older women with none of the defined social roles, tended to be in the poorest health. The patterns of results may be explained by differences in the extent to which women at different life stages feel committed to various social roles, and to the extent to which they are able to draw on social, material and economic supports.

Hussain R, Schofield M & Loxton D. Cosmetic surgery history predicts higher health service use in midlife: Women's Health Australia. *Medical Journal of Australia*.

Objective: There are no Australian national statistics on cosmetic surgery patients and little is known about the relationship between cosmetic surgery and other forms of health service use. This study explored among mid-aged women the relationship between having ever had cosmetic surgery and use of other health services.

Design: Analysis of cross-sectional survey data.

Setting and participants: This study comprised a nationally representative sample of the mid-aged cohort of WHA women aged 45-40 years who participated in the 1996 baseline postal survey. The overall response rate was 54% and included 14,100 women.

Results: In all, 7% of women reported having ever had cosmetic surgery. After adjusting for demographic variables, multivariate analysis confirmed significant positive relationships between

cosmetic surgery and health service use measures, including more surgical procedures, and more consultations with specialist and alternative health care providers. Cosmetic surgery was also associated with a higher number of chronic illnesses and medication use for nerves and sleep problems.

Conclusion: Further research is needed to determine whether cosmetic surgery is directly related to health conditions or to attitudinal or psychosocial variables. Such an investigation should examine whether alternative more cost-effective interventions may address issues motivating women's use of cosmetic surgery.

8.3 CONFERENCE PRESENTATIONS

Lee C, Young A & Bryson L. Workshop: methodological issues in the Australian Longitudinal Study of Women's Health. *TASA 2001 Annual Conference*. Sydney, New South Wales. 12-14 December 2001.

The Australian Longitudinal Study on Women's Health is a population-based survey of approximately 40,000 Australian women in three age cohorts, funded by the Commonwealth Department of Health and Aged Care and designed to run for 20 years. It uses mainly self-report surveys to examine factors associated with physical and emotional health, and health service use, among Australian women and to provide policy-relevant information to government departments. This workshop discusses some of the methodological issues inherent in longitudinal survey research. Christina Lee introduces the project, and then discusses the tensions between traditional empiricist, "big science" and a feminist, participatory approach to research. Anne Young discusses the extent to which self-report surveys and administrative data from the Health Insurance Commission provide triangulation in understanding the needs of women who are very high users of health services. Lois Bryson discusses the use of qualitative data within such a quantitative project, and the capacity for the project to address participants' concerns and perspectives.

Bryson L, Parker G & Warner-Smith P. Healthy relationships? The health of young, mid age, and older women, and their relationships with others. *TASA 2001 Annual Conference*. Sydney, New South Wales. 12 December 2001.

The Australian Longitudinal Study on Women's Health, now known as Women's Health Australia (WHA) was conceived by a group of researchers at The University of Newcastle in collaboration with others from The University of Queensland. Funded by the national Australian Department of Health and Aged Care Services, it has been in operation since 1995 and is planned to track women's health for twenty years or more.

The main part of the study involves mail surveys every three years. The first baseline survey was completed in 1996 by more than 42,000 women from three age cohorts (young women, 18-23; mid-age women, 45-50; and older women, 70-75). The aim is to consider biological, psychological, social and lifestyle factors (including time use) and their relationship to women's physical health and emotional well being, as well as examining the use of, and satisfaction with, health care services.

This presentation provides an overview of the project, and also looks in more detail at issues related to women's relationships and their health, with particular reference to each cohort: older women and social support; mid age women's experiences of violence and abuse; and young women's aspirations and options concerning parenthood, relationships and paid work.

Parker G. Relationships and abused mid-age women. TASA 2001 Annual Conference. Sydney, New South Wales. 12 December 2001.

This presentation gives an overview of the experience of abuse in the lives of Australian mid-age women. The project is a substudy within the Australian Longitudinal Study on Women's Health, now known as Women's Health Australia (WHA), and is the first investigation to comprehensively review gendered abuse in this country. Violence cannot be isolated from the context in which it occurs, and relationships are central to that context. Abuse from family members, in adult relationships, and from persons in the wider community impacts on physical and emotional health, and on health behaviours. Themes portrayed by these women as central to abuse experience include isolation, silence, invisibility, possession, and blurred boundaries. However, the reality these women construct also shows resistance and agency, a determination to survive, and a refusal to be controlled. It is critical that future research accepts an agenda that is socially sensitive and socially responsible in order to more fully acknowledge the relational web and social contexts in which abuse takes place.

Lee C. Effects of physical activity on emotional well-being among older women: analysis from Women's Health Australia. Ninth Annual New Zealand Health Psychology Conference. Auckland, New Zealand. 18-20 February 2002.

This analysis explores relationships between physical activity and mental health, cross-sectionally and longitudinally, in a large cohort of older Australian women. Women in their 70s participating in the Australian Longitudinal Study on Women's Health responded in 1996 (aged 70-75) and in 1999 (aged 73-78). Cross-sectional data were analyzed for 10,063 women and longitudinal data for 6,472. Self-reports were used to categorize women into four categories of physical activity at each time point, as well as to define four physical activity transition categories across the three-year period. Outcome variables for the cross-sectional analyses were the mental health component score, and mental health subscales, of the SF-36. The longitudinal analyses focused on changes in these variables. Confounders included the physical health component scale of the SF-36, marital status, body mass index, and life events. Adjustment for baseline scores was included for the longitudinal analyses. Cross-sectionally, higher levels of physical activity were associated with higher scores on all dependent variables, both with and without adjustment for confounders. Longitudinally, the effects were weaker but women who had made a transition from some physical activity to none generally showed more negative changes in emotional well-being than those who had always been sedentary, while those who maintained or adopted physical activity had better outcomes. Physical activity is associated with emotional well-being among a population cohort of older women both cross-sectionally and longitudinally, supporting the need for the promotion of appropriate physical activity in this age group.

Young A. Putting data into context: findings from linking Medicare health service use and expenditure data with longitudinal health survey data. Symposium on health data linkage: its value for Australian health policy development and policy relevant research. Sydney, New South Wales. 20-21 March 2002.

Introduction: The Australian Longitudinal Study on Women's Health (ALSWH), funded by the Commonwealth Department of Health and Ageing, is a study of the health and well being of three large cohorts of Australian women. The ALSWH has made extensive use of linked survey and Medicare/Department of Veterans' Affairs data. Results are presented to illustrate the value of the linked data for informing policy makers about provision of health services and for monitoring compliance with best practice guidelines.

Methods: The project recruited three large, nationally representative cohorts of women, aged 18-23 years (n=14,228), 45-50 years (n=13,338) and 70-75 years (n=12,317) in 1996. Self-administered postal surveys are completed every three years and include a wide range of measures of demographic, social and health-related factors. Almost 23,000 of the women have given written consent for the release of their individual records from the Health Insurance Commission. Data relating to more than 1.5 million Medicare/DVA services provided to these women during 1995-1999 have been linked to the first two phases of their survey data. Changes in health, health service use and the costs of services were examined according to age, urban/rural residence and socioeconomic status. Analysis of the linked data for subgroups of women, such as frequent attenders to general practice, and the use of best practice guidelines for diabetes care were also examined.

Results: For all age groups, women with lower socioeconomic status tended to have lower out of pocket costs for general practice visits. However, women in rural and remote areas reported poorer access to doctors who bulk bill and Medicare data showed these women had higher out of pocket costs than women living in urban areas. Many of the very frequent attenders to general practice had suffered a major personal illness, and the survey data showed that many also had very difficult personal and social circumstances. Women with diabetes, and those who developed diabetes, reported poorer health and greater use of health services and medications than women without diabetes. Medicare data helped to quantify the increased health service use and expenditure over time (for services outside hospital) for these women. However their Medicare data also showed that compliance with best practice guidelines for diabetes care, such as monitoring HbA1c, was sub-optimal.

Conclusions: The linked data provide information on medical conditions and social circumstances which are valuable for understanding health service use. Inequalities in the provision and costs of health care services were identified. The linked data can be used to monitor compliance with best practice guidelines for care and to determine the impact of strategies designed to improve the health and well being of women.

Byles J. Older women's use of sleeping medications. *National Medicines Symposium 2002.* Canberra: Australian Capital Territory. 20-22 March 2002.

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

Warner-Smith P, Mishra G & Brown P. Women's wellbeing and their satisfaction with hours of paid work. *International Time Use Conference*. Ontario, Canada. 22-24 March 2002.

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

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

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

Bittman M, Bryson L & Janssen C. Is the time pressure of being a working mother bad for your health? *International Time Use Conference*. Ontario, Canada. 22-24 March 2002.

In 1956 Myrdal and Klein argued that balancing women's two roles as mother and worker was a looming source of social strain. In the 1990s Juliet Schor's *The Overworked American* added an additional dimension, the growing demands of work, and gave a new urgency to the issue. Regular media coverage shows that this academic concern about the time pressures faced by parents, but particularly mothers, strongly resonates with the public, especially in light of a common presumption that the price of continued time pressure is poorer health.

Starting from the observation that the work and family obligations of mothers with young children deprives them of free time and that employed mothers report the highest levels of perceived time pressure, the paper investigates the links between motherhood, time pressure and health. By making use of two Australian data-sets – the 1997 Time Use Survey and the Women's Health Australia Study (Australian Longitudinal Study on Women and Health) – the paper puts to empirical test the proposition that combined employment and family pressures lead to poorer health. The time use survey provides the best available measure of time allocated to various activities, including the free-time available for leisure. The 1997 Time Use Survey sampled 14,000 diary days and also contained items about perceived time pressure. The Women's Health Australia Study is a three age-cohort, twenty-year study involving 42,000 women at baseline (1996) when their ages were 18-23, 45-50 and 70-75 years. Multiple measures of health are used, including the very popular SF36. Information is also gathered on other conditions including those identified as 'major' conditions (e.g. asthma, coronary heart disease, cancer, diabetes, hypertension,) and those taken to be more 'minor' (e.g. back pain, tiredness, headaches/migraine, sinusitis, perceived stress). On the basis of this combination of data from the two surveys, the complex links are explored between various time use

patterns, perceived time pressure, stress and health outcomes, for women of different ages and with different patterns of time usage and family obligations.

Adams, J. The mainstreaming of CAM: towards a research framework. *Complementary Medicine Research Symposium, Australian Centre for Complementary Medicine Education and Research. Brisbane, Queensland. 26 March 2002.*

Complementary and alternative medicines (CAM) are attracting growing consumer demand and have become increasingly relevant to those planning and providing health care. The dominant rhetoric is more and more of integration, and there has been a discernable shift in mood towards inclusive rather than exclusive practice. However, while a sociology of CAM integration (provision and use) is beginning to emerge this is still a sub-discipline that, like CAM in general, remains under-researched. In this paper - with reference to a number of recent and ongoing CAM projects - I briefly set out a framework through which the study of CAM mainstreaming can be further developed.

Brown P & Warner-Smith P. Associations between time pressure, satisfaction with leisure and health. A review of selected findings from the Women's Health Australia project. *International Time Use Conference. Ontario, Canada. 22-24 March 2002.*

While aggregate levels of free time may be rising in some western countries, it has been reported that increasing numbers of people are experiencing time pressure and stress. Researchers have shown that perceptions of time pressure are unevenly distributed across different life cycle, employment and occupational groups, are strongly related to marital status and the presence and number of children, and tend to be reported more by women than men. 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. Using selected data from the Australian Longitudinal Study on Women's Health (now known as the Women's Health Australia [WHA] project), the main aim of this paper is to explore associations between time pressure, leisure participation and health in three cohorts of women.

Data from the baseline survey of the main WHA study (1996) indicate that 62% of women aged 18-23 (N=13,864), 64% of women aged 45-50 (N=13,856), and 23% of women aged 70-75 (N=12,654) felt rushed/pressured/busy more than a few times a week, and that women who feel time pressured have significantly worse mental health scores than women who are not time pressured. While being time pressured seems to impact adversely on health, the effects seem to be attenuated in women who are happy with the amount of leisure time available to them (Brown *et al* 2002). Some insight into the sources of time pressure and women's experience of time is provided through a review of data from a 2000 study based on focus groups with women aged 20-25 and 47-52. While the main sources of time pressure for younger women seem to be associated with juggling jobs, study and social relationships, it is likely that women born in the 70s and 80s may have an 'accelerated sense of time' with potential detrimental effects on their health. The major sources of time pressure for the mid aged women can be attributed to a sense of role overload and role conflict arising from the volume and often fragmentary nature of activities associated with women's domestic and employment roles.

These findings are of interest in light of recent literature and current policy debates concerning increases in work-life tensions, and the degree to which well-being may be positively related to reduced time pressure, more leisure and greater control of personal time schedules.

8.3.1 Other presentations

Warner-Smith P. Connecting time use and women's wellbeing: lessons from the Women's Health Australia project. *School Seminar, School of Leisure and Sports Studies*. Leeds Metropolitan University, United Kingdom. 16 April 2002.

8.4 BOOK SALES

The edited book, "Women's Health Australia: What do we know? What do we need to know?", was published in February 2001 and was launched at the 4th Australian Women's Health Conference. The book was published by Australian Academic Press, with all costs met by Women's Health Australia. All proceeds from sales are returned directly to project funds. Table 30 summarizes the current financial situation with regard to this book. It should be noted that approximately 200 books have been given to stakeholders and other interested parties.

Table 30 Costs and returns (as of 8 May 2002) for Women's Health Australia: What do we know? What do we need to know?

Expenditure	Income (ex GST)				
			Number	rate	Total
Typesetting and printing of 1000 copies	\$9,527.88	Sales – 8 May 2002	310	20	\$6,200
TOTAL	\$9,527.88				\$6,200
Balance					(\$3,327.88)

8.5 DISSEMINATION OF METHODOLOGICAL EXPERTISE

The research team continues to be invited to provide advice to government departments and other agencies that are considering projects with related methodologies. In the six months to June 2002, Christina Lee has provided input to the Australian Medical Workforce Advisory Council (AMWAC) on the development of their longitudinal survey on Career Choice and Workforce Participation among medical graduates. Annette Dobson is working with the National Tobacco Strategy on guidelines for policy and practice regarding women and smoking.

9 ARCHIVING

In May 2002, the Survey 2 data for the young age group (collected in 2000) were archived with the Social Science Data Archives (SSDA), ACSPRI Centre for Social Research, at the Australian National University. The procedure was the same as for previous archives. Eight files were sent via a secure FTP site. The files were:

Data dictionary

Data dictionary User's Guide

WHA2YngA.txt – Level A data file, containing 570 variables for 9,685 cases

WHA2YngB.txt – Level B data file, containing 569 variables for 9,685 cases

Young2 formatsB.txt – formatting information for Level B data file

Young2 labelsB.txt – variable names for Level B data file

Young 2 survey.doc – copy of survey completed by participants

Young 2 frequenciesB.txt – frequencies for level B data

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

10 FINANCIAL STATEMENT

Expenditure January- June 2002

Based on University of Newcastle Financial Reporting System 22/5/02

Account 593-1029

INCOME			EXPENDITURE			
Source	Details	Income (includes July -Dec 02)	Items	Actual Expenditure 1/1/02– 22/5/02	Forward Estimate 23/5/02- 30/6/02	Forward Estimate 1/7/02- 31/12/02
DoHA	Contract	369,000				
		369,000(July- Dec 02) ^c	Shared research (Principal Investigators)	1,637	207a	2,000b
			Surveys & data entry	29,917	23,176a	31,907a
			Newsletters	0	0	25,000b
			Data linkage (AEC, HIC, CCV, NDI)	0	12,811a	0
			Computer h'ware, s'ware	12,707	0	3,000b
			Equipment & maintenance	50	0	5,000b
			Postage & freight	15,592	3,712b	12,000b
			Telephone	7,989d	951b	8,000b
			Printing, stationery, office supplies	553	150b	500b
			General consumables/ Repairs	3,329	800b	4,000b
			Travel/Hospitality	5,251	3,000b	6,000b
			Salaries	150,631	35,865a	186,000a
			On-costs	35,866	8,540a	45,000a
			Annual Report	0	0	5,000b
			University O'head charge	102,378	0	0
U of N	Research Contribution	50,000	Postgraduate scholarships/ fees	14,814	3,528a	18,000a
	Research Infrastructure	3,747	Student research costs	137	2,000b	1,000b
TOTALS		791,747		380,851	94,740	352,407

^a firm commitment

^b figures are estimates

^c according to current contract

^d includes previously uncharged calls from 2001

11 PROJECT STAFF JULY-DECEMBER 2001

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

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

11.2 STAFF AT THE UNIVERSITY OF QUEENSLAND

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

11.3 INVESTIGATORS

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

11.4 ASSOCIATE INVESTIGATORS CURRENTLY WORKING WITH THE MAIN COHORTS

Dr Jon Adams, Centre for Clinical Epidemiology and Biostatistics, University of Newcastle
Dr Surinder Baines, School of Health Sciences, University of Newcastle
Mr Michael Bittman, School of Sociology, University of New South Wales
Professor Peter Brown, School of Leisure Studies, Griffith University
Dr Rafat Hussain, School of Health, University of New England
Dr Helen Keleher, School of Health and Human Sciences, La Trobe University, Bendigo
Dr Julia Lowe, Discipline of Endocrinology, University of Newcastle
Dr Ruth McNair, School of General Practice, University of Melbourne
Dr Amanda Patterson, Department of Nutrition and Dietetics, King's College, London
Dr Charmaine Power, School of Nursing and Midwifery, Flinders University

Mr David Sibbritt, Centre for Clinical Epidemiology and Biostatistics, University of Newcastle
 Dr Angela Taft, Centre for Mothers' and Children's Health, La Trobe University
 Dr Stewart Trost, School of Human Movement, University of Queensland
 Dr Cathy Turner, School of Population Health, University of Queensland
 Dr Tracey Wade, School of Psychology, Flinders University
 Dr Edith Weisberg, FPA Health
 Ms Lauren Williams, School of Health Sciences, University of Newcastle

11.5 STUDENTS

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

11.6 PART-TIME AND CASUAL STAFF

Ms Jane a'Beckett
 Ms Emily Anderson
 Mrs Sandra Bell
 Ms Tamar Brown
 Ms Eliza Fraser
 Ms Alicia Frost
 Ms Jennifer Helman
 Mr Marcus Howlett
 Ms Catherine Ireland
 Mrs Claire Johnson

Ms Natasha Matthews
Ms Cristina Mears
Ms Liane McDermott
Ms Zoe Turner

Appendix 1

Collaborative research activities

Appendix 1.1

**Minutes of formal teleconferences/steering committee teleconferences
held among main study Investigators**

**STEERING COMMITTEE TELECONFERENCE
Monday 14 January 2002**

Present: Annette Dobson, Wendy Brown, Christina Lee, Anne Young, Julie Byles, Gita Mishra

Apologies:

Minutes: Emma Threlfo

Item No	Item	Action	By whom/ due date
1	Welcome and apologies		
2	Minutes from previous meeting All on agenda		
3	<p>STRATEGIC ISSUES:</p> <p>Progress with separation of indigenous cohort Our part of the contract was fine. As far as we know the details for the indigenous Communities Project are all filled in as Gail wanted. It's just a matter of Gail giving it the OK. UQ are still trying to document their component of the budget (income and expenditure).</p> <p>We need to take into consideration the report summarising the issues in supplementing the main cohort with indigenous participants. Annette was thinking about taking on a Masters student to do some of that work as part of a project. It will be a matter of finding out who is available and who could do it. Annette will discuss this with Cindy Shannon. If possible we should try to get an indigenous woman to write the report.</p> <p>Preparation for the review Most CVs have been sent to Joy who is adapting them for this purpose. Anne is working on HIC linkage. The section on methods and measurement has been discussed and divided up for people to draft short paragraphs and send to Anne. Deadline is this week. Chris is working on a reasonably full draft of the review and sending items to various people to comment. Chris will circulate a full draft by the end of this week or next Monday. Chris needs people to look at the whole document and how it all fits together. The question was raised should we put in some economic stuff relating to health</p>	Annette needs to speak with Cindy Shannon and let everyone know what the situation is at UQ.	Annette

Item No	Item	Action	By whom/ due date
	<p>budgets and what we are looking at. Chris spoke with CHERE about this, and they were very interested in doing something with our data. That was before xmas and no one has got back to Chris from CHERE. Julie suggests talking with Amanda Neal at the CCEB.</p> <p><i>Preparation for review – stakeholders submission</i> Annette suggests having Department of Health and Aging, the Office of the Status of Women and the State Departments of Health as the relevant stakeholders. Also the National Rural Health Association and the Women’s Health Network. Julie suggests Australian Association of Gerontology (Barbara Squires) and Wendy suggests PHA (Helen Keleher). Premala gave Chris some feedback on the letter and thinks it is better if we send the letter but ask that the feedback goes straight to Premala. We need to contact the person first, so they are expecting the letter and so they follow it up. Once the names and addresses have been found, we will assign people to call them.</p> <p><i>Evidence of institutional support</i> Need to have letters from the DVC of Research from both UN and UQ. Also might be useful to have something from the PVC of Health. Ron MacDonald should agree to provide full infrastructure support and continue to contribute to salaries and all the things he does. Wendy suggests that Chris go and speak with Ron McDonald about what else he can offer the RCGH. Ron McDonald should give the RCGH more if the RQ is going to be more. Annette feels that UQ will not be able to give anymore support until some of the RQ is shared with them.</p> <p>Chris asks everyone to look at full review document when she emails it and comment on. Annette says they need about 2 weeks to do this.</p>	<p>Julie to talk to Barbara about what we need</p> <p>Chris to ask Lyn to find names and address</p> <p>Chris to set up a meeting with Ron to negotiate</p> <p>Chris to send document by the 21 Jan, to be back on 4 Feb.</p>	<p>Julie</p> <p>Chris</p> <p>Chris</p> <p>Chris</p>
4	<p>REPORT FROM CL (SEE ATTACHED NOTES)</p> <p>Old 3 Proposed to mail out on the 11 March. The numbers are smaller 9,960. Jenny is sending the mailing list to NDI this week so there will be even less. We will also get a lot of very quick RTS.</p> <p>Substudies Kylie Ball – Does she really need that number?. She needed 600 who had gained weight and 600 who had maintained weight. Given that the normal response rate for young would be 50%, she is looking</p>		

Item No	Item	Action	By whom/ due date
	<p>at 1200 of each. This shouldn't be a problem as there won't be any new substudies now until after young 3 (2004). The other young substudies are reasonably small. Since the teleconference Kylie has revised her numbers downwards to 600 of each, 1200 in total.</p> <p>Sandra Bell – Sandra's will either be a small number of in depth phone interviews or if she wants to go for a larger sample she is thinking of tacking a few questions onto Kylie's. She doesn't want much information, just a few dates about when transitions happen. The others are all working on their ethics</p> <p>Margot Schofield – Margot sent Chris a draft for her ethics. Waiting in a final version which RCGH will submit.</p> <p>Heather McKay – Has nearly finalised her survey.</p> <p>Bev Lloyd – Just finalising her ethics</p> <p>Chris Everingham – Just getting her ethics together and hopes to have it in by the next meeting.</p> <p><i>Coping with substudies</i> These guidelines have been included in the reviewer's report. Also says that we need to be more strategic in focus. There is a general acceptance among the investigators that analysing the data we have got should be a priority, rather than collecting more.</p> <p>Annette has 3 current applications to do substudies. One is under chronic conditions – that's cardiovascular disease. Annette has a potential student. This will be in the old age cohort in 2004. The second substudy is about widows. This would involve a detailed analysis of all the old data. Would have to do a survey of older widows and younger widows. Perhaps 1200 sample by 2003. The third substudy is one of the public health capacity grants on longitudinal studies. Include a lot of the record linkage stuff. Also try and get Anne Young's salary paid so that the main grant could cover Anne Russell. These are all relevant and close to the themes. It also builds on work that we have done before.</p>		

Item No	Item	Action	By whom/ due date
	<p>A major consideration is women who have been surveyed 5 times per year, we shouldn't bother them again. We will do what we can to avoid this. Maybe we need to ask them at the end of each substudy 'would you be prepared to be a part of additional substudies'? Some of the participants really like it, but we do have to be a little bit careful.</p> <p>We should ask is a substudy the only way to do it? Can you do it from existing data? In some cases you do need to go back to the sample of a particular substudy for more rich data. We need a more strategic statement and philosophy about substudies. When Jean draws the sample she can identify how many substudies they have been in etc.</p>	Chris to put together a policy statement from Annette and Julie's discussion.	Chris
5	<p>REVISED TELECONFERENCE DATES JANUARY-JUNE 2002</p> <p>If we could have the meeting at 9am (Brisbane time) it's late at night for Gita, but OK. Still on a Monday, so it will be on a Sunday night for Gita. Wendy suggests that we ask for Gita's advice via email and include her in the actual teleconference when necessary. Chris will check on the rates. Gita would really like to be involved as it is more difficult by email to feel involved and up to date. We are also starting to work at an international level. Having Gita more closely involved gives us the benefit so we can more readily tap into her connections in the UK.</p> <p>Decided that teleconferences be at 9am Monday mornings. In February 10am (Newcastle).</p>	Chris to get the costing	Chris
6	<p>Any other business</p> <p>The glossy reports have arrived and have been sent out.</p> <p>Gita said if she is involved in this meeting she could give a brief summary of other variables being used and what has been created which would benefit the group.</p>		

Meeting closed: 1pm (NSW time)

Next meeting: Monday 11 February 2002 10 am (NSW), 9am (QLD)

**STEERING COMMITTEE TELECONFERENCE
Monday 11 February 2002**

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

Item No	Item	Action	By whom/ due date
1	Welcome and apologies Julie Byles		
2	Minutes from previous meeting All on agenda - no problems with previous minutes		
3	<p>STRATEGIC ISSUES:</p> <p>Progress with separation of indigenous cohort Separation of indigenous cohort has been completed. Annette hasn't yet started arranging for work to begin on the report on the indigenous women in the main cohort.</p> <p>Preparation for the review Chris has done the revisions from the feedback everyone sent back in January. Chris has circulated another copy for people to look at section 5 – the planned budget and organisation. Chris has had no feedback from this yet. Other issues are the letters of institutional support, which are coming and contacting stakeholders which is still in progress.</p> <p>Jean Douglass wrote Chris a letter with comments from various divisions at the Department of Health and Ageing. She sent Chris copies of all the Commonwealth and State Department of Health policy documents. As a result, Chris has added some more into the review documents about how our scientific goals are reflected in policy. She also came up with a list of things that DHA were interested in – most of which we are doing. Another section is on organisational structure and communication processes. DHA have said some complimentary things about this aspect of WHA. The document expresses disappointment of DHA with the PAC. It was expected that members of the</p>	Start arrangements for this report	Annette

Item No	Item	Action	By whom/ due date
	<p>committee would provide critical analysis of techniques, research findings and methodology. Everyone needs to be aware of this document for the review to respond to concerns on the day. The letter is also very supportive of the main study researchers and suggests some other things the department could be doing in order to improve dissemination.</p> <p>Annette wants the papers to be checked to see which papers are still in process of review and which have been accepted (i.e. are 'in press').</p> <p><i>Letters of support</i> Chris has had very positive meetings with Ron MacDonald and John Marley (Dean). Chris has drafted both letters, which they are both very happy with. Peter Brooks (UQ) wrote the letter and sent it straight to the Minister. David Siddle also wrote a letter, which Annette will forward to the Minister. The UQ office for research offered to look at the whole review document. The letter from Ron MacDonald details the direct and indirect support in terms of infrastructure, block grants and travel grants etc. The letter states that funding will be continued at a level aligned with the grant.</p> <p>HIC consents figures are up to 18,500. Details to be added in report. Chris has emailed Premala Walsh at ONHMRC to confirm actual day of reviewer visit, but hasn't heard back yet. Chris hopes to get the review documents to Premala by Friday 8 March.</p> <p>Chris asked Jean Douglass if we could have a meeting with the Minister. The best thing she could suggest was to write to Andrew Laming – Kay Patterson's advisor on Public/Population Health issues to meet with him or the Minister. Chris sent him a letter and an annual report last week.</p>	<p>Chris to fax Jean Douglass letter to steering committee and to Lois</p> <p>Chris will ask Joy to check papers</p> <p>Annette to send Chris copy of David Siddle letter</p>	<p>Chris</p> <p>Chris/Joy</p> <p>Annette</p>
4	<p>REPORT FROM CL (SEE ATTACHED NOTES)</p> <p>Old 3 Proposed to mail out on the 11 March. Proofs have been received from NCS but, waiting on Jean to approve when back from leave. Results from the NDI have been received for all age groups including pilots. Jean to finalise when back from leave. Jenny estimates there are approximately 1000 old, 250 mid and 50 young matches.</p>	<p>Jean to finalise NCS proofs and NDI matches</p>	<p>Jean</p>

Item No	Item	Action	By whom/ due date
	<p>Substudies</p> <p>Kylie Ball and Sandra Bell are possibly combining their surveys. Sandra has only a small number of questions. Kylie needs a sample of 1200 not 2400.</p> <p>Lauren Miller has had her survey finalised and is waiting on ethics.</p> <p>Margot Schofield has drafted her ethics application but is not completed.</p> <p>Heather McKay has almost finalised her survey and will submit to ethics soon.</p> <p>Bev Lloyd and Chris Everingham are waiting on ethics approval.</p> <p>Margaret Keleher will be conducting some telephone interviews, but not until she has analysed some main survey data.</p>		
6	<p>Any other business</p> <p>Annette has submitted an NHMRC grant application to do the substudy on cardiovascular disease. Additionally Annette is thinking about submitting 3 expressions of interest to SRDC for grants. One on muscular skeletal disease – similar to CVD application. Jean Douglass pointed out to Chris that arthritis might be added to the national health priority areas. The other application is on neuro degenerative diseases – look at women with these disease and also their carers. The other application is about chronic disease – look at satisfaction with care and do a case control study of those who are satisfied and those who are not satisfied. Could use some of Anne’s PhD on access and satisfaction with health services. Anne explains this may be difficult as they might be receiving the best possible care but still not be completely satisfied. Annette and Wendy think we should include Peter Brooks on the arthritis submission.</p> <p>PLAN: Annette to take the lead on the Arthritis and validity of the memory scale – Nancy can also assist with the memory scale. The healthy ageing (chronic conditions) – case control study could be related satisfaction with care and caregivers with the incontinence stuff. This one doesn’t have to be</p>	SRDC expressions of interest	Annette

Item No	Item	Action	By whom/ due date
	<p>submitted until 15 March.</p> <p>Anne and Julie were looking at continuity of care and satisfaction in the young cohort. There are differences in if they see the same doctor, same place. Levels of satisfaction are closely tied in with what they are going to the doctors for. Anne thinks it would be similar in the old.</p> <p>Neuro degenerative diseases – what is the practicality of looking at all the questionnaires to see if there is any mention. We could remove the ones who score very high on SF-36 and don't say that they are caring for anybody. After that we have to look at the entire text file for mention of Parkinson's, MS, motor neuro diseases etc. Chris has already done a qualitative search on mids and olds on anybody who mentioned caregiving.</p> <p>Gita raises the question of linking in some nutritional data (calcium) into the muscuro skeletal research? Maybe for the older cohort do a food frequency. Wendy thinks it would be interesting to look at the mid age group – there are a lot of women in their 50s with bone problems. Gita and Kylie are going to work on some nutritional data this year. In the UK researchers are linking neuro degenerative diseases with nutrition. Amanda Patterson got the lecturing position at Kings College. Amanda could be involved in some of this research and contribute to analysis/papers.</p> <p>WHA is getting two visitors from Office of Status of Women next Wednesday. OSW have set up a new division – Health and Well-being. The two women are Senior Advisors of this new division and attended the DHAC seminar last December. They are particularly interested in work/life balance. Penny Warner-Smith is coming over to speak to them as well.</p> <p>The other visitor this week is Angela Taft – who is a very influential person. She is involved in PHA and the Australian Women's Health Network. She is doing some subsidiary analysis on young women, domestic violence and reproductive health.</p> <p>Chris will be away from 18 – 22 February for the New Zealand Health Psychology conference.</p> <p>Anne has an assistant starting on Friday to help with some analysis jobs – Emily Anderson.</p>	<p>Gita to speak to Amanda</p>	<p>Annette and Chris</p> <p>Gita</p>

Item No	Item	Action	By whom/ due date
	<p>Gita has finished revising the menopause and SF-36 paper.</p> <p>Anne Russell and Chris have had a paper on physical activity and the olds accepted in the Journal of Psychosomatic Research.</p> <p>Jenny Powers and Chris have done another paper on number of social roles and health, after some minor changes on analysis will be re-submitted to the International Journal of Behavioral Medicine, and hopefully accepted.</p>		

Meeting closed:

11am (NSW time)

Next meeting:

Monday 11 March 2002

10 am (NSW), 9 am (QLD)

STEERING COMMITTEE TELECONFERENCE

Monday 11 March 2002

Present: Annette Dobson (Chair), Christina Lee, Gita Mishra, Anne Young

Apologies: Julie Byles, Wendy Brown

Notes: Christina Lee

Item No	Item	Action	By whom/ due date
1	<p>Welcome and apologies As noted</p>		
2	<p>Minutes from previous meeting Gita reported that she had been in contact with Amanda Patterson who is now lecturing at King's College in London. Gita and Kylie will hold a meeting with Amanda in September, when Kylie is visiting the UK, to coordinate their contributions to the planned series of papers on nutrition using Mid data.</p>	Gita, Kylie & Amanda to discuss projects	Gita, Kylie & Amanda
3	<p>Strategic Issues</p> <p>Indigenous women in main cohorts Annette reported that she had spoken with staff in Indigenous Health at UQ but an appropriate person to work on this was not available. She will explore two other avenues: (a) talk with Rennie D'Souza who runs the M Applied Epi at ANU and (b) contact staff at NACCHO, who have provided very useful feedback and advice in the past. There is a need to appoint someone to work on the report but also to recruit indigenous experts – as consultants if no appropriate indigenous person has time to take on the task. Money is available to pay an RA.</p> <p>Review of the project Materials have been completed and submitted. WHA staff are waiting to hear back from ONHMRC on the format of the reviewers' site visit. Several strong letters of support have been received, from PHA, WA Health, Women's Health Victoria, AWHN, and others. Annette was able to meet the</p>	Annette to speak with Rennie D'Souza and NACCHO and look for appropriate people to work on/provide consultation for this project	Annette

Item No	Item	Action	By whom/ due date
	<p>Missing data for height, weight and BMI There has been some email discussion over what limits to set on legitimate heights, weights and BMIs – some heights and weights are clearly wrong (eg height = 4 cm, weight = 230 kilograms) but the limits are open to debate. The group decided that Lauren Williams’ recommendations should generally be followed but lower limits be set at 30 kg, and upper limit of BMI be set at 55. Anne Young to write a summary of the decision and circulate to the data meeting group before next meeting.</p> <p>Review of Steering Committee system It had initially been agreed that the Steering Committee system would be reviewed after six months. We decided that the review should take place during the May meeting. At this time we will consider whether the Steering Cttee system should continue; if not, what should take its place; if yes, who would make up the Steering Cttee for the next six months? Input from all Investigators on these questions is needed. Please send your comments to Christina and/or Annette.</p>	<p>Anne to circulate report</p> <p>All Investigators to contact CL or AD about future of Steering Committee</p>	<p>Anne</p> <p>All Investi-gators</p>

Meeting closed: 11.30am (NSW time)
Next meeting: Monday 8 April 2002
9 am (NSW/QLD time)

Item No	Item	Action	By whom/ due date
	<p>including HILDA and the LSAC study and the UK Millennium study. Chris to email Annette some information and email Premala to tell her it is under way. Gita offered to access some information from the coordinators of the UK Millennium study for the report. Crucial information is annual budgets and number of participants for the first few years.</p> <p>Annette thinks the team needs to be very clear on the message to get through to the reviewers. One major issue is the lack of money. Chris emphasises the need to demonstrate quality, professionalism and commitment. Also need to address the issue of multiple sites, make clear that this is inevitable in a longitudinal study, particularly when the PIs are not funded. Need to emphasise that more funding is needed for UQ PIs to make the project sustainable. Chris makes clear that the answer is not to split the current funding in half, because we can't run the project in that way. Need to explain why we need more funding to set up a data centre at UQ. Need to justify why Annette, Wendy and Gita should be given funded Senior Academic positions or receive funding to support their research needs at their locations. Stakeholders reports were discussed, not all the stakeholders' reports have been sent to WHA, as they are meant to be independent. The ones that Chris has seen have been favourable.</p> <p><i>Young 3</i> FFQ – Lyn did some more work on the FFQ last week. The figures for the postage are that if we have only 28 pages it's \$22,000, but there is no price difference between 32 and 36 pages. The price difference is \$5,000. We need an estimate for printing and scanning of 36 pages. We also need to know what ACCV might charge. We also need to estimate what a longer survey might do to our response rate (the pilot will assist with this). If we can afford to put the FFQ in, we can probably get to 32 pages, FFQ takes 4 pages. Main issue would be the dietary issues with this generation compared with their mother's generation.</p> <p>Chris has been compiling a summary of all comments and suggestions, which will be circulated in the next couple of weeks. June meeting to discuss questions.</p> <p>Nancy has looked through all the psychological questions – the developmental question. The scale was altered and isn't useable. This question is being removed for young 3. The lesson for everyone</p>	<p>Chris to email Annette information for report Gita to email Annette information on millennium study</p> <p>Chris to circulate summary of comments</p>	<p>Chris Gita</p> <p>Chris</p>

Item No	Item	Action	By whom/ due date
	<p>is to be careful when using scales.</p> <p>Justin has suggested we replace the CESD and replace with the Goldberg Anxiety and Depression Scale, which is the one we are now using in old 3. It takes up a little more space, and we have a problem with changing the measure in a longitudinal design. CESD only measure depression while the Goldberg measures both anxiety and depression. There are pros and cons for both.</p> <p>Anne has spoken with a new person at CCEB and is very interested in complimentary and alternative medicines. He is keen to get Anne's substudy data. A possible collaborator but may be an overlap.</p>		
4	<p>REPORT FROM CL (SEE ATTACHED NOTES)</p> <p>Old 3 Approximately 6,000 surveys back. The first reminder going out today. Quite a lot of missing pages – but checking, logging and batching up to date.</p> <p>Substudies are going along – most still trying to get ethics.</p> <p>RCGH now in the Faculty of Health, the PVC seems very interested.</p> <p>Space issue – Jean has begun discussions with the IT and the phone people who were never consulted about our needs and they are not sure if they will be able to fulfil them in the DMB.</p>		
6	<p>Any other business</p> <p>Staking claims – People cannot stake a claim to a question. They may make a claim to a hypothesis or an idea and then use whatever questions are appropriate to address that hypothesis. If two people want to work on the same thing they should divide it. A good example is SF-36, everyone uses it but in different ways. Must ensure that all substudy and grant applications are circulated so everyone knows what is being worked on. Look at current policy and ask PIs to comment on, its adequacy.</p> <p>Congratulations to Joy on the website.</p>	Chris to circulate the current policy to PIs for comment	

Item No	Item	Action	By whom/ due date
	<p>Emma is leaving, last day is Wednesday 10th April. Congratulations on her new appointment and thanks for her contribution to the project.</p> <p>Penny Warner-Smith has arrived in Cambridge and will be working with Gita in the next couple of days on WHA data.</p> <p>June meeting – reviewing the current steering committee arrangements. Chris will be emailing all PIs to get comments.</p>	Chris to email PI's	

Meeting closed:

10am

Next meeting:

Monday 13 May 2002, 9am

Appendix 2

Conduct of surveys

Appendix 2.1

Old 3 materials

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

Appendix 6

Data checking and related quality assurance activities

Appendix 6.1

Calculations for transition variables among Young cohort

**DOCUMENTATION, CALCULATIONS AND SUMMARY TABLES FOR
DERIVING VARIABLES FOR TIMING OF FIRST PREGNANCY, LIVING
ARRANGEMENTS, AND CONTRACEPTIVE USE AMONG THE
YOUNG COHORT**

First Pregnancy – Young Cohort

Derived Variable	YT12Preg
Definition	The time of a woman’s first pregnancy, relative to the first two study surveys
Source Items	Young Survey 1: Questions 21 and 22a-d Young Survey 2: Questions 27c, 34 and 35a-e

SOURCE ITEMS

Survey 1

21 Are you currently pregnant? *(Circle one number only)*

Response	Yes	No	Don’t know
Code	1	2	3

22 How many times have you: *(Circle one number on each line)*

- a Been pregnant
- b Had a miscarriage
- c Had a termination
- d Given birth to a child

Response	Never	Once	Twice	Three times	Four or more times	Don’t want to answer
Code	0	1	2	3	4	5

Survey 2

27c What age were you when you had: Your first baby *(Write age or mark one on each line)*

Code Age reported in years; or
Zero if Not Applicable

34 Are you currently pregnant? *(Circle one number only)*

Response	Yes	No	Don’t know
Code	1	2	3

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

- a Live birth (more than 36 weeks)
- b Live premature birth (36 weeks or less)
- c Stillbirth
- d Miscarriage
- e Termination (abortion)

Response	One	Two	Three	Four	5 or more
Code	1	2	3	4	5

Data have been edited so that if any part of the question is marked, then all unmarked items are coded to 0.

If no parts of the question are marked, then all parts are coded to missing.

Note

A number of other items from Surveys 1 and 2 containing information concerning pregnancy were evaluated for use in deriving YT12Preg and were found to be unreliable. The items are:

Survey 1

29 In the last 12 months have you experienced any of the following events?

- d Pregnancy
- e Birth of your first child

67 Who lives with you?

- c. Own children

Survey 2

70 Have you experienced any of the following events in the last 12 months or more than 12 months ago? (*Mark all that apply*)

- d Birth of your first child
- e Birth of your second or later child
- p Death of a child
- q Stillbirth of a child
- r Miscarriage

84 Who lives with you?

- c Own children

DERIVED VARIABLE

YT12Preg was derived for all women completing Survey 2 and identifies when a woman had her first pregnancy (including live births, stillbirths, miscarriages and terminations) relative to the first two study surveys. The SAS code for deriving YT12Preg is included in the Appendix. Categories for YT12Preg and the number and percent of women in each category are shown in Table 1.

Table 1 **Number and percent in each category of YT12Preg**

Code	Category	Number	Percent
1	First pregnancy 1996 or earlier	1 570	16.2
2	First pregnancy between 1996 & 2000	1 534	15.8
3	Never pregnant to date (in 2000)	6 507	67.2
8	Known to be pregnant by 2000 (survey2) but status in 1996 unknown	41	0.4
9	Missing	31	0.3

Criteria for coding to each category are detailed below.

1. First pregnancy 1996 or earlier

- any pregnancy is recorded on Survey 1; or
- currently pregnant at Survey 1.

2. First pregnancy between 1996 & 2000

Not classified as *First pregnancy 1996 or earlier* and:

- any pregnancy is recorded at Survey 2; or
- currently pregnant at Survey 2; or
- the age when a woman had her first baby is the same as or older than her age at Survey 1 (reported Survey 2).

3. Never pregnant to date (in 2000)

Not classified as *First pregnancy 1996 or earlier* or *First pregnancy between 1996 & 2000* and:

- No pregnancies are reported at Survey 2 and the age when the woman had had her first baby (Survey 2) is recorded as not applicable

8. Known to be pregnant by 2000 (survey2) but status in 1996 unknown

Not classified as *First pregnancy 1996 or earlier* or *First pregnancy between 1996 & 2000* or *Never pregnant to date (in 2000)* and:

- all pregnancy data at Survey 1 are missing or ‘Don’t want to answer’ or otherwise insufficient to categorise pregnancy history at Survey 1; and
- any pregnancy is recorded at Survey 2 or currently pregnant at Survey 2.

9. Missing

Not otherwise classified.

SAS CODE

```
LIBNAME PHASE1 'U:\WHA-MAIN\DATA\SASDATA\PHASE1';
LIBNAME PHASE2 'U:\WHA-MAIN\DATA\SASDATA\PHASE2';
LIBNAME YT12 'U:\WHA-MAIN\DATA\SASDATA\YNGTRANSITION12';

DATA Y1 ;
SET PHASE1.WHA1YNG ;
KEEP ID IDALIAS Y1AGE Y1Q21 Y1Q22A Y1Q22B Y1Q22C Y1Q22D Y1Q29D Y1Q29E
      Y1Q67C ;
RUN ;
PROC SORT DATA = Y1 ;
BY ID ;
RUN ;

DATA Y2 ;
SET PHASE2.WHA2YNG ;
KEEP ID IDALIAS Y2Q27C Y2Q34 Y2Q35A Y2Q35B Y2Q35C Y2Q35D Y2Q35E
      Y2Q70AD Y2Q70BD Y2Q70AE Y2Q70BE Y2Q70AP Y2Q70BP
      Y2Q70AQ Y2Q70BQ Y2Q70AR Y2Q70BR Y2Q84C ;
RUN;
PROC SORT DATA = Y2 ;
BY ID ;
RUN ;

DATA YT12.YT12PREG ;
MERGE Y1 Y2(IN=INY2) ;
BY ID ;
IF INY2 ;

FORMAT      Y1Q22PREGNANCIES $25. Y2Q35PREGNANCIES $20. AGEATBIRTH1 $15.
            AGEDIFF $14. ;

/* AGE AT FIRST BABY - USED IN DEVELOPMENT ONLY */;
  IF Y2Q27C = 0 THEN AGEDIFF = 'N/A' ;
  ELSE IF Y2Q27C = . THEN AGEDIFF = 'NO DATA' ;
  ELSE IF Y2Q27C - Y1AGE = 0 THEN AGEDIFF='Y1AGE=BABY AGE';
  ELSE IF Y2Q27C - Y1AGE = -1 THEN AGEDIFF='1 BEFORE Y1';
  ELSE IF Y2Q27C - Y1AGE = 1 THEN AGEDIFF='1 AFTER Y1';
  ELSE IF Y2Q27C - Y1AGE < 0 THEN AGEDIFF='2+ BEFORE Y1';
  ELSE IF Y2Q27C - Y1AGE > 0 THEN AGEDIFF='2+ AFTER Y1';

  IF Y2Q27C = 0 THEN AGEATBIRTH1 = 'N/A' ;
  ELSE IF Y2Q27C = . THEN AGEATBIRTH1 = 'MISSING' ;
  ELSE IF Y2Q27C <= Y1AGE THEN AGEATBIRTH1 = 'AT/BEFORE Y1AGE' ;
  ELSE IF Y2Q27C > Y1AGE THEN AGEATBIRTH1 = '> Y1AGE' ;
```

```

/***** PREGNANCIES AT Y1 *****/;

ARRAY Q22 {4} Y1Q22A Y1Q22B Y1Q22C Y1Q22D ;

/* Y1Q22PREGNANCIES - USED IN DEVELOPMENT ONLY */;
  IF NMISS (OF Q22{*) = 4 THEN Y1Q22PREGNANCIES = 'ALL MISSING' ;
ELSE IF (Y1Q22A = 5 AND Y1Q22B = 5 AND Y1Q22C = 5 AND Y1Q22D = 5)
  THEN Y1Q22PREGNANCIES = 'ALL=DWTA' ;
ELSE IF Y1Q22D IN (1,2,3,4) THEN Y1Q22PREGNANCIES= 'AT LEAST 1 BIRTH' ;
ELSE IF (Y1Q22A IN (1,2,3,4) OR Y1Q22B IN (1,2,3,4) OR Y1Q22C IN (1,2,3,4) )
  THEN Y1Q22PREGNANCIES = 'PREG/MISCARRY/TERM ONLY' ;
ELSE IF (Y1Q22A = 0) THEN Y1Q22PREGNANCIES = 'NEVER' ;
ELSE Y1Q22PREGNANCIES = 'INSUFFICIENT DATA' ;

/* Y1PREG - USED IN FINAL ALGORITHM */;
  IF NMISS (OF Q22{*) = 4 OR (Y1Q22A = 5 AND Y1Q22B = 5 AND Y1Q22C = 5 AND
  Y1Q22D = 5)
  THEN Y1PREG = . ;
ELSE IF (Y1Q22A IN (1,2,3,4) OR Y1Q22B IN (1,2,3,4) OR Y1Q22C IN (1,2,3,4) OR Y1Q22D
  IN (1,2,3,4))
  THEN Y1PREG = 1 ;
ELSE IF (Y1Q22A = 0) THEN Y1PREG = 0 ;
ELSE Y1PREG = . ;

/***** PREGNANCIES AT Y2 *****/;

ARRAY Q35 {5} Y2Q35A Y2Q35B Y2Q35C Y2Q35D Y2Q35E ;

/* Y2Q35PREGNANCIES - USED IN DEVELOPMENT ONLY */;
  IF NMISS (OF Q35{*) = 5 THEN Y2Q35PREGNANCIES = 'ALL MISSING' ;
ELSE IF (Y2Q35A=0 AND Y2Q35B=0 AND Y2Q35C=0) AND (Y2Q35D>0 OR Y2Q35E>0)
  THEN Y2Q35PREGNANCIES = 'MISCARRY/TERM ONLY' ;
ELSE IF (Y2Q35A>0 OR Y2Q35B>0 OR Y2Q35C>0) THEN Y2Q35PREGNANCIES= 'AT
  LEAST 1 BIRTH' ;
ELSE IF ID=132069039 THEN Y2Q35PREGNANCIES = 'ALL MISSING' ;

/* Y1PREG - USED IN FINAL ALGORITHM */;
  IF NMISS (OF Q35{*) = 5 THEN Y2PREG = . ;
ELSE IF (Y2Q35A>0 OR Y2Q35B>0 OR Y2Q35C>0 OR Y2Q35D>0 OR Y2Q35E>0)
  THEN Y2PREG = 1 ;
ELSE Y2PREG = . ;

/* CURRENTLY PREGNANT AT Y1 AND Y2 - USED IN DEVELOPMENT ONLY */;
  IF Y1Q21 = 1 THEN PREGATY1='YES';
ELSE IF Y1Q21 IN (2,3) THEN PREGATY1='NO' ;

  IF Y2Q34 = 1 THEN PREGATY2='YES';
ELSE IF Y2Q34 IN (2,3) THEN PREGATY2='NO' ;

```

```

/*****
DEFINE TIME OF FIRST PREGNANCY IN RELATION TO SURVEYS 1 & 2
    1.    FIRST PREGNANCY 1996 OR EARLIER
    2.    FIRST PREGNANCY BETWEEN 1996 & 2000
    3.    NEVER PREGNANT TO DATE (IN 2000)
    8.    KNOWN TO BE PREGNANT BY 2000 (SURVEY2) BUT STATUS IN 1996
    UNKNOWN
    9.    MISSING
*****/;

* AT LEAST 1 PREGNANCY (INCLUDING BIRTHS, MISCARRIAGES AND
  TERMINATION) AT PHASE1;
  IF Y1PREG = 1 THEN YT12PREG = 1 ;

* NEVER PREGNANT AT PHASE 1;
ELSE IF Y1PREG = 0 THEN DO ;
  IF Y1Q21 = 1 THEN YT12PREG = 1 ;

  ELSE IF Y2PREG = 1 THEN YT12PREG = 2 ;
  ELSE IF Y2Q34 = 1 THEN YT12PREG = 2 ;
  ELSE IF Y2Q27C - Y1AGE >= 0 THEN YT12PREG = 2 ;
  ELSE IF Y2PREG = . AND Y2Q27C IN (0,.) THEN YT12PREG = 3 ;
  ELSE YT12PREG = 9 ;
END ;

* ALL MISSING OR DO NOT WANT TO ANSWER AT PHASE 1;
ELSE IF NMISS (OF Q22{*}) = 4 OR (Y1Q22A = 5 AND Y1Q22B = 5 AND Y1Q22C = 5 AND
  Y1Q22D = 5)
  THEN DO ;
  IF Y1Q21 = 1 THEN YT12PREG = 1 ;
  ELSE IF Y2PREG = 1 OR Y2Q34 = 1 THEN YT12PREG = 8 ;
  ELSE YT12PREG = 9 ;
END ;

*INSUFFICIENT DATA AT PHASE 1 ;
ELSE DO ;
  IF Y1Q21 = 1 THEN YT12PREG = 1 ;
  ELSE IF Y2PREG = 1 OR Y2Q34 = 1 THEN YT12PREG = 8 ;
  ELSE YT12PREG = 9 ;
END ;

KEEP ID IDALIAS YT12PREG ;

RUN ;

PROC FREQ DATA = YT12.YT12PREG ;
TABLES YT12PREG ;
RUN ;

```

Living arrangements – Young Cohort

Derived Variables	Y1LiveWith & Y2LiveWith
Definition	Current living arrangements.
Source Items	Young 1 Survey: Question 67a-h Young 2 Survey: Question 84a-k

SOURCE ITEMS

Survey 1			Survey 2		
Item 67	Circle 1 number on each line		Who lives with you?	Item 84	Mark all that apply
	Yes	No			Yes
a	1	2	No-one, I live alone	a	<input type="radio"/>
b	1	2	Partner/spouse	b	<input type="radio"/>
c	1	2	Own children	c	<input type="radio"/>
d	1	2	Someone else's children	d	<input type="radio"/>
e	1	2	Parents		
			Mother	e	<input type="radio"/>
			Father	f	<input type="radio"/>
			Step-mother/step-father	g	<input type="radio"/>
f	1	2	Brothers/sisters	h	<input type="radio"/>
g	1	2	Other adult relatives	i	<input type="radio"/>
h	1	2	Other adults who are not family members	j	<input type="radio"/>
			I live in group accommodation (eg hall of residence, hostel etc)	k	<input type="radio"/>

Codes

Survey 1

If no items are marked all items are coded to missing.

If part a is not marked and any other part of is answered Yes, then part a is recoded to No.

Survey 2

If no items are marked all items are coded to missing.

Items b-k: Data have been edited so that any marked item is coded to 1 and all unmarked items are coded to 0.

Item a: If this item was marked and no other items were marked then part a is coded to 1 and all other items are coded to 0. Item a was coded to 0 if any item from b to k was marked.

For Surveys 1 and 2 there were, 14 779 and 9 479 observations respectively with coded responses to all source items.

DERIVED VARIABLE

1. The source items were first used to construct interim variables describing major categories for the people that participants lived with (see SAS program). Categories and the items used to define them are:

	Yes to Item	
	Survey 1	Survey2
• Partner	67b	84b
• Children	67c or 67d	84c or 84
• Parents	67e	84e, 84f or 84g
• Other family members	67f or 67g	84h or 84i
• Non-family members	67h	84j or 84k

Frequencies for these categories are shown in Table 2.

Table 2 Frequency and percent of interim variables at Surveys 1 (n=14 779) and 2 (n=9 479)

	Survey 1		Survey 2	
	Number	Percent	Number	Percent
Lives with a Partner	3 465	23.8	4 780	50.4
Lives with Children	1 625	11.2	1 891	20.0
Lives with Parents	6 875	47.1	2 412	25.5
Lives with Other family members	5 928	40.8	2 020	21.3
Lives with Non-family members	3 386	23.3	1 755	18.5

2. Interim variables were used to derive LiveWith, comprising 16 categories for the patterns of living arrangements reported (see Appendix for SAS program). Table 3 shows overall frequencies for categories of LiveWith at Surveys 1 and 2.

Table 3 Number and percent in each category of LiveWith at Surveys 1 and 2.

LiveWith	Survey 1		Survey 2	
	Number	Percent	Number	Percent
1 Lives alone	875	5.92	594	6.1
2 Partner only	1 855	12.6	2 762	28.5
3 Partner and Children only	758	5.1	1 325	13.7
4 Partner, Children and Parents with/without Other family or Non-family	54	0.4	54	0.6
5 Partner and Children with Other family and/or Non-family	105	0.7	93	1.0
6 Partner and Parents with/without Other family or Non-family	217	1.5	158	1.6
7 Partner and Other family/Non-family	443	3.0	388	4.0
8 Children only	260	1.8	222	2.3
9 Children and Parents with/without Other family or Non-family	246	1.7	109	1.1
10 Children with Other family and/or Non-family	163	1.1	88	0.9
11 Parents only	1 634	11.1	799	8.3
12 Parents and Other family only	4 408	29.8	1 237	12.8
13 Parents with/without Other family or Non-family	216	1.5	55	0.6
14 Other family only	530	3.6	268	2.8
15 Other family and Non-family only	152	1.0	72	0.7
16 Non-family only	2 426	16.4	1 255	13.0
99 Missing	437	3.0	204	2.1

Table 4 shows all categories of LiveWith in terms of the interim variables.

Table 4 Combinations of interim variables included in each category of LiveWith

Code	Category	Alone	Partner	Children	Parents	Other Family	Non-family	Number
1	Lives alone	Yes						594
2	Partner only		Yes					2762
3	Partner and Children only		Yes	Yes				1325
4	Partner, Children and Parents		Yes	Yes	Yes			28
	with/without Other family and		Yes	Yes	Yes	Yes		23
	Non-family		Yes	Yes	Yes	Yes	Yes	3
5	Partner and Children with Other family		Yes	Yes			Yes	24
	and/or Non-family		Yes	Yes		Yes		62
			Yes	Yes		Yes	Yes	7
6	Partner and Parents with/without		Yes		Yes			83
	Other family/Non-family		Yes		Yes		Yes	6
			Yes		Yes	Yes		66
			Yes		Yes	Yes	Yes	3
7	Partner and Other		Yes				Yes	246
	family/Non-family		Yes			Yes		115
			Yes			Yes	Yes	27

(Continued next page)

Table 4 (continued)

Code	Category	Alone	Partner	Children	Parents	Other Family	Non-family	Number
8	Children only			Yes				222
9	Children and Parents with/without Other family or Non-family			Yes	Yes			51
				Yes	Yes		Yes	3
				Yes	Yes	Yes		51
				Yes	Yes	Yes	Yes	4
10	Children with Other family and/or Non-family			Yes			Yes	47
				Yes		Yes		38
				Yes		Yes	Yes	3
11	Parents only				Yes			799
12	Parents and Other family only				Yes	Yes		1237
13	Parents with/without Other family or Non- family				Yes		Yes	14
					Yes	Yes	Yes	41
14	Other family only					Yes		268
15	Other family and Non-family only					Yes	Yes	72
16	Non-family only						Yes	1255
99	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing

3. It is generally recommended that analysis of living arrangements be conducted on new variable collapsing codes in the following way. The recommended reference category is _____

Table 5 Variable recommended for analysis - LiveWith2

LiveWith Code	LiveWith2 Code	LiveWith2 Category
1	1	Lives alone
2	2	Partner only
3	3	Partner and Children only
4-7	4	Partner and any others
8	5	Children only
9 & 10	6	Children and/or Parents and/or Other family and/or Non-family
11	7	Parents only
12	8	Parents and Other family only
13 & 15	9	Parents and/or Other family and/or Non- family
14	10	Other family only
16	11	Non-family only
99	99	Missing

4. LiveWith categories were constrained so that all combinations of partner, children and parents were retained. For analyses focussing on these components of living arrangements, collapse categories of LiveWith using the combinations of codes shown in Table 6.

Table 6 Combinations of LiveWith codes used to define variables for living with a partner, living with children and living with parents.

	LiveWith Code
Living with a Partner	2-7
Not living with a Partner	1, 8-16
Living with Children	3-5, 8-10
Not living with Children	1, 2, 6, 7, 11-16
Living with Parents	4, 6, 9, 11-13
Not living with Parents	1-3, 5, 7, 8,10, 14-16

SAS PROGRAM

Survey 1

```
/* Who lives with you? - Y1q67 */;

/* Arrays used in Y1LiveWith */;
array q67 {8} y1q67a y1q67b y1q67c y1q67d y1q67e y1q67f y1q67g y1q67h ;
array q67nota {7} y1q67b y1q67c y1q67d y1q67e y1q67f y1q67g y1q67h ;

/* Recode Living Alone (y1q67a) to No if y1q67a is Missing AND
any other part of y1q67 is answered Yes */;
do i = 1 to 7 ;
    if q67nota {i} = 1 and y1q67a=. then y1q67a=2 ;
end ;

/*****
LiveWith at Y2 was based on codes for q84 of 1=Yes and 0=No.
In order to duplicate the LiveWith definition at Y1, recode q67 with standard
coding of 1=Yes and 2=No.
*****/;
do i=1 to 8 ;
    if q67{i}=2 then q67{i}=0 ;
end ;

/* Summary variables for who the participant lives with */;
partner = y1q67b ;

if y1q67c = 1 or y1q67d = 1 then children=1;
else if y1q67c = 0 and y1q67d = 0 then children=0;

parents = y1q67e ;

    if y1q67f = 1 or y1q67g = 1 then othfamily=1;
else if y1q67f = 0 and y1q67g = 0 then othfamily=0;

nonfamily = y1q67h ;

/* Array and count variable */;
array markers {5} partner children parents othfamily nonfamily ;
totmarker = sum (of markers {*});

/**** Who lives with you - 1996 *****/;
if nmiss(of q67nota {*}) > 0 then y1livewith = 99 ;

else if y1q67a=0 and partner=0 and children=0 and parents=0 and othfamily=0
    and nonfamily=0 then y1livewith = 99 ;

else if y1q67a=1 then y1livewith=1;

else if partner=1 then do ;
    if totmarker=1 then y1livewith=2 ;
```

```

else if children = 1 then do ;
    if totmarker=2 then y1livewith=3 ;
    else if parents=1 then y1livewith=4 ;
    else if parents=0 then y1livewith=5 ;
end ;

else if children = 0 then do ;
    if parents=1 then y1livewith=6 ;
    else if parents=0 then y1livewith=7 ;
end ;
end ;

else if partner=0 then do ;
    if children=1 then do ;
        if totmarker=1 then y1livewith=8 ;
        else if parents=1 then y1livewith=9 ;
        else if parents=0 then y1livewith=10 ;
    end ;

    else if children=0 then do ;
        if parents=1 then do ;
            if totmarker=1 then y1livewith=11 ;
            else if othfamily=1 and totmarker=2 then y1livewith=12;
            else if nonfamily = 1 then y1livewith=13 ;
        end ;

        else if parents=0 then do ;
            if totmarker=1 and othfamily = 1 then y1livewith=14 ;
            else if totmarker=1 and nonfamily = 1 then y1livewith=16 ;
            else if othfamily = 1 and nonfamily=1 then y1livewith=15 ;
        end ;
    end ;
end ;

end ;

if y1livewith in (1,2,3,4) then y1livewith2 = y1livewith ;
else if y1livewith in (5,6,7) then y1livewith2 = 4 ;
else if y1livewith in (8) then y1livewith2 = 5 ;
else if y1livewith in (9,10) then y1livewith2 = 6 ;
else if y1livewith in (11) then y1livewith2 = 7 ;
else if y1livewith in (12) then y1livewith2 = 8 ;
else if y1livewith in (13,15) then y1livewith2 = 9 ;
else if y1livewith in (14) then y1livewith2 = 10 ;
else if y1livewith in (16) then y1livewith2 = 11 ;
else if y1livewith in (99) then y1livewith2 = 99 ;

```

Survey 2

```
/* Summary variables for who the participant lives with */;
```

```
partner = y2q84b ;
```

```
    if y2q84c = 1 or y2q84d = 1 then children=1;
```

```
else if y2q84c = 0 and y2q84d = 0 then children=0;
```

```
    if (y2q84e=1 or y2q84f=1 or y2q84g=1) then parents=1;
```

```
else if y2q84e=0 and y2q84f=0 and y2q84g=0 then parents=0;
```

```
    if y2q84h = 1 or y2q84i = 1 then othfamily=1;
```

```
else if y2q84h = 0 and y2q84i = 0 then othfamily=0;
```

```
    if y2q84j = 1 or y2q84k = 1 then nonfamily=1;
```

```
else if y2q84j = 0 and y2q84k = 0 then nonfamily=0;
```

```
/* Who lives with you      - 2000 */;
```

```
array q84nota {10}
```

```
y2q84b y2q84c y2q84d y2q84e y2q84f y2q84g y2q84h y2q84i y2q84j y2q84k ;
```

```
array markers {5} partner children parents othfamily nonfamily ;
```

```
totmarker = sum (of markers {*});
```

```
    if nmiss(of q84nota {*}) = 10 then y2livewith = 99 ;
```

```
else if y2q84a=1 then y2livewith=1;
```

```
else if partner=1 then do ;
```

```
    if totmarker=1 then y2livewith=2 ;
```

```
else if children = 1 then do ;
```

```
    if totmarker=2 then y2livewith=3 ;
```

```
    else if parents=1 then y2livewith=4 ;
```

```
    else if parents=0 then y2livewith=5 ;
```

```
end ;
```

```
else if children = 0 then do ;
```

```
    if parents=1 then y2livewith=6 ;
```

```
    else if parents=0 then y2livewith=7 ;
```

```
end ;
```

```
end ;
```

```

else if partner=0 then do ;
    if children=1 then do ;
        if totmarker=1 then y2livewith=8 ;
        else if parents=1 then y2livewith=9 ;
        else if parents=0 then y2livewith=10 ;
    end ;
    else if children=0 then do ;
        if parents=1 then do ;
            if totmarker=1 then y2livewith=11 ;
            else if othfamily=1 and totmarker=2 then y2livewith=12;
            else y2livewith=13 ;
        end ;
    else if parents=0 then do ;
        if totmarker=1 and othfamily =1 then y2livewith=14 ;
        else if totmarker=1 and nonfamily =1 then 2livewith=16 ;
        else if othfamily=1 and nonfamily=1 then y2livewith=15 ;
    end ;
end ;
end ;

```

```

/* Recommended for analysis */;

```

```

    if y2livewith in (1,2,3,4) the y2livewith2 = y2livewith ;
else if y2livewith in (5,6,7) the y2livewith2 = 4 ;
else if y2livewith in (8) the y2livewith2 = 5 ;
else if y2livewith in (9,10) the y2livewith2 = 6 ;
else if y2livewith in (11) the y2livewith2 = 7 ;
else if y2livewith in (12) the y2livewith2 = 8 ;
else if y2livewith in (13,15) the y2livewith2 = 9 ;
else if y2livewith in (14) the y2livewith2 = 10 ;
else if y2livewith in (16) the y2livewith2 = 11 ;
else if y2livewith in (99) the y2livewith2 = 99 ;

```

Contraception status– Young Cohort

Derived Variables	Y1ccep, Y2ccep
Definition	Contraceptive use at Survey 1 & 2
Source Items	Young Survey 1: Questions 21, 23 and 25 Young Survey 2: Questions 32 and 34

SOURCE ITEMS

Survey 1

23 Are you currently pregnant? *(Circle one number only)*

Response	Yes	No	Don't know
Code	1	2	3

23 What sort of contraception do you use now? *(Circle one number only)*

Response	Don't need to use any (eg pregnant or no sex)	Choose not to use any (eg want to be pregnant)	Oral contraceptive pill	Condoms	Other
Code	1	2	3	4	5

Details for Other (5) are not recorded in the data set.

25 Are you currently using: *(Circle one number on each line)*

- a condoms for STD/HIV prevention
- b the oral contraceptive pill for reasons other than contraception

Response	Yes	No
Code	1	2

Survey 2

32 Which of the following apply to you NOW: (Mark *all that apply*)

- a I don't need to use any contraception (eg pregnant or no sex)
- b I choose not to use any contraception (eg want to be pregnant)
- c I use the oral contraceptive pill for contraception
- d I use the oral contraceptive pill for other reasons
- e I use condoms for contraception
- f I use condoms (or other barrier methods) for prevention of infection
- g I use another method of contraception

Response	Yes	No
Code	1	0

All marked items are coded to 1.

Data have been edited so that any part of the question is marked, then all unmarked items are coded to 0.

If no parts of the question are marked, then all parts are coded to missing.

35 Are you currently pregnant? (Circle one number only)

Response	Yes	No	Don't know
Code	1	2	3

DERIVED VARIABLE

The contraceptive status variables, Y1ccep and Y2ccep, define mutually exclusive categories for contraceptive use and were derived for all women completing Surveys 1 and 2 respectively. The SAS code for these variables is included in the Appendix. Categories for Y1ccep and Y2ccep and the number and percent of women in each category are shown in Table 7.

Table 7 Number and percent in each contraceptive status category at Surveys 1 and 2

Code	Category	Survey 1		Survey 2	
		Number	Percent	Number	Percent
1	Currently pregnant and don't need contraception	438	3.0	487	5.0
2	Don't need contraception - Other	3 379	22.9	1 302	13.5
3	Choose not to use contraception	341	2.3	443	4.6
4	Oral contraceptive pill (OCP) only	5 378	36.4	4 041	41.7
5	OCP and other types	2 009	13.6	1 312	13.6
6	Condom and/or other types (NO OCP)	2 660	18.0	1 438	14.9
7	Other contraceptives (NO OCP/Condoms)	433	2.9	518	5.4
9	Missing	141	1.0	142	1.5

Specific analyses may collapse categories of Y1ccep/Y2ccep as shown in Table 8.

Table 8 Combinations of Y1ccep/Y2ccep codes used to define analytic variables

	New Variable Code	Y1ccep/Y2ccep Code
Contraceptive use		
Contraceptive user	1	4-7
Not a Contraceptive user	0	1-3
Missing	9	9
Type of contraceptive used		
Oral contraceptive pill (OCP) only	1	4
OCP and other types	2	5
Condom and/or other types (No OCP)	3	6
Other contraceptives (No OCP/Condoms)	4	7
Missing or not applicable	9	1-3, 9

SAS CODE

```
1      Y1ccep

libname phase1 'u:\wha-main\data\sasdata\phase1';
libname phase2 'u:\wha-main\data\sasdata\phase2';

data phase1.y1ccep ;
set phase1.wha1yng ;

/* Y1ccep - contraception use at Y1
   1 = Don't need - currently pregnant
   2 = Don't need - other
   3 = Choose not to use contraception
   4 = OCP only
   5 = OCP and other types
   6 = Condom and/or other types - NO OCP
   7 = Other contraceptives - NO OCP/Condoms
   9 = Missing
*/;

      if y1q21 = 1 then y1ccep = 1 ;

else if (y1q25a in (2,.))and (y1q25b in (2,.)) then do ;
      if y1q23 = 1 then y1ccep = 2 ;
      else if y1q23 = 2 then y1ccep = 3 ;
      else if y1q23 = 3 then y1ccep = 4 ;
      else if y1q23 = 4 then y1ccep = 6 ;
      else if y1q23 = 5 then y1ccep = 7 ;
      else y1ccep = 9 ;
end ;

else if y1q23 in (.,1,2) then do ;
      if y1q25a = 2 and y1q25b = 1 then y1ccep = 4 ;
      else if y1q25a = 1 and y1q25b = 1 then y1ccep = 5 ;
      else if y1q25a = 1 and y1q25b = 2 then y1ccep = 6 ;
end ;

else if y1q23 = 3 and y1q25a = 2 then y1ccep = 4 ;

else if y1q23 in (4,5) and y1q25b = 2 then y1ccep = 6 ;

else if y1q23 in (3,4,5) then y1ccep = 5 ;

keep id y1ccep ;

run ;
```

```

libname phase1 'u:\wha-main\data\sasdata\phase1';
libname phase2 'u:\wha-main\data\sasdata\phase2';

data phase2.y2ccep ;
set phase2.wha2yng ;

/* Y2ccep - contraception use at Y2
    1 = Don't need - currently pregnant
    2 = Don't need - other
    3 = Choose not to use contraception
    4 = OCP only
    5 = OCP and other types
    6 = Condom and/or other types - NO OCP
    7 = Other contraceptives - NO OCP/Condoms
    9 = Missing
*/;

array q32{7} y2q32a y2q32b y2q32c y2q32d y2q32e y2q32f y2q32g ;
array q32_5{5} y2q32c y2q32d y2q32e y2q32f y2q32g ;

    if y2q34 = 1 then y2ccep = 1 ;

else if nmiss (of q32{*}) = 7 then y2ccep = 9 ;

else if sum (of q32_5{*}) = 0 then do ;
    if y2q32a=1 and y2q32b in (0,1) then y2ccep = 2 ;
    else if y2q32a=0 and y2q32b=1 then y2ccep = 3 ;
    end ;

else do ;
    if y2q32g = 1 and sum (of q32_5{*}) = 1 then y2ccep = 7;
    else if (y2q32c=1 or y2q32d=1) and (y2q32e+y2q32f+y2q32g)=0 then y2ccep = 4 ;
    else if (y2q32e=1 or y2q32f=1 or y2q32g=1) and (y2q32c=0 and y2q32d=0)then y2ccep = 6
;
    else if (y2q32c=1 or y2q32d=1) and
        ((y2q32e=1 or y2q32f=1) or (y2q32g in (0,1))) then y2ccep = 5 ;
    end ;

keep id y2ccep ;

run ;

proc freq data = phase2.y2ccep ;
tables y2ccep ;
run ;

```

Appendix 6.2

Transition tables and working documents for transition variables among Young cohort

SMOKING TRANSITION

267 women have y1smokst = Missing and have been recoded to Never smoked (1) based on Y2 data.

y1smokst	Missing	Never	Ex	<10/day	10-20/day	>20/day	Total
Not recoded	325	5166	1405	806	610	1104	9416
Recoded	0	267	0	0	0	0	267
Total	325	5433	1405	806	610	1104	9683

smokstaty1	smokstaty2				
	Missing	Never	Ex	Smoker	Total
Missing	28	0	104	193	325
Never	61	4925	169	278	5433
Ex	48	438	583	336	1405
Smoker	122	136	520	1742	2520
Total	259	5499	1376	2549	9683

yt12smok	Frequency	Percent
1. Never smoked	4925	53.96
2. Ex-smoker	1190	13.04
3. Quitter	656	7.19
4.Re-starter	336	3.68
5. New Adopter	278	3.05
6. Continuing smoker	1742	19.09
<i>Missing</i>	556	

yt12smok	smokstaty1	smokstaty2	Frequency	
Missing	Missing	Missing	28	
Missing	Missing	Ex	104	
Missing	Missing	Smoker	193	
Missing	Never	Missing	61	
Missing	Ex	Missing	48	
Missing	Smoker	Missing	122	
1. Never smoked	Never	Never	4925	
2. Ex-smoker	Never	Ex	169	Ex OR Quitter?
	Ex	Never	438	
	Ex	Ex	583	
3. Quitter	Smoker	Never	136	
	Smoker	Ex	520	
4.Re-starter	Ex	Smoker	336	
5. New Adopter	Never	Smoker	278	
6.Continuing smoker	Smoker	Smoker	1742	

TRANSITION IN MARITAL STATUS

y1marst based on Q84	y2marst				- based on Q88	
	Missing	1. Never married	2. Defacto	3. Married	4. Have been married	Total
Missing	3	20	9	13	1	46
1. Never married	191	4615	1440	1169	64	7479
2. Defacto	37	219	398	505	53	1212
3. Married	13	99	44	664	68	888
4. Have been married	4	12	15	12	15	58
Total	248	4965	1906	2363	201	9683

maritc	Frequenc y	Percent
1. Stayed never married	4615	49.14
2. Never married to de-facto	1440	15.33
3. Never to Married	1169	12.45
4. Stayed Married	664	7.07
5. De-facto to Married	505	5.38
6. Stayed De-facto	398	4.24
7. De-facto to Never	219	2.33
8. All other transitions	382	4.07
<i>Missing</i>	291	

maritc	y1marst	y2marst	Frequency	Percent
Missing	Missing	Missing	3	0.03
Missing	Missing	1. Never married	20	0.21
Missing	Missing	2. Defacto	9	0.09
Missing	Missing	3. Married	13	0.13
Missing	Missing	4. Have been married	1	0.01
Missing	1. Never married	Missing	191	1.97
Missing	2. Defacto	Missing	37	0.38
Missing	3. Married	Missing	13	0.13
Missing	4. Have been married	Missing	4	0.04
1. Stayed never married	1. Never married	1. Never married	4615	47.66
2. Never married to defacto	1. Never married	2. Defacto	1440	14.87
3. Never to Married	1. Never married	3. Married	1169	12.07
4. Stayed Married	3. Married	3. Married	664	6.86
5. Defacto to Married	2. Defacto	3. Married	505	5.22
6. Stayed Defacto	2. Defacto	2. Defacto	398	4.11
7. Defacto to Never	2. Defacto	1. Never married	219	2.26
8. All other transitions	1. Never married	4. Have been married	64	0.66
8. All other transitions	2. Defacto	4. Have been married	53	0.55
8. All other transitions	3. Married	1. Never married	99	1.02
8. All other transitions	3. Married	2. Defacto	44	0.45
8. All other transitions	3. Married	4. Have been married	68	0.7
8. All other transitions	4. Have been married	1. Never married	12	0.12
8. All other transitions	4.	2. Defacto	15	0.15
8. All other transitions	4.	3. Married	12	0.12
8. All other transitions	4.	4. Have been married	15	0.15

2nd approach based on legal marital status

if y1q84 in (5,6,7) then do ;

 if y2q87 = 1 or (y2q87=. and y2q88 in (2,3))then yt12marst = 3 ;
 else if y2q87 = 2 then yt12marst = 2 ;
 else if y2q87 = 3 or (y2q87=. and y2q88 in (1,4,5)) then yt12marst = 1 ;
 else yt12marst = 99 ;
 end ;

else if y1q84 in (1,4) then do ;

 if y2q87 = 1 or (y2q87=. and y2q88 in (2,3))then yt12marst = 9 ;
 else if y2q87 = 2 then yt12marst = 8 ;
 else if y2q87 = 3 or (y2q87=. and y2q88 in (1,4,5)) then yt12marst = 7 ;
 else yt12marst = 99 ;
 end ;

else if y1q84 in (2,3) then do ;

 if y2q87 = 1 or (y2q87=. and y2q88 in (2,3))then yt12marst = 6 ;
 else if y2q87 = 2 then yt12marst = 5 ;
 else if y2q87 = 3 or (y2q87=. and y2q88 in (1,4,5)) then yt12marst = 4 ;
 else yt12marst = 99 ;
 end ;

else if y1q84 = . then do ;

 if y2q87 = . and y2q88 = 1 then yt12marst = 1 ;
 else if y2q87 = 3 and y2q88 = 1 then yt12marst = 1 ;
 else yt12marst = 99 ;
 end ;

y2q87	y2q88						Total
	Missing	1. Never married	2. Married	3. Separated	4. Divorced	5. Widowed	
MISSING	19	132	9	38	1	0	199
1. Registered marriage	4	40	2341	19	1	1	2406
2. Defacto	27	1906	10	25	29	1	1998
3. Not married	26	4965	3	51	32	3	5080
Total	76	7043	2363	133	63	5	9683

yt12marst		Frequency	Percent
Divorced/widowed/never married	y1q84 in (5,6,7)		
1. D/W/N to Not Married		4796	49.53
2. D/W/N to Defacto		1471	15.19
3. D/W/N to Married		1225	12.65
Defacto	y1q84 in (2,3)		
4. Defacto to Not Married		260	2.69
5. Defacto both times		425	4.39
6. Defacto to Married		526	5.43
Married/Separated	y1q84 in (1,4)		
7. M/S to Not married		155	1.6
8. M/S to defacto		93	0.96
9. M/S to Married		689	7.12
99.Missing		43	0.44

yt12marst	y1q84	y2q87	y2q88	Frequency	Percent
1. D/W/N to Not Married	Missing	Missing	1. Never married	2	0.02
1. D/W/N to Not Married	Missing	3. Not married	1. Never married	20	0.21
1. D/W/N to Not Married	5. Divorced	3. Not married	1. Never married	1	0.01
1. D/W/N to Not Married	5. Divorced	3. Not married	4. Divorced	1	0.01
1. D/W/N to Not Married	7. Never married	Missing	1. Never married	110	1.14
1. D/W/N to Not Married	7. Never married	3. Not married	Missing	21	0.22
1. D/W/N to Not Married	7. Never married	3. Not married	1. Never married	4615	47.66
1. D/W/N to Not Married	7. Never married	3. Not married	2. Married	1	0.01
1. D/W/N to Not Married	7. Never married	3. Not married	3. Separated	17	0.18
1. D/W/N to Not Married	7. Never married	3. Not married	4. Divorced	7	0.07
1. D/W/N to Not Married	7. Never married	3. Not married	5. Widowed	1	0.01
2. D/W/N to Defacto	5. Divorced	2. Defacto	4. Divorced	1	0.01
2. D/W/N to Defacto	7. Never married	2. Defacto	Missing	17	0.18
2. D/W/N to Defacto	7. Never married	2. Defacto	1. Never married	1440	14.87
2. D/W/N to Defacto	7. Never married	2. Defacto	2. Married	3	0.03
2. D/W/N to Defacto	7. Never married	2. Defacto	3. Separated	5	0.05
2. D/W/N to Defacto	7. Never married	2. Defacto	4. Divorced	5	0.05
3. D/W/N to Married	6. Widowed	1. Registered marriage	2. Married	1	0.01
3. D/W/N to Married	7. Never married	Missing	2. Married	5	0.05
3. D/W/N to Married	7. Never married	Missing	3. Separated	19	0.2
3. D/W/N to Married	7. Never married	1. Registered marriage	Missing	2	0.02
3. D/W/N to Married	7. Never married	1. Registered marriage	1. Never married	28	0.29
3. D/W/N to Married	7. Never married	1. Registered marriage	2. Married	1160	11.98
3. D/W/N to Married	7. Never married	1. Registered marriage	3. Separated	9	0.09
3. D/W/N to Married	7. Never married	1. Registered marriage	4. Divorced	1	0.01
4. Defacto to Not Married	2. Defacto (opp sex)	Missing	1. Never married	15	0.15
4. Defacto to Not Married	2. Defacto (opp sex)	3. Not married	Missing	3	0.03
4. Defacto to Not Married	2. Defacto (opp sex)	3. Not married	1. Never married	213	2.2
4. Defacto to Not Married	2. Defacto (opp sex)	3. Not married	2. Married	1	0.01
4. Defacto to Not Married	2. Defacto (opp sex)	3. Not married	3. Separated	18	0.19
4. Defacto to Not Married	2. Defacto (opp sex)	3. Not married	4. Divorced	1	0.01
4. Defacto to Not Married	2. Defacto (opp sex)	3. Not married	5. Widowed	2	0.02
4. Defacto to Not Married	3. Defacto (same sex)	Missing	1. Never married	1	0.01
4. Defacto to Not Married	3. Defacto (same sex)	3. Not married	1. Never married	6	0.06
5. Defacto both times	2. Defacto (opp sex)	2. Defacto	Missing	7	0.07
5. Defacto both times	2. Defacto (opp sex)	2. Defacto	1. Never married	390	4.03
5. Defacto both times	2. Defacto (opp sex)	2. Defacto	2. Married	4	0.04
5. Defacto both times	2. Defacto (opp sex)	2. Defacto	3. Separated	8	0.08
5. Defacto both times	2. Defacto (opp sex)	2. Defacto	4. Divorced	7	0.07
5. Defacto both times	2. Defacto (opp sex)	2. Defacto	5. Widowed	1	0.01
5. Defacto both times	3. Defacto (same sex)	2. Defacto	1. Never married	8	0.08
6. Defacto to Married	2. Defacto (opp sex)	Missing	2. Married	1	0.01
6. Defacto to Married	2. Defacto (opp sex)	Missing	3. Separated	10	0.1

(Continued next page)

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yt12marst	y1q84	y2q87	y2q88	Frequency	Percent
6. Defacto to Married	2. Defacto (opp sex)	1. Registered marriage	Missing	2	0.02
6. Defacto to Married	2. Defacto (opp sex)	1. Registered marriage	1. Never married	8	0.08
6. Defacto to Married	2. Defacto (opp sex)	1. Registered marriage	2. Married	497	5.13
6. Defacto to Married	2. Defacto (opp sex)	1. Registered marriage	3. Separated	6	0.06
6. Defacto to Married	3. Defacto (same sex)	1. Registered marriage	2. Married	2	0.02
7. M/S to Not married	1. Married	Missing	1. Never married	3	0.03
7. M/S to Not married	1. Married	Missing	4. Divorced	1	0.01
7. M/S to Not married	1. Married	3. Not married	Missing	1	0.01
7. M/S to Not married	1. Married	3. Not married	1. Never married	99	1.02
7. M/S to Not married	1. Married	3. Not married	2. Married	1	0.01
7. M/S to Not married	1. Married	3. Not married	3. Separated	11	0.11
7. M/S to Not married	1. Married	3. Not married	4. Divorced	18	0.19
7. M/S to Not married	4. Separated	Missing	1. Never married	1	0.01
7. M/S to Not married	4. Separated	3. Not married	1. Never married	11	0.11
7. M/S to Not married	4. Separated	3. Not married	3. Separated	4	0.04
7. M/S to Not married	4. Separated	3. Not married	4. Divorced	5	0.05
8. M/S to defacto	1. Married	2. Defacto	Missing	1	0.01
8. M/S to defacto	1. Married	2. Defacto	1. Never married	44	0.45
8. M/S to defacto	1. Married	2. Defacto	2. Married	3	0.03
8. M/S to defacto	1. Married	2. Defacto	3. Separated	10	0.1
8. M/S to defacto	1. Married	2. Defacto	4. Divorced	14	0.14
8. M/S to defacto	4. Separated	2. Defacto	Missing	2	0.02
8. M/S to defacto	4. Separated	2. Defacto	1. Never married	15	0.15
8. M/S to defacto	4. Separated	2. Defacto	3. Separated	2	0.02
8. M/S to defacto	4. Separated	2. Defacto	4. Divorced	2	0.02
9. M/S to Married	1. Married	Missing	2. Married	3	0.03
9. M/S to Married	1. Married	Missing	3. Separated	9	0.09
9. M/S to Married	1. Married	1. Registered marriage	1. Never married	3	0.03
9. M/S to Married	1. Married	1. Registered marriage	2. Married	657	6.79
9. M/S to Married	1. Married	1. Registered marriage	3. Separated	4	0.04
9. M/S to Married	1. Married	1. Registered marriage	5. Widowed	1	0.01
9. M/S to Married	4. Separated	1. Registered marriage	1. Never married	1	0.01
9. M/S to Married	4. Separated	1. Registered marriage	2. Married	11	0.11
99.Missing	Missing	1. Registered marriage	2. Married	13	0.13
99.Missing	Missing	2. Defacto	1. Never married	9	0.09
99.Missing	Missing	3. Not married	Missing	1	0.01
99.Missing	Missing	3. Not married	3. Separated	1	0.01
99.Missing	1. Married	Missing	Missing	5	0.05
99.Missing	2. Defacto (opp sex)	Missing	Missing	1	0.01
99.Missing	7. Never married	Missing	Missing	13	0.13

COMPARISON OF CATEGORIES FROM 2 METHODS

marite	yt12marst										Total
	1. D/W/N to Not Married	2. D/W/N to Defacto	3. D/W/N to Married	4. Defacto to Not Married	5. Defacto both times	6. Defacto to Married	7. M/S to Not married	8. M/S to defacto	9. M/S to Married	99.Missing	
Missing	153	17	30	19	7	10	5	3	4	43	291
ROW %	52.58	5.84	10.31	6.53	2.41	3.44	1.72	1.03	1.37	14.78	
Col %	3.19	1.16	2.45	7.31	1.65	1.9	3.23	3.23	0.58		100
1. Stayed never married	4615 100 96.23										4615
2. Never married to		1440 100 97.89									1440
3. Never to Married	1 0.09 0.02	3 0.26 0.2	1165 99.66 95.1								1169
4. Stayed Married							1 0.15 0.65	3 0.45 3.23	660 99.4 95.79		664
5. Defacto to Married				1 0.2 0.38	4 0.79 0.94	500 99.01 95.06					505
6. Stayed Defacto					398 100 93.65						398

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(Continued)

maritc	yt12marst										
	1. D/W/N to Not Married	2. D/W/N to Defacto	3. D/W/N to Married	4. Defacto to Not Married	5. Defacto both times	6. Defacto to Married	7. M/S to Not married	8. M/S to defacto	9. M/S to Married	99.Missing	Total
7. De- facto to Never				219 100 84.23							219
8. All other transitions	27 7.07 0.56	11 2.88 0.75	30 7.85 2.45	21 5.5 8.08	16 4.19 3.76	16 4.19 3.04	149 39.01 96.13	87 22.77 93.55	25 6.54 3.63		382
Total	4796	1471	1225	260	425	526	155	93	689	43	9683

TRANSITION IN ALCOHOL RISK STATUS

y1alcst	y1alcst2					
	Recoded Missing	to 1. Non drinker/ Rarely drinks	2. No risk	3. Low risk	4. Int/High risk	Total
Missing	98					98
1. Non drinker		797				797
2. Rarely drinks		3281				3281
3. No risk			3183			3183
4. Low risk				1688		1688
5. Intermediate risk					631	631
6. High risk					5	5
Total	98	4078	3183	1688	636	9683

y2alcst	y2alcst2					
	Recoded Missing	to 1. Non drinker/ Rarely drinks	2. No risk	3. Low risk	4. Int/High risk	Total
Missing	73					73
1. Non drinker		860				860
2. Rarely drinks		2798				2798
3. No risk			4462			4462
4. Low risk				1193		1193
5. Intermediate risk					295	295
6. High risk					2	2
Total	73	3658	4462	1193	297	9683

y1alcst2	y2alcst2					
	Missing	1. Non drinker/ Rarely drinks	2. No risk	3. Low risk	4. Int/High risk	Total
Missing	2	37	42	9	8	98
1. Non drinker/ Rarely drinks	22	2497	1268	242	49	4078
2. No risk	24	622	2191	311	35	3183
3. Low risk	16	336	769	467	100	1688
4. Int/High risk	9	166	192	164	105	636
Total	73	3658	4462	1193	297	9683

yt12alcst	Frequency	Percent
1. Non/rare drinker (no change)	2497	25.79
2. No risk (no change)	2191	22.63
3. Low risk (no change)	467	4.82
4. Int/High risk (no change)	105	1.08
5. No risk to None/Rare	622	6.42
6. Low Risk to less risk	1105	11.41
7. Int/High to less risk	522	5.39
8. None/rare to Low risk	1268	13.1
9. Increased to Low risk	553	5.71
10. Increased to Int/High risk	184	1.9
99. Missing	169	1.75

yt12alcst	y1alcst2	y2alcst2	Frequency	Percent
1. Non/rare drinker (no change)	1	1	2497	25.79
2. No risk (no change)	2	2	2191	22.63
3. Low risk (no change)	3	3	467	4.82
4. Int/High risk (no change)	4	4	105	1.08
5. No risk to None/Rare	2	1	622	6.42
6. Low Risk to less risk	3	1	336	3.47
6. Low Risk to less risk	3	2	769	7.94
7. Int/High to less risk	4	1	166	1.71
7. Int/High to less risk	4	2	192	1.98
7. Int/High to less risk	4	3	164	1.69
8. None/rare to Low risk	1	2	1268	13.1
9. Increased to Low risk	1	3	242	2.5
9. Increased to Low risk	2	3	311	3.21
10. Increased to Int/High risk	1	4	49	0.51
10. Increased to Int/High risk	2	4	35	0.36
10. Increased to Int/High risk	3	4	100	1.03
99. Missing	.	.	2	0.02
99. Missing	.	1	37	0.38
99. Missing	.	2	42	0.43
99. Missing	.	3	9	0.09
99. Missing	.	4	8	0.08
99. Missing	1	.	22	0.23
99. Missing	2	.	24	0.25
99. Missing	3	.	16	0.17
99. Missing	4	.	9	0.09

TRANSITION IN ALCOHOL BINGE FREQUENCY

y1q37	y2q61							Total
	Missing	0. Non-drinker	1. Never binges	2. <1/month	3. ~1/month	4. ~1/week	5. More than 1/wk	
Missing	4	21	20	50	37	16	0	148
0. Non-drinker	9	428	231	86	24	17	2	797
1. Never binges	30	210	867	569	151	47	6	1880
2. <1/month	44	117	487	1678	595	222	31	3174
3. ~1/month	15	46	162	794	638	348	45	2048
4. ~1/week	12	27	53	356	433	460	64	1405
5. More than 1/wk	3	11	9	51	52	79	26	231
Total	117	860	1829	3584	1930	1189	174	9683

yt12alcbngfrq	Frequency	Percent	Alternate
No Change			
1. Non drinker/never binges (no change)	1736	17.93	
	428	4.42	A. Non drinker (no change)
	1308	13.51	B. Never binge (no change)
2. <1/month (no change)	1678	17.33	G
3. ~1/month (no change)	638	6.59	I
4. ~1/week or more (no change)	629	6.5	K
Increase			
5. No binge/drink to <1/month	655	6.76	C. No binge/drink to <1/month
6. No binge/drink to 1/month or more	247	2.55	
	175	1.81	D. No binge/drink to 1/month
	62	0.75	E. No binge/drink to 1/week or more
Decrease			
7. <1/mo to Never	604	6.24	F
9. Decreased from ~1/month	1002	10.35	F
11. 1/week or more to < 1/month	507	5.24	F
	2113	21.83	F. Decreased from any level to <1.month
Increase			
8. Increased from <1/month	848	8.76	H
10. Increased from ~1/month	393	4.06	H
	1241	12.82	H. Increased from <1/month or ~1/month
Decrease			
12. 1/week or more to ~1/month	485	5.01	J
Missing	261	2.7	

yt12alcbngfrq	y1q37	y2q61	Frequency	Percent	Alternate
1. Non drinker/never binges (no change)	0	0	428	4.42	A.
1. Non drinker/never binges (no change)	0	1	231	2.39	B
1. Non drinker/never binges (no change)	1	0	210	2.17	B
1. Non drinker/never binges (no change)	1	1	867	8.95	B
2. <1/month (no change)	2	2	1678	17.33	G
3. ~1/month (no change)	3	3	638	6.59	I
4. ~1/week or more (no change)	4	4	460	4.75	K
4. ~1/week or more (no change)	4	5	64	0.66	K
4. ~1/week or more (no change)	5	4	79	0.82	K
4. ~1/week or more (no change)	5	5	26	0.27	K
5. No binge/drink to <1/mo	0	2	86	0.89	C
5. No binge/drink to <1/mo	1	2	569	5.88	C
6. No binge/drink to 1/month or more	0	3	24	0.25	D
6. No binge/drink to 1/month or more	0	4	17	0.18	E
6. No binge/drink to 1/month or more	0	5	2	0.02	E
6. No binge/drink to 1/month or more	1	3	151	1.56	D
6. No binge/drink to 1/month or more	1	4	47	0.49	E
6. No binge/drink to 1/month or more	1	5	6	0.06	E
7. <1/mo to Never	2	0	117	1.21	F
7. <1/mo to Never	2	1	487	5.03	F
8. Increased from <1/month	2	3	595	6.14	H
8. Increased from <1/month	2	4	222	2.29	H
8. Increased from <1/month	2	5	31	0.32	H
9. Decreased from ~1/month	3	0	46	0.48	F
9. Decreased from ~1/month	3	1	162	1.67	F
9. Decreased from ~1/month	3	2	794	8.2	F
10. Increased from ~1/month	3	4	348	3.59	H
10. Increased from ~1/month	3	5	45	0.46	H
11. 1/week or more to < 1/mo	4	0	27	0.28	F
11. 1/week or more to < 1/mo	4	1	53	0.55	F
11. 1/week or more to < 1/mo	4	2	356	3.68	F
11. 1/week or more to < 1/mo	5	0	11	0.11	F
11. 1/week or more to < 1/mo	5	1	9	0.09	F
11. 1/week or more to < 1/mo	5	2	51	0.53	F
12. 1/week or more to ~1/mo	4	3	433	4.47	J
12. 1/week or more to ~1/mo	5	3	52	0.54	J
Missing	.	.	4	0.04	
Missing	.	0	21	0.22	
Missing	.	1	20	0.21	
Missing	.	2	50	0.52	
Missing	.	3	37	0.38	
Missing	.	4	16	0.17	
Missing	0	.	9	0.09	
Missing	1	.	30	0.31	
Missing	2	.	44	0.45	
Missing	3	.	15	0.15	
Missing	4	.	12	0.12	
Missing	5	.	3	0.03	
Missing	.	4	16	0.17	

TRANSITION IN LIVING ARRANGEMENTS

y1livarr based on y1q67e

y2livarr based on y2q84e, f & g

y1livarr	y2livarr			Total
	Missing	1. Live with parents	2. Don't live with parents	
Missing	2	21	80	103
1. Live with parents	100	1939	2665	4704
2. Don't live with parents	102	452	4322	4876
Total	204	2412	7067	9683

yt12livarr	Frequency	Percent
1. Don't live with parents both times	4322	46.09
2. Lived with parents, now does not	2665	28.42
3. Live with parents both times	1939	20.68
4. Did not live with parents, now does	452	4.82
Missing	305	

y2livarr	Frequency	Percent
1. Live with parents	2412	25.45
2. Don't live with parents	7067	74.55
Missing	204	

LiveWith based on y2q84a - y2q84k

livewith	Frequency	Percent
1. No one	594	6.13
Partner		
2. Partner/spouse only	2762	28.52
3. Partner & children only	1325	13.68
4. Partner & any others	693	7.16
No partner		
5. Children only (no partner)	222	2.29
6. Children & any others (no partner)	197	2.03
No partner/children		
7. Parents, step-parents or siblings (no partner/children)"	2158	22.29
8. Unrelated adults (no partner/children)	1171	12.09
9. Any other (no partner/children)	357	3.69
10. Missing	204	2.11

y2livarr	livewith										
	1. No one	2. Partner/ spouse only	3. Partner & children only	4. Partner & any others	5. Children only (no partner)	6. Children & any others (no partner)	7. Parents, step-parents or siblings (no partner/child ren	8. Unrelated adults (no partner/chil dren)	9. Any other (no partner/ children)	10. Missing	Total
Missing										204	204
1. Live with parents				212		109	1956		135		2412
2. Don't live with parents	594	2762	1325	481	222	88	202	1171	222		7067
Total	594	2762	1325	693	222	197	2158	1171	357	204	9683

TRANSITION TO PARENT

y1parent	y2parent		Total
	0=not parent	1=parent	
Missing	99	37	136
1=parent (i.e. given birth)	34	696	730
2=not parent	7714	1077	8791
3=DWA	20	6	26
Total	7867	1816	9683

yt12parent	Frequency	Percent
1=parent at phase 1	730	7.67
2=not parent at phase 1 but parent at phase 2	1077	11.31
3=not parent both phases	7714	81.02
Missing	162	

yt12parent	y1parent	y2parent	Frequency	Percent
Missing	Missing	0=not parent	99	1.02
Missing	Missing	1=parent	37	0.38
Missing	3=DWA	0=not parent	20	0.21
Missing	3=DWA	1=parent	6	0.06
1=parent at phase 1	1=parent (i.e. given birth)	0=not parent	34	0.35
1=parent at phase 1	1=parent (i.e. given birth)	1=parent	696	7.19
2=not parent at phase 1 but parent at phase 2	2=not parent	1=parent	1077	11.12
3=not parent both phases	2=not parent	0=not parent	7714	79.67

WORK STATUS TRANSITION

y1work	y2work					Total
	Missing	1. F/t, p/t, casual	2. Study	3. HD	4. Work but no pay	
Missing	12	87	9	29	3	140
1. F/t, p/t, casual	303	3841	226	643	53	5066
2. Study	107	2402	340	251	37	3137
3. HD	76	112	8	282	8	486
4. Work but no pay	8	49	4	27	7	95
5. Don't work	45	336	41	188	14	624
6. Other	17	67	12	36	3	135
Total	568	6894	640	1456	125	9683

'5= don't work - no equivalent ' was Not assigned at Y2

yt12work	Frequency	Percent
1. Stayed paid	3841	42.74
2. Study to paid	2402	26.73
3. Paid to home	643	7.15
4. Stayed study	340	3.78
5. No work to paid	336	3.74
6. Stayed home	282	3.14
7. Study to home	251	2.79
8. From paid to study	226	2.51
9. No work to home	188	2.09
10. Home to paid	112	1.25
99. Others	366	4.07
Missing	696	

Alternate model based on this cross-tab and choosing all large cells as separate categories and combine all remaining to "Other".

y1workB	y2workB					
	Full-time	Part-time, casual	HD	Study	Unemployed	Other
Full-time				maybe combine		
Part-time, casual				maybe combine		
HD	maybe combine					
Study						
Unemployed						
Other						

yt12work	y1work	y2work	Frequency	Percent
Missing	Missing	Missing	12	0.12
Missing	Missing	"1. F/t,p/t ,cas"	87	0.9
Missing	Missing	2. Study	9	0.09
Missing	Missing	3. HD	29	0.3
Missing	Missing	4. Work but no pay	3	0.03
Missing	"1. F/t,p/t ,cas"	Missing	303	3.13
Missing	2. Study	Missing	107	1.11
Missing	3. HD	Missing	76	0.78
Missing	4. Work but no pay	Missing	8	0.08
Missing	5. Don't work	Missing	45	0.46
Missing	6. Other	Missing	17	0.18
1. Stayed paid	"1. F/t,p/t ,cas"	"1. F/t,p/t ,cas"	3841	39.67
2. Study to paid	2. Study	"1. F/t,p/t ,cas"	2402	24.81
3 Paid to home	"1. F/t,p/t ,cas"	3. HD	643	6.64
4. Stayed study	2. Study	2. Study	340	3.51
5. No work to paid	5. Don't work	"1. F/t,p/t ,cas"	336	3.47
6. Stayed home	3. HD	3. HD	282	2.91
7. Study to home	2. Study	3. HD	251	2.59
8. From paid to study	"1. F/t,p/t ,cas"	2. Study	226	2.33
9. No work to home	5. Don't work	3. HD	188	1.94
10. Home to paid	3. HD	"1. F/t,p/t ,cas"	112	1.16
99. Others	"1. F/t,p/t ,cas"	4. Work but no pay	53	0.55
99. Others	2. Study	4. Work but no pay	37	0.38
99. Others	3. HD	2. Study	8	0.08
99. Others	3. HD	4. Work but no pay	8	0.08
99. Others	4. Work but no pay	"1. F/t,p/t ,cas"	49	0.51
99. Others	4. Work but no pay	2. Study	4	0.04
99. Others	4. Work but no pay	3. HD	27	0.28
99. Others	4. Work but no pay	4. Work but no pay	7	0.07
99. Others	5. Don't work	2. Study	41	0.42
99. Others	5. Don't work	4. Work but no pay	14	0.14
99. Others	6. Other	"1. F/t,p/t ,cas"	67	0.69
99. Others	6. Other	2. Study	12	0.12
99. Others	6. Other	3. HD	36	0.37
99. Others	6. Other	4. Work but no pay	3	0.03

PaidWork- based on y2q75a, b & c (full-time, part-time, casual)

paidwork	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1. None	1808	18.67	1808	18.67
2. 1-15 hours	825	8.52	2633	27.19
3. 16-24	561	5.79	3194	32.99
4. 25-34	706	7.29	3900	40.28
5. 35-40	2724	28.13	6624	68.41
6. 41-48	1512	15.61	8136	84.02
7. 49 or more	758	7.83	8894	91.85
9. missing	789	8.15	9683	100

TRANSITION IN RRMA

y1rrmagp	y2rrmagp					Total
	1. Metropolitan	2. Large rural	3. Small rural	4. Other	9. Missing	
1. Metropolitan	4650	118	104	253	206	5331
2. Large rural	272	646	44	132	41	1135
3. Small rural	219	45	635	106	34	1039
4. Other	473	126	107	1329	89	2124
9. Missing	32	8	1	10	3	54
Total	5646	943	891	1830	373	9683

yt12rrma	Frequency	Percent
1. Metropolitan (no change)	4650	48.02
2. Large rural (no change)	646	6.67
3. Small rural/Other (no change)	2177	22.48
4. Metro to Any rural	475	4.91
5. Large rural to Metro	272	2.81
6. Large to smaller rural	176	1.82
7. Small rural/other to Large rural/Metro	863	8.91
9. Missing	424	4.38

yt12rrma	y1rrmagp	y2rrmagp	Frequency	Percent
1. Metropolitan (no change)	1	1	4650	48.02
2. Large rural (no change)	2	2	646	6.67
3. Small rural/Other (no change)	3	3	635	6.56
3. Small rural/Other (no change)	3	4	106	1.09
3. Small rural/Other (no change)	4	3	107	1.11
3. Small rural/Other (no change)	4	4	1329	13.73
4. Metro to Any rural	1	2	118	1.22
4. Metro to Any rural	1	3	104	1.07
4. Metro to Any rural	1	4	253	2.61
5. Large rural to Metro	2	1	272	2.81
6. Large to smaller rural	2	3	44	0.45
6. Large to smaller rural	2	4	132	1.36
7. Small rural/other to Large rural/Metro	3	1	219	2.26
7. Small rural/other to Large rural/Metro	3	2	45	0.46
7. Small rural/other to Large rural/Metro	4	1	473	4.88
7. Small rural/other to Large rural/Metro	4	2	126	1.3
9. Missing	1	9	206	2.13
9. Missing	2	9	41	0.42
9. Missing	3	9	34	0.35
9. Missing	4	9	89	0.92
9. Missing	9	1	32	0.33
9. Missing	9	2	8	0.08
9. Missing	9	3	1	0.01
9. Missing	9	4	10	0.1
9. Missing	9	9	3	0.03

TRANSITION IN QUALIFICATIONS

y1q78	Recoded to			qual96			Total
	1. Any Uni	2. Cert/Dip	3. Trade	4. Yr 12	5. <= Yr 10	9. Missing	
Missing						47	47
1. No formal					191		191
2. Year 10					1173		1173
3. Yr 12				5379			5379
4. Trade			246				246
5. Cert/Dip		1460					1460
6. Uni degree	1112						1112
7. Higher degree	75						75
Total	1187	1460	246	5379	1364	47	9683

y2q94	Recoded to			qual00			Total
	1. Any Uni	2. Cert/Dip	3. Trade	4. Yr 12	5. <= Yr 10	9. Missing	
Missing						350	350
1. No formal					144		144
2. Year 10					907		907
3. Yr 12				2250			2250
4. Trade			293				293
5. Cert/Dip		1973					1973
6. Uni degree	3205						3205
7. Higher degree	561						561
Total	3766	1973	293	2250	1051	350	9683

qual96				qual00			Total
	1. Any Uni	2. Cert/Dip	3. Trade	4. Yr 12	5. <= Yr 10	9. Missing	
1. Any Uni	1158	4 (? Grad Cert Dip)*	0	10	1	14	1187
2. Cert/Dip	148	1019	33	126	57	77	1460
3. Trade	2	40	126	29	18	31	246
4. Yr 12	2415	717	100	1961	45	141	5379
5. <= Yr 10	35	180	32	112	918	87	1364
9. Missing	8	13	2	12	12	0	47
Total	3766	1973	293	2250	1051	350	9683

* Raises questions about all Certificate/Diploma data

yt12qual	Frequency	Percent
1. Ant Uni degree (no change)	1158	11.96
2. Certificate/di+A327ploma (no change)	1019	10.52
3. Trade (no change)	126	1.3
4. Yr 12 (no change)	1961	20.25
5. <= Yr 10 (no change)	918	9.48
6. Any other to Uni	2600	26.85
7. Yr 12 to Cert/dip	717	7.4
8. <= Yr 10 to Yr 12/Cert/dip/Trade	464	4.79
9. Any Category "to less education"	323	3.34
99. Missing	397	4.1

yt12qual	qual96	qual00	Frequency	Percent
1. Ant Uni degree (no change)	1	1	1158	11.96
2. Certificate/diploma (no change)	2	2	1019	10.52
3. Trade (no change)	3	3	126	1.3
4. Yr 12 (no change)	4	4	1961	20.25
5. <= Yr 10 (no change)	5	5	918	9.48
6. Any other to Uni	2	1	148	1.53
6. Any other to Uni	3	1	2	0.02
6. Any other to Uni	4	1	2415	24.94
6. Any other to Uni	5	1	35	0.36
7. Yr 12 to Cert/dip	4	2	717	7.4
8. <= Yr 10 to Yr 12/Cert/dip/Trade	3	2	40	0.41
8. <= Yr 10 to Yr 12/Cert/dip/Trade	4	3	100	1.03
8. <= Yr 10 to Yr 12/Cert/dip/Trade	5	2	180	1.86
8. <= Yr 10 to Yr 12/Cert/dip/Trade	5	3	32	0.33
8. <= Yr 10 to Yr 12/Cert/dip/Trade	5	4	112	1.16
9. Any Category to less education	1	2	4	0.04
9. Any Category to less education	1	4	10	0.1
9. Any Category to less education	1	5	1	0.01
9. Any Category to less education	2	3	33	0.34
9. Any Category to less education	2	4	126	1.3
9. Any Category to less education	2	5	57	0.59
9. Any Category to less education	3	4	29	0.3
9. Any Category to less education	3	5	18	0.19
9. Any Category to less education	4	5	45	0.46
99. Missing	1	9	14	0.14
99. Missing	2	9	77	0.8
99. Missing	3	9	31	0.32
99. Missing	4	9	141	1.46
99. Missing	5	9	87	0.9
99. Missing	9	1	8	0.08
99. Missing	9	2	13	0.13
99. Missing	9	3	2	0.02
99. Missing	9	4	12	0.12
99. Missing	9	5	12	0.12

TRANSITION IN BMI

y1bmiflag	y2bmiflag				Missing	Total
	<20	to 25	to <30	>=30		
<20	1212	874	51	7	72	2216
to 25	436	2951	848	121	144	4500
to <30	12	277	667	358	62	1376
>=30	4	33	94	435	28	594
Missing	146	381	191	145	134	997
Total	1810	4516	1851	1066	440	9683

bmidiff	Frequency	Percent
1. Normal (unchanged)	2951	30.48
2. Underweight (unchanged)	1212	12.52
3. Overweight (unchanged)	667	6.89
4. Obese (unchanged)	435	4.49
Increase		
5. Underweight to higher	932	9.63
6. Normal to higher	969	10.01
7. Overweight to Obese	358	3.7
Decrease		
8. Normal to Underweight	436	4.5
9. Overweight to less	289	2.98
10. Obese to less	131	1.35
99. Missing	1303	13.46

bmidiff	y1bmiflag	y2bmiflag	Frequency	Percent
1. Normal (unchanged)	2	2	2951	30.48
2. Underweight (unchanged)	1	1	1212	12.52
3. Overweight (unchanged)	3	3	667	6.89
4. Obese (unchanged)	4	4	435	4.49
5. Underweight to higher	1	2	874	9.03
5. Underweight to higher	1	3	51	0.53
5. Underweight to higher	1	4	7	0.07
6. Normal to higher	2	3	848	8.76
6. Normal to higher	2	4	121	1.25
7. Overweight to Obese	3	4	358	3.7
8. Normal to Underweight	2	1	436	4.5
9. Overweight to less	3	1	12	0.12
9. Overweight to less	3	2	277	2.86
10. Obese to less	4	1	4	0.04
10. Obese to less	4	2	33	0.34
10. Obese to less	4	3	94	0.97
99. Missing	1	9	72	0.74
99. Missing	2	9	144	1.49
99. Missing	3	9	62	0.64
99. Missing	4	9	28	0.29
99. Missing	9	1	146	1.51
99. Missing	9	2	381	3.93
99. Missing	9	3	191	1.97
99. Missing	9	4	145	1.5
99. Missing	9	9	134	1.38

Alternatively, use absolute difference in BMI and come up with a transition classification based on this.

y1BMI	yt12bmi				
	N	Mean	Std Dev	Minimum	Maximum
<20	2144	1.3717245	2.2217125	-5.3421545	19.7291639
to 25	4356	1.0525212	2.9328686	-7.7957074	42.7603329
to <30	1314	0.9970156	3.8255024	-16.1742778	46.1183079
>=30	566	0.070385	5.78413	-41.5323411	30.4218496

TRANSITION IN 'RUSHED OR BUSY'

y1q62	y2q81a						Total
	1. Every day	2. Few times per week	3. ~1/week	4. ~1/month	5. Never	9. Missing	
1. Every day	559	686	194	110	31	9	1589
2. Few times per week	825	2005	687	371	140	38	4066
3. ~1/week	243	852	436	302	95	8	1936
4. ~1/month	110	405	276	218	69	7	1085
5. Never	46	156	87	77	71	12	449
9. Missing	86	235	128	67	31	11	558
Total	1869	4339	1808	1145	437	85	9683

yt12rush	Frequency	Percent
1. Every day (same)	559	5.77
2. Few times per week (same)	2005	20.71
3. ~1/week (same)	436	4.5
4. ~1/month/Never (same)	435	4.49
5. Every day to less	1021	10.54
6. Few/week to less	1198	12.37
7. ~1/week to less	397	4.1
8. Few/week to Everyday	825	8.52
9. ~1/week to more often	1095	11.31
10. ~1/month or less to more often	1080	11.15
99. Missing	632	6.53

yt12rush	y1q62	y2q81a	Frequency	Percent
1. Every day (same)	1. Every day	1. Every day	559	5.77
2. Few times per week (same)	2. Few times per week	2. Few times per week	2005	20.71
3. ~1/week (same)	3. ~1/week	3. ~1/week	436	4.5
4. ~1/month/Never (same)	4. ~1/month	4. ~1/month	218	2.25
4	4. ~1/month	5. Never	69	0.71
4	5. Never	4. ~1/month	77	0.8
4	5. Never	5. Never	71	0.73
5. Every day to less	1. Every day	2. Few times per week	686	7.08
5. Every day to less	1. Every day	3. ~1/week	194	2
5. Every day to less	1. Every day	4. ~1/month	110	1.14
5. Every day to less	1. Every day	5. Never	31	0.32
6. Few/week to less	2. Few times per week	3. ~1/week	687	7.09
6. Few/week to less	2. Few times per week	4. ~1/month	371	3.83
6. Few/week to less	2. Few times per week	5. Never	140	1.45
7. ~1/week to less	3. ~1/week	4. ~1/month	302	3.12
7. ~1/week to less	3. ~1/week	5. Never	95	0.98
8. Few/week to Everyday	2. Few times per week	1. Every day	825	8.52
9. ~1/week to more often	3. ~1/week	1. Every day	243	2.51
9. ~1/week to more often	3. ~1/week	2. Few times per week	852	8.8
10. ~1/month or less to more often	4. ~1/month	1. Every day	110	1.14
	4. ~1/month	2. Few times per week	405	4.18
	4. ~1/month	3. ~1/week	276	2.85
	5. Never	1. Every day	46	0.48
	5. Never	2. Few times per week	156	1.61
	5. Never	3. ~1/week	87	0.9
99. Missing	1. Every day	9. Missing	9	0.09
99. Missing	2. Few times per week	9. Missing	38	0.39
99. Missing	3. ~1/week	9. Missing	8	0.08
99. Missing	4. ~1/month	9. Missing	7	0.07
99. Missing	5. Never	9. Missing	12	0.12
99. Missing	9. Missing	1. Every day	86	0.89
99. Missing	9. Missing	2. Few times per week	235	2.43
99. Missing	9. Missing	3. ~1/week	128	1.32
99. Missing	9. Missing	4. ~1/month	67	0.69
99. Missing	9. Missing	5. Never	31	0.32
99. Missing	9. Missing	9	11	0.11

TRANSITION IN 'TIME ON HER HANDS'

y1q63	y2q81b						Total
	Missing	1. Every day	2. Few times per week	3. ~1/week	4. ~1/month	5. Never	
1. Every day	5	40	117	92	92	100	446
2. Few times per week	41	64	370	439	452	471	1837
3. ~1/week	43	58	290	535	621	668	2215
4. ~1/month	55	28	198	378	823	836	2318
5. Never	73	43	174	263	459	1282	2294
9. Missing	18	18	94	106	148	189	573
Total	235	251	1243	1813	2595	3546	9683

yt12time	Frequency	Percent
1. Every day (same)	1282	13.24
2. Few times per week (same)	823	8.5
3. ~1/week (same)	535	5.53
4. ~1/month/Never (same)	591	6.1
5. Never to more often	939	9.7
6. ~1/month to more often	604	6.24
7. ~1/week to more often	348	3.59
8. ~1/month to Never	836	8.63
9. ~1/week to less often	1289	13.31
10. Few times or more/week to more often	1646	17
99 Missing	790	8.16

yt12time	y1q63	y2q81b	Frequency	Percent
1. Every day (same)	5. Never	5. Never	1282	13.24
2. Few times per week (same)	4. ~1/month	4. ~1/month	823	8.5
3. ~1/week (same)	3. ~1/week	3. ~1/week	535	5.53
4. ~1/month/Never (same)	1. Every day	1. Every day	40	0.41
4. ~1/month/Never (same)	1. Every day	2. Few times per week	117	1.21
4. ~1/month/Never (same)	2. Few times per week	1. Every day	64	0.66
4. ~1/month/Never (same)	2. Few times per week	2. Few times per week	370	3.82
5. Never to more often	5. Never	1. Every day	43	0.44
5. Never to more often	5. Never	2. Few times per week	174	1.8
5. Never to more often	5. Never	3. ~1/week	263	2.72
5. Never to more often	5. Never	4. ~1/month	459	4.74
6. ~1/month to more often	4. ~1/month	1. Every day	28	0.29
6. ~1/month to more often	4. ~1/month	2. Few times per week	198	2.04
	4. ~1/month	3. ~1/week	378	3.9
7. ~1/week to more often	3. ~1/week	1. Every day	58	0.6
	3. ~1/week	2. Few times per week	290	2.99
8. ~1/month to Never	4. ~1/month	5. Never	836	8.63
9. ~1/week to less often	3. ~1/week	4. ~1/month	621	6.41
9. ~1/week to less often	3. ~1/week	5. Never	668	6.9
10. Few times or more/week to more often	1. Every day	3. ~1/week	92	0.95
	1. Every day	4. ~1/month	92	0.95
	1. Every day	5. Never	100	1.03
	2. Few times per week	3. ~1/week	439	4.53
	2. Few times per week	4. ~1/month	452	4.67
	2. Few times per week	5. Never	471	4.86
99 Missing	1. Every day	Missing	5	0.05
99 Missing	2. Few times per week	Missing	41	0.42
99 Missing	3. ~1/week	Missing	43	0.44
99 Missing	4. ~1/month	Missing	55	0.57
99 Missing	5. Never	Missing	73	0.75
99 Missing	9. Missing	Missing	18	0.19
99 Missing	9. Missing	1. Every day	18	0.19
99 Missing	9. Missing	2. Few times per week	94	0.97
99 Missing	9. Missing	3. ~1/week	106	1.09
99 Missing	9. Missing	4. ~1/month	148	1.53
99 Missing	9. Missing	5. Never	189	1.95

women's
health
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June 2002