



**The Australian Longitudinal Study on
Women's Health**

Report 10

**The University of Newcastle
10 December 1998**

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DECEMBER 1998 REPORT

INTRODUCTION

This is the tenth report on the Australian Longitudinal Study on Women's Health, provided by the University of Newcastle and the University of Queensland, due 10 December 1998, as agreed in the contract between the Commonwealth Department of Health and Family Services and the University of Newcastle.

This report is presented in two parts:

PART A - Progress at the University of Newcastle

PART B - Progress at the University of Queensland

PART A: UNIVERSITY OF NEWCASTLE

EXECUTIVE SUMMARY

1. The first follow-up survey of the mid-age cohort was completed during 1998. The response rate after two reminder cards was 75%. A telephone reminder in May-July increased the response rate to 86%. A second telephone call, with an offer for remaining non-respondents to complete a short survey, has resulted in a final response rate of 92%. Only 1% of the original participants have withdrawn from the study, and 4.4% have not yet been contacted.

This high response rate has been achieved through a labour intensive system of 'tracking' women who are lost to follow-up. While the cost of each survey is similar to the 1996 cost for respondents to the initial mail-outs, the additional costs of telephone calls and casual staff increase the 'average' survey cost from \$8.58 to \$19.75 per completed survey.

2. A comparison of the socio-demographic characteristics of women who remain lost to follow-up suggests that these women are more likely to be divorced/separated or widowed and have no post-school education. The additional reminder strategies were successful in tracking around two thirds of those women who were most likely to be lost to follow-up (eg those in urban and remote areas, born in non-English speaking countries, and who have difficulty managing on their income).
3. Preliminary data from the first follow-up survey suggest that physical health and vitality (as measured by sub-scale scores of the SF-36 health and well-being survey) have decreased by 2-4% in the period since the baseline survey. There were no significant changes in bodily pain or mental health.
4. The pilot survey for the first follow-up of the older cohort was also developed this year. While several items from the baseline survey (which are unlikely to have changed) were not included, additional items, which explore new issues, have been added. To date, the response rate is 73% and 2% of participants are known to be deceased
5. The foundation PhD students are nearing completion of their studies, and several new PhD students (funded from other sources) have commenced work on the project this year. Progress reports are included in this report.
6. During the second half of 1998, 13 papers have been presented at national and international conferences and one paper previously accepted for publication has been published. Three papers previously submitted have been accepted for publication and one additional paper has been submitted for editorial review. The number of papers currently under editorial review is 17.
7. A newsletter with more results from the baseline surveys was sent to all participants in October/November 1998. Feedback from participants has been very favourable. The project's web page has also been updated and is proving to be a useful vehicle for dissemination of information about the project.

8. During July-December 1998, a full review of the budget for the next five years was conducted by the University of Newcastle researchers. It is clear that, if the main cohort studies are to be maintained and surveyed at three yearly intervals, a minimum of \$810,000 per annum will be required. Cost increases have arisen as a result of salary increases for University of Newcastle staff, and as a result of the need for increased telephone contact with participants.
9. The National Health and Medical Research Council has been asked by the Minister for Health and Aged Care to undertake overall management of the study and will appoint a new Steering Committee in due course. There has therefore been no meeting of the National Advisory Committee during 1998.

1. ADMINISTRATIVE ARRANGEMENTS

1.1 PROJECT STAFF

A review of the project staffing needs for the next five years was conducted prior to the 1998 review. The following staff will be required for the period 1999-2003:

project manager (Research Academic C/D);
statistician (Research Academic A/B);
data manager (HEW level 7);
research assistants x 2 (HEW level 6);
research assistants x 2 (HEW level 5); and
secretary (HEW level 3).

Position descriptions for each of the project staff are included in Appendix 1.

Due to delays in organising a contract between the Department of Health and Aged Care and the University of Newcastle, staff contracts for the next five years have not yet been finalised. Advertisements were placed in national/local newspapers for the statistician, secretary and one research assistant position in November 1998. It is anticipated that these positions will be filled by early 1999.

Investigators working on main cohort studies at the University of Newcastle are currently:

Professor Annette Dobson (project director, Statistics);
Dr Wendy Brown (project manager, RIGH);
Emeritus Professor Lois Bryson (Sociology);
Dr Julie Byles (Clinical Epidemiology);
Dr Justin Kenardy (Psychology);
Associate Professor Christina Lee (Psychology);
Dr Gita Mishra (Statistics);
Associate Professor Margot Schofield (Psychology);
Dr Penny Warner-Smith (Leisure & Tourism Studies).

Associate investigators who have worked with the main cohorts in 1998 include:

Mr John Germov (Sociology);
Ms Sue Outram (Behavioural Science);
Ms Lauren Williams (Nutrition & Dietetics);
Ms Susan Feldman (University of Melbourne).

1.2 BUDGET (January-December 1998)

A summary of estimated income and expenditure for 1998 is shown in Table 1a. Salary savings were made because the senior statistician for the main cohort studies resigned in February 1998 to take up a lecturing position in statistics at the University of Newcastle. It was decided not to advertise this position until it was clear that ongoing funding would be available. This position has now been advertised, and an appointment will be made early in 1999. The project has also been operating with a part-time secretary throughout 1998, but it is clear that a full time person will be needed in 1999.

Table 1a: Summary of income and expenditure - 1998

INCOME		EXPENDITURE		
		to end Nov	commitments	total
DHFS	450,000	UN overheads (15%)	113,400	113,400
(final installment of contract one)		payment to UQ (1)	203,500	203,500
DHFS	375,000	payment to UQ (2)	36,000	36,000 72,000
DHFS	75,000	UN salaries	247,022	24,224 271,246
(first installments of new contract)		on-costs	44,036	4,003 48,039
		vacation scholars		3,200 3,200
		computers & training	3,251	900 4,151
		furniture	875	875
		HIC/ABS data	10,366	400 10,766
		photocopying	991	349 1,340
		telephone - rental	1,830	166 1,996
		- calls	9,967	3,000 12,967
		post - general	4,453	4,453
		main - print & pack	46,280	46,280
		main - data entry	20,080	20,080
		main - post	27,270	27,270
		print	10,364	10,364
		(newsletters/pilots)		
		post - newsletters	17,010	17,010
		interpreters	2,400	2,400
		sub-studies	22,416	500 22,916
		consumables	5,640	700 6,340
		meeting expenses	1,221	1,221
		conference travel	9,895	2,079 11,974
Income total	900,000	Expenditure total		913,788

The projected budget for the next five years is shown in Table 1b. The increase in salary costs reflects the University's 4% salary increase in May 1997, 3% in 1998, and a further 4% in March 1999. These increases apply to all staff employed at the University of Newcastle. In addition, superannuation contributions will be payable for all project staff from 1 January 1999.

As the total income available for the project will range from 81%(1999) to 68% (2003) of that recommended by the reviewers, it is clear that alternative funding will have to be found to meet the shortfall, and to ensure continued funding of the project. The figures in Table 1b are based on the premise that 10% of the total funding for the project over the next five years will be allocated to the special cohort studies. With an additional salary contribution of \$50,000 from the University of Newcastle, it is anticipated that there will be deficit of around \$250,000 over the next five years. If GST is applied to research costs, the deficit will be further increased. Funds not expended due to salary savings in previous years (1995-7), as well as research quantum earnings will be used to offset this deficit.

Table 1b: Projected budget for Australian Longitudinal Study on Women's Health 1999 - 2003

		1999	2000	2001	2002	2003
Funds requested		1,105,307	1,156,516	1,270,249	1,254,599	1,318,173
Actual income		900,000	900,000	900,000	900,000	900,000
income/requested		81%	78%	71%	72%	68%
A UN (90%)		810,000	810,000	810,000	810,000	810,000
B UQ (10%)		90,000	90,000	90,000	90,000	90,000
Expenditure (UN)						
Salaries	Project Manager C6+	75945	77746	77746	77746	77746
	Data manager 7,4	46674	48008	48008	48008	48008
	RA1 6,1	38674	40006	41340	42674	42674
	RA2 5,5	37643	38674	38674	38674	38674
	RA3 5,1	33338	34415	35491	35491	35491
	Secretary 3,1	26671	27478	28286	29092	29900
	Statistician 1 B3	51557	53358	55155	56955	56955
	Stats/RA 7.1	42674	42674	44007	45342	46674
Total salaries		353,176	362,359	368,707	373,982	376,122
on-costs 30%		105,953	108,708	110,612	112,195	112,837

Table 1b: continued

	1999	2000	2001	2002	2003	
C Salaries + on-costs	459,129	471,067	479,319	486,177	488,959	
UN contribution	50,000	50,000	50,000	50,000	50,000	
SALARIES	409,129	421,067	429,319	436,177	438,959	
Surveys	125,000	131,250	137,813	144,703	151,938	
Office costs	40,000	42,000	44,100	46,305	48,620	
Travel/NAC	35,000	36,750	38,588	40,517	42,543	
Newsletters	42,750	44,888	47,132	49,488	51,963	
HIC/ NDI data	5,000	5,000	5,000	5,000	5,000	
Sub-studies (test/retest)	30,000	30,000	30,000	30,000	30,000	
PhD's (completing)	38,500					
D total project costs	316,250	289,888	302,632	316,013	330,064	
E salaries + project (C+D)	725,379	710,954	731,951	752,190	769,023	
F UN (15%) overheads	121,500	121,500	121,500	121,500	121,500	
G TOTAL (E+F)	846,879	832,454	853,451	873,690	890,523	
H Available funds	810,000	810,000	810,000	810,000	810,000	
K Balance (H-G)	-36,879	-22,454	-43,451	-63,690	-80,523	-246,997

2 FIRST FOLLOW-UP SURVEY OF THE MID-AGE COHORT (MARCH-DEC 1998)

2.1 PROTOCOL FOR TRACKING NON-RESPONDENTS

A summary of the results of each stage of the follow-up survey is shown in Table 2.

Table 2: Results of the follow-up survey (3 December 1998)

	Stage 2	Sent	Surveys Returned	Deceased	Response Rate cumulative
1	Mail out surveys	13,451			
	Reminder/thank you card	13,451	8662		64.4%
2	Second reminder (card)	4,795	1387	17	74.8%
3	Third reminder (telephone)	3,159	1,525	14	86.2%
4	Fourth reminder (telephone)	1,239	41 (long)	3	86.6%
			666 (short)		

In previous years, only three stages of follow-up were conducted. However in 1998, several women who were contacted in May (reminder 3) and said they would return their surveys, had not done so by October 1998. "Being too busy" or having "no time" was a common reason for non completion of surveys. It was therefore decided to offer these women a short (10-15 minute) survey by telephone.

To date, 2704 women have been contacted again by telephone (reminder 4), and of these, 666 (24.6%) have completed a short survey. This short survey is included in Appendix 2.

A complex tracking system which aims to locate non-respondents to each stage of the mailout has been established. All women whose packages were returned to sender or who were not contactable at a previous known telephone number, were tracked through the electronic White Pages. The entire process is summarised in Figure 1.

From March - December 1998, two full-time staff and 12 casual staff were required to track women who did not respond to the initial mail outs; this process required an estimated 10,000 telephone calls and the re-sending of about 1500 replacement surveys.

The approximate cost of each stage of the mailout is included in Table 3. Excluding the cost of a full time data manager to develop and maintain the computerised tracking system, and the costs of the research assistants who tracked the women whose address had changed, the estimated cost of the follow-up survey was around \$120,000. This is an overall cost of about \$10 per participant. The cost per participant for early respondents who did not require a telephone reminder is estimated to be around \$8.50. The addition of a telephone reminder adds about \$5 per participant contacted. The final stage of the process, which resulted in short telephone surveys being completed by 666 women is estimated to cost around \$20 per completed survey. (See Table 3).

Table 3 Approximate cost of each stage of the mailouts

STAGE	ITEM	COST \$	APPROX COST PER RETURNED SURVEY
Stage 1	Print and pack surveys	36,400	
	Postage	8,820	
	Print and pack cards	4,840	
	Postage	4,800	
	TOTAL	54,860	} print, post & pack \$5.73
Stage 2	Print and pack cards	1,020	
	Postage	1,800	
	TOTAL	2,820	\$8.58
Stage 3	Telephone calls	3,500	
	Casual salaries	7,100	staff, calls and post
	Print additional surveys	4,020	\$10.46
	Postage	1,300	return mail and data
	TOTAL	15,920	entry \$2.85 \$13.42
Stage 4	Telephone calls	4,000	staff and calls
	Casual salaries	7,800	\$17.75
	TOTAL	11,800	data entry \$2 \$19.75
	Return post	10,550	} \$2.85 per survey
	Data entry	20,080	
	1800 calls	1,800	
	Interpreters	2,400	
	TOTAL	34,830	
TOTAL COST OF MID FOLLOW-UP			\$120,230
(excluding salaries for data managers and research assistants)			

An overall summary of the outcome of the first follow-up for the mid cohort, as at 3 December 1998, is shown in Table 4.

Table 4: Outcomes of the first follow-up survey for the mid-age cohort

	N	%
Deceased	34	0.25
Withdrawn from study	152	1.1
Cannot do this time (but will stay in study)	212	1.6
Overseas	72	0.5
Survey received	11,615	} 91.5
Short survey by phone	690	
Returned survey not received	86	0.6
No contact yet	590	4.4
TOTAL	13451	100

2.2 COMPARISONS OF DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS TO FULL SURVEYS; RESPONDENTS TO SHORT SURVEYS AND NON RESPONDENTS

In the last report we provided a comparison of the socio-demographic characteristics of respondents and non-respondents as at the end of May 1998. The same tables are now provided for women who responded to the initial mail out (stages 1 and 2), those who completed the survey after a reminder call (stage 3) and those who responded to the short survey or completed the long survey after a second reminder call (stage 4). These comparisons are provided in the following tables.

Table 5: Area of residence

	Respondents Initial contact (stage 1 & 2)		Respondents telephone reminder (stage 3)		Respondents short survey (stage 4)		Non- respondents		Total
	n	%	n	%	n	%	n	%	n
Urban	3563	35.6	542	35.0	301	42.5	399	42.5	4805
Rural	5798	57.9	910	58.8	352	49.7	449	47.9	7509
Remote	652	6.5	97	6.3	55	7.8	88	9.4	892
Missing	2	0.0	0	0.00	0	0.0	2	0.2	4
Total	10015		1549		708		938		13210

Table 6: State of residence

	Respondents Initial contact		Respondents 1st reminder call		Respondents 2nd reminder call		Non- respondents		Total N
	n	%	n	%	n	%	n	%	
NSW	2946	29.4	396	25.6	224	31.6	280	29.9	3846
VIC	2382	23.8	397	25.6	161	22.7	194	20.7	3134
QLD	2185	21.8	376	24.3	141	19.9	218	23.2	2920
SA	872	8.7	134	8.7	58	8.2	53	5.7	1117
WA	899	9	134	8.7	75	10.6	121	12.9	1229
TAS	434	4.3	72	4.7	19	2.7	28	3	553
NT	174	1.7	23	1.5	19	2.7	34	3.6	250
ACT	121	1.2	17	1.1	11	1.6	8	0.9	157
Missing	2	0.0	0	0.0	0	0.0	2	0.2	4
Total	10015		1549		708		938		13210

Table 7: Marital status

	Respondents Initial contact		Respondents 1st reminder call		Respondents 2nd reminder call		Non- respondents		Total N
	n	%	n	%	n	%	n	%	
Married	8393	83.8	1290	83.3	570	80.5	683	72.8	10936
Separated/divorced/ widowed	1256	12.5	211	13.6	108	15.3	210	22.4	1785
Never Married	323	3.2	41	2.7	23	3.3	38	4	425
Missing	43	0.4	7	0.5	7	1	7	0.8	64
Total	10015		1549		708		938		13210

Table 8: Country of birth

	Respondents Initial contact		Respondents 1st reminder call		Respondents 2nd reminder call		Non- respondents		Total
	n	%	n	%	n	%	n	%	n
Australia	7668	76.6	1133	73.1	515	72.7	632	67.4	9948
Other English Speaking	1379	13.8	186	12.0	81	11.4	116	12.4	1762
Europe	574	5.7	124	8	58	8.2	93	9.9	849
Asia	207	2.1	59	3.8	29	4.1	63	6.7	358
Other	77	0.8	24	1.6	12	1.7	20	2.1	133
Missing	110	1.1	23	1.5	13	1.8	14	1.5	160
Total	10015		1549		708		938		13210

Table 9: Level of education

	Respondents Initial contact		Respondents 1st reminder call		Respondents 2nd reminder call		Non- respondents		Total
	n	%	n	%	n	%	n	%	n
Uni/higher degree	1492	14.9	162	10.5	96	13.5	93	9.9	1843
Trade/certificate	2009	20.1	283	18.3	104	14.7	127	13.5	2523
<=HSC	6433	64.2	1087	70.2	495	69.9	701	74.7	8716
Missing	81	0.8	17	1.1	13	1.8	17	1.8	128
Total	10015		1549		708		938		13210

Table 10: Occupation

	Respondents Initial contact		Respondents 1st reminder call		Respondents 2nd reminder call		Non- respondents		Total
	n	%	n	%	n	%	n	%	n
Manual	1331	13.3	261	16.9	115	16.2	175	18.7	1882
Trade/admin	4251	42.5	609	39.3	264	37.3	336	35.8	5460
Manager/professional	3783	37.8	521	33.6	241	34.0	292	31.1	4837
Other	650	6.5	158	10.2	88	12.4	135	14.4	1031
Total	10015		1549		708		938		13210

Table 11: Manage on income

	Respondents Initial contact		Respondents 1st reminder call		Respondents 2nd reminder call		Non- respondents		Total
	n	%	n	%	n	%	n	%	n
Impossible	203	2.0	45	2.9	28	4.0	42	4.5	318
Difficult always	1145	11.44	175	11.3	115	16.2	156	16.6	1592
Difficult sometimes	2811	28.1	470	30.3	199	28.1	309	32.9	3789
Not too bad	4202	42.0	636	41.1	281	39.7	333	35.5	5452
It is easy	1603	16.0	209	13.5	77	10.9	90	9.6	1979
Missing	50	0.5	14	0.9	8	1.1	8	0.9	80
Total	10015		1549		708		938		13210

Table 12: Pap tests

	Respondents Initial contact		Respondents 1st reminder call		Respondents 2nd reminder call		Non- respondents		Total
	n	%	n	%	n	%	n	%	n
In last 2 years	7237	72.3	1029	66.4	464	65.5	606	64.6	9336
Not in last 2 years	2726	27.2	501	32.3	235	33.2	324	34.5	3786
Missing	52	0.5	19	1.2	9	1.3	8	0.8	88
Total	10015		1549		708		938		13210

Table 13: SF-36 physical health

	Respondents Initial contact		Respondents 1st reminder call		Respondents 2nd reminder call		Non- respondents		Total
	n	%	n	%	n	%	n	%	N
<25	232	2.3	33	2.1	21	3.0	47	5.0	333
25-<50	3180	31.8	519	33.5	250	35.3	304	32.4	4253
50-<74	6035	60.3	854	55.1	374	52.8	492	52.5	7755
Missing	568	5.7	143	9.2	63	8.9	95	10.1	869
Total	10015		1549		708		938		13210

Table 14: SF-36 mental health

	Respondents Initial contact		Respondents 1st reminder call		Respondents 2nd reminder call		Non- respondents		Total
	n	%	n	%	n	%	n	%	n
<25	161	1.6	38	2.5	17	2.4	29	3.1	245
25-<50	3125	31.2	519	33.5	271	38.3	350	37.3	4265
50-<74	6161	61.5	849	54.8	357	50.4	464	49.5	7831
Missing	568	5.7	143	9.2	63	8.9	95	10.1	869
Total	10015		1549		708		938		13210

From these data it is apparent that the additional strategies for reminding the women, and tracking those who were initially lost to follow-up, were successful. For example, in relation to area of residence, 68% of the urban women, and 63% of the remote area women, who did not respond to the initial strategies, have now completed a survey. WA and NT had the highest initial loss to follow-up rates - 63% and 56% of these women have now completed a survey.

There was also a high initial loss to follow-up rate among women who are separated, divorced or widowed, and those who have no post school education. The additional telephone reminders resulted in surveys being completed by 60% of the separated/divorced non-respondents, and 69% of the 'no post school qualifications' non-respondents. Among non-respondents who are in trade or managerial professions (who were also more likely to be among those lost to follow-up), the telephone reminders resulted in 72% completing a survey. Among those women who reported finding it difficult (always) or impossible to manage on their income, the additional telephone contact resulted in 64-65% completed surveys. There was also success in finding non-respondents who were born in overseas non-English speaking countries; 66% of non-respondents who were born in Europe, and 58% of those born in Asia have now completed a survey.

In terms of general health and well-being, more than half of the initial non-respondents who had low or very low scores on the SF36 have now completed a survey. (53% of those with very low (<25) physical health score, 72% of those with low (25-<50) physical health scores, 65% of those with very low (<25) mental health scores and 69% of those with low (25-<50) mental health scores).

3 FIRST LONGITUDINAL DATA

The first longitudinal data from the study are now available. At this preliminary stage of analysis, only absolute changes in SF-36-scores have been examined for the 11,507 participants who completed the full set of 36 items on both occasions. A negative change reflects a decline in scores, and a corresponding deterioration in health. The unadjusted mean scores were lower at follow-up for most dimensions of SF-36, with scores for general health, role physical and vitality falling by between 2 and 4% during this period. There was no

significant difference in the mean score for bodily pain, while the mean score for the role-emotional dimension increased slightly.

It is interesting to note that changes in mental health indices are less marked than those in physical health. More detailed analyses are planned for 1999, to determine whether these changes are more marked in women whose menopausal status has changed during this period, or whether the changes reflect a general age-related decrease.

Table 15 Absolute change in SF-36 scores between baseline and follow up (mean 24 months)

	Mean (SD) at baseline	Mean at follow up	Mean difference (95% CI)
Minimum No. of observations	13568	11404	10991
Physical Functioning	85.31 (18.49)	83.68	-2.36 (-2.66 to -2.06)*
Role-Physical	79.94 (35.20)	77.53	-3.26 (-3.97 to -2.55)*
Bodily Pain	70.83 (23.84)	70.92	-0.45 (-0.87 to -0.04)
General Health	72.14 (20.47)	72.80	-0.10 (-0.38 to 0.18)*
Vitality	58.62 (20.95)	57.79	-1.38 (-1.72 to -1.04)*
Social Functioning	81.86 (23.61)	82.00	-0.97 (-1.40 to -0.54)*
Role-Emotional	77.66 (36.01)	79.65	0.92 (0.20 to 1.64)*
Mental Health	72.76 (17.95)	73.49	-0.13 (-0.42 to 0.17)

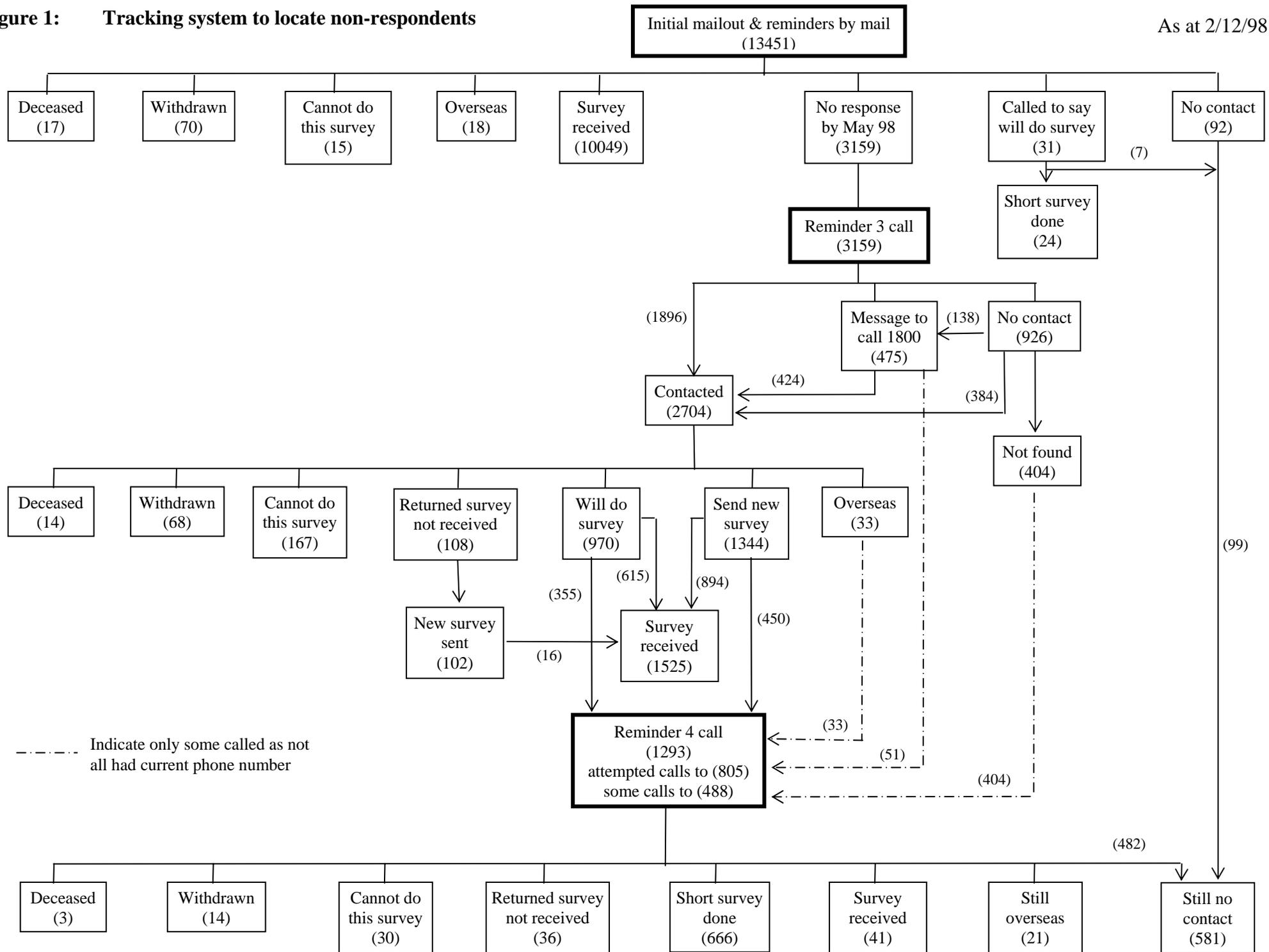
* p < 0.01 (paired t test) for the difference.

2.4 DATA BOOK FOR MID FOLLOW-UP SURVEY

A data book with frequency of responses for the first mid follow-up is included in Appendix 3.

Figure 1: Tracking system to locate non-respondents

As at 2/12/98



3. PILOT SURVEY FOR FIRST FOLLOW-UP OF OLDER COHORT

3.1 DEVELOPMENT OF THE SURVEY

The pilot survey for the first follow-up of the older cohort was developed between March and September 1998. Items included in the 1996 survey but either not included or modified for the 1998 pilot survey were:

Hospital waiting list for surgery (Q13);
Most recent visit to a GP (Q14);
GP preference (Q17);
Oral contraceptive pill (Q21);
Length of duration of HRT (Q23);
Pap test (Q24);
Mammogram (Q25);
Reproductive history (Q26);
Methods of reducing stress (29);
Binge drinking (Q33);
Smoking status (Q34);
How long ago gave up smoking (Q35);
Number of cigarettes used to smoke (Q36);
Age started smoking (Q38);
Smoked daily for six months or more (Q39);
Weight aspirations (Q42);
Diet and weight loss/gain (Q43-46);
Time pressure compared to five years ago (Q51);
How happy are you with the following aspects of your life (Q52);
How happy are you with sharing tasks (Q53);
Who lives with you (Q55);
Satisfaction with help for personal care (Q58);
Who makes decisions about your life (Q59);
Getting on with other people (Q60);
Age left school (Q68);
Highest qualification (Q69);
Aboriginal or TSI origin (Q70);
Country of birth (Q71);
First arrival in Australia (Q72);
Language spoken at home (Q73);
English competence (Q74);
Ownership/purchasing agreement (Q78); and
Satisfaction with achievements (Q79).

Additional items to measure issues relating to the following were included in the 1998 survey

Falls;
Days in hospital;
Sleeping difficulties;
Sensory deficits;
Depression;
Pet ownership;

Neighbourhood;
Optimism;
Travel and transport;
Instrumental support;
Caring;
Volunteering;
Hardiness;
Childhood trauma;
Stages of development

Other changes to the 1998 survey included changes to the time frame for answers to questions about conditions, life events etc.

A summary of all questions included in the pilot survey with the source of each item is shown in Table 16.

The pilot survey and other materials used are included in Appendix 4.

Table 16: Question source for the older pilot-follow-up

Question No.	Question description	Source	WHA Baseline	Purpose and Conceptual Base
Health Service Use				
1 a-s	Medical History	Modified from ABS (NHS) 1989-90, then revised and extended.	✓	Comparable measure of self-reported health status (for longitudinal comparison)
2 a-k	Operations/ Procedures	WHA (Baseline), then revised according to national estimates for females aged 72-76 in Quality in Australian Health Care Study database (1995)	✓	Compare with Baseline and collect data on procedures with high occurrence in this specific age group.
3 a-h	Frequency of HCP visits	Modified from ABS (NHS) 1989-90, then revised according to data from “Availability and Use of Health Services Substudy”(AUHS) (WHA)	✓	Obtain information regarding HCPs most utilised by women in this age group; provide longitudinal comparison for changes in type and frequency over time; provide cross-sectional comparison of changes according to age..
4 a- h	Access to Health Care	AUHS Substudy (WHA)		Obtain feedback regarding access to Health Care and possible barriers to service use.
5	Cost of GP	AUHS Substudy (WHA)		Further feedback regarding possible barrier to GP visitation.
6	Falls	DVA trial.		A particular concern for women in this age group. Provide estimate of prevalence and possible reasons for hospitalisation/ service use.
7	Hospitalisation	Modified from ABS (NHS) 1989-90	✓	Provide longitudinal comparison.
8	Days in Hospital	AUHS Substudy		Provide info. to be compared with information obtained in substudy.
9 a, b	Insurance	Modified from ABS (NHS) 1989-90	✓	Provide longitudinal comparison and identify those covered by DVA who may have appeared to have no cover at baseline.
10	General Physical Ability	Medical Outcomes Study(MOS) Physical Functioning Measures (1992)		To provide a more effective measure of limits on physical abilities.

Question No.	Question description	Source	WHA Baseline	Purpose and Conceptual Base
11	Mobility	MOS Physical Functioning Measures (1992)		As above
12 a, b	Medication- general	WHA (Baseline)	✓	To enable assessment of people at risk of medical misadventure from drug combination.
13 a-d	Medication (specific)	WHA (Baseline) revised and extended.	✓	Measure of drug dependence to be compared with baseline.
14	HRT	WHA	✓	Baseline (Longitudinal) and Cross-sectional comparison
15 a-d	Medication Cost	Adapted from “Study on Impact of Consumer charges for drugs in the Australian Community” (revised and reduced)		To investigate a possible barrier to adequate medical care, and potential risk of medical misadventure because of cost .
Health Conditions , Healthy Behaviour & Life Events				
16 a-z	Life Events	Modified from Norbeck (1984), revised and extended	✓	To measure possible influence of life events on Health, and provide comparison of life event risk according to age and other factors measured.
17 a-v	Symptoms and Help-seeking	WHA (baseline) with revisions	✓	Measure of prevalence and co-morbidity of various symptoms, and help-seeking behaviour (to be compared longitudinally and cross-sectionally)
18 a-d	Sleeping	Nottingham Health Profile		To identify specific sleeping problems in the specific age cohort (for which sleeping problems are particularly relevant), and combine with above measure for co-morbidity.
19 a-d	Specific Sensory deficits	Lambeth Disability Screening Questionnaire (1981)		Identification of specific sensory deficits (which may be age-relevant), and for combination with questions 17 and 18 for measure of co-morbidity.
20 a-j	Depression	CESD-10 (Mid Follow-Up)		Co-morbidity and comparison with baseline.

Question No.	Question description	Source	WHA Baseline	Purpose and Conceptual Base
21 a-d	Physical Activity-occasions	Modified from Commonwealth Department of the Arts, Sport, the Environment and Territories (1992)	✓	For longitudinal and cross-sectional comparison. To calculate approximate health risks.
22 a-d	Physical Activity – amount of time	Modified from Commonwealth Department of the Arts, Sport, the Environment and Territories (1992)	✓	As above
23	Date of Birth	WHA	✓	Data cross-check
24	Height	WHA	✓	Data cross-check (possible identification of changes in height)
25	Weight	WHA	✓	As above
26	Checking weight	WHA		Measure of how reliable data from Q25 is.
27	Nutrition	Australian Nutrition Screening Checklist (extended to include vegetarianism)	✓	To calculate health risks associated with nutrition.
28	Alcohol-frequency	Modified from NHF (1980)	✓	To establish health risks associated with alcohol consumption, and provide comparison with baseline and other age cohorts.
29	Alcohol - amount	Modified from NHF (1980)	✓	As above
30	Smoking (general)	Modified from Australian Institute of Health and Welfare (AIHW) (1998)	✓	To establish smoking-associated health risks, and provide longitudinal, cross-sectional comparison. To have some indication of the effectiveness of public health promotion/anti-smoking campaigns.
31	Smoking –amount per day	Modified from AIHW (1998)	✓	As above
32	Smoking- amount per week	Modified from AIHW (1998)	✓	As above

Question No.	Question description	Source	WHA Baseline	Purpose and Conceptual Base
33	Stress	WHA	✓	To estimate/validate stress-related risks to health.
Living Arrangements				
34	Marital Status	Modified from ABS (1996) Census	✓	Identify impact of marital status on health and well-being; provide longitudinal and cross-sectional comparison.
35	Living Alone	WHA	✓	Identify impact of living arrangements on health and well-being.
36	No. Living in Household	Modified from ABS (1994) Social, Labour, & Demograph Stats		As above.
37	Pet Ownership	WHA		Investigate possible health benefits of pet ownership.
38	Housing situation	Modified from ABS (1996) Census	✓	Investigate possible impact of housing situation on health and well-being.
39	Time in present home	WHA		As above.
40	Postcode	WHA	✓	Data check. To enable classification according to area.
41	Feelings about Neighbours and Neighbourhood	Australian Living Standards Study (Aust Institute of Family Studies)		To investigate possible impact of neighbourhood satisfaction on H & WB.
42	Income sources	WHA		To enable investigation of income-related impact on H & WB.
43	Managing on Income	WHA	✓	As above – Is the effect due to actual income or extent of managing.

Question No.	Question description	Source	WHA Baseline	Purpose and Conceptual Base
Quality of Life				
44	Optimism	Revised and reduced Revised Life Orientation Test (LOT-R) (1994)		To investigate postulated impact of psychological variables on Health.
45-55	Physical and Mental Health	SF36- Ware & Sherbourne (1992)	✓	Longitudinal and cross-sectional Comparison.
Support (Providing and Receiving)				
56-66	Social Support	Duke Social Support Index, Koenig et al, 1993.	✓	Investigate impact of perceived social support on Health and well-being. Enable cross-sectional and longitudinal comparison of social support and it's impact.
67	Need for Care	Modified from ABS (1993) Disability, Aging and Carers Australia.	✓	To enable longitudinal comparison, and identify need for care.
68	Assistance for Travel	MOS Physical Functioning Measures (1992)		Need for assistance in mobility.
69	Ability to use Public Transport	MOS Physical Functioning Measures (1992)		Measure of Access to public transport, reasons for not having access(health-related or not).
70	Availability of Public Transport	WHA		Identification of possible barrier to public transport use.
71	Instrumental Support	Modified subscales D and E from Social Support Questionnaire for Transactions (SSQT)		Specific measure of access to and use of instrumental support.
72	Formal Support/ Service Use	Modified from Jorm et al (1993) using DVA data.		Specific measure of formal support use/ utilisation of formal services.
73	Care for Children	WHA		Able to identify Health effects for child-carers.

Question No.	Question description	Source	WHA Baseline	Purpose and Conceptual Base
74	Care for Others	Modified from ABS (1993) Disability, Aging and carers Aust.	✓	Allows identification of Health risks according to specific care of ill/disabled (comparison with other types of care)
75	Caring for ill/frail	WHA : Developed from baseline		Risks according to number cared for.
76	Frequency of Care for ill/frail	WHA : Developed from baseline		Risks according to frequency of caring.
77	Time spent caring for ill/frail on each occasion	WHA : Developed from baseline		Risks according to duration of caring.
78	Volunteering	WHA		Will allow identification of postulated benefits to health and well-being.
79a-b	Occupation during working life (self and spouse)	WHA	✓	
80 a, b	Time pressure	Modified from Statistics Canada (1985)	✓	Identification of risk according to lifetime occupation.
Miscellaneous				
81 a-c	Childhood Trauma	WHA		Identification of participants for possible future substudy to investigate the health syndrome related to childhood trauma.
82 a-o	Health-related hardiness	Health-Related Hardiness Scale (Pollock, 1990)		To examine the possible effects of psychological variables on physical health.
83 a-p	Erikson's Stages of development	Revised Inventory of Psychosocial balance (IPB) (Domino & Affonso, 1990)- re-shuffled and terms defined.		To investigate the psychological variables particular to this age-group (which are hypothesised in Erikson's stages of development), and their relationship with health and well-being.

3.2 SUMMARY OF RESPONSES TO EACH STAGE OF THE SURVEY (at 9 December 1998)

	Date sent	Number sent	Surveys received	Response rate
Mail out of surveys	30 October	292		-
Thank you/reminder	6 November	281	199	69.6%
Second reminder card	27 November	81	208	72.7 %

4. REPORTS ON SUB-STUDIES

4.1 IRON DEFICIENCY IN WOMEN OF CHILDBEARING AGE

PhD candidate: Amanda Patterson

Supervisors: Dr Wendy Brown (principal supervisor); Professor David Roberts (associate supervisor)

4.1.1 *Iron deficiency in women of childbearing age*

Data collection is complete and analysis and writing of the thesis continue. Expected submission is March 1999.

4.1.2 *Analysis of Women's Health Australia Data*

As detailed in the previous report, cross-sectional analyses of the baseline data for the mid and young cohorts support a link between iron deficiency and reduced well-being.

Data from the first follow-up of the mid cohort has enabled longitudinal analysis of SF-36 data for mid age women. Changes in SF-36 scores for women who reported past iron deficiency (more than 2 years ago), recent iron deficiency (in the last 2 years) and no history of iron deficiency, have been compared. The analyses provide stronger evidence of reduced health and well-being in iron deficiency.

These data are currently being prepared for publication and will be submitted to *Quality of Life Research*.

4.1.3 *General Practitioner Survey*

Results of this study were detailed in the previous report. The study constitutes a preliminary chapter in the thesis.

4.1.4 *Intervention study*

Both the intervention and follow-up phases of this study are now complete. At the end of the intervention phase, there were 24, 23 and 25 women in the control, diet and supplement groups respectively. Follow-up data were collected from 22 women in each of these three groups. Two women pulled out of the study as they were too busy at the time, two women had moved from the Hunter area and two were not contactable. Numbers for each group remained above the calculated requirement of 21 per group.

The Microsoft Excel program for calculating bioavailable dietary iron (BDI) has been completed. The program can now calculate BDI in several forms using known algorithms and has the ability to adjust for varying levels of body iron stores.

Longitudinal analyses have been completed for all dietary, lifestyle, SF-36, fatigue and cognitive variables for pre, post and follow-up data. The intervention data support an effect of iron deficiency on reduced general health and well-being, reduced cognition and increased fatigue. A regression model is currently being developed to explain the relationship between iron status and dietary and lifestyle variables.

A paper reporting the results of the dietary vs supplement treatment for iron deficiency trial was recently presented at the National Nutrition Society meeting in Adelaide.

4.2 HEALTH SERVICES UTILISATION

PhD candidate: Anne Young

Supervisors: Professor Annette Dobson; Dr Julie Byles

The purpose of this sub-study is to identify factors which are important in explaining the use of health services by Australian women, using survey data linked with utilisation data (from the Health Insurance Commission), as detailed in the June 1998 report.

Analyses of the data from the Health Insurance Commission revealed that variations in the use of general practitioner (GP) services exist across age groups and areas of residence for women in the study. Women in the older age group use more services and in each age group, women in urban areas have higher levels of use than women in rural areas. The data also revealed that women in rural areas have a higher median 'out of pocket' cost per GP consultation, especially women in the mid age group.

To attempt to explain the variation in use of GP services, information on predisposing variables (for example, education, propensity to seek care), enabling variables (for example, perceived access to GP services, out of pocket cost, degree of rurality) and need (SF-36 physical and mental health scores, number of symptoms and conditions) were included in a structural equation model. The main factor associated with use of GP services in each age group was physical health status. However, having controlled for level of illness, the use of GP services was significantly associated with area of residence (lower use in rural areas), cost per visit (lower use with higher cost), education (lower use for higher educated) and propensity to seek care (associated with higher use for mid age only). The relationship between cost and use of services remained significant even when those women in greatest need of care were analysed as a separate group. Another important relationship confirmed by the analyses was that a more remote area of residence is associated with poorer perceived access to GP services and lower levels of satisfaction with those services. Hence, although medical need seems to be the strongest explanation for the variation in use of GP services by women in this study, there are inequities in access to care, costs and satisfaction with services that should be addressed.

4.3 SOCIAL SUPPORT, HEALTH STATUS AND HEALTH CARE UTILISATION IN WOMEN AGED 70-76

PhD candidate: Brendan Goodger

Supervisor: Dr Julie Byles & Dr Gita Mishra

Declining mortality rates and stabilisation of morbidity levels combined with demographic changes (particularly among older women) has resulted in a greater emphasis on identifying how the social environment of older people promotes or hinders independence and quality of life. A recurrent theme in recent government reports and policies is the need to consider social support as a potential factor which can assist to ameliorate the adverse affects of disability and functional limitation and promote psychological wellbeing among older Australians. A major objective of this substudy is to look at whether social support changes over time and to assess how these changes impact on the quality of life and health care utilization of older women. In this sub study two groups of older women with high and low social support who completed the baseline survey in 1996 have been followed in 1997 and 1998. The follow up survey for 1998 has just been completed. Response rates from each follow up have been approximately 84%.

4.3.1 What has happened in 1998?

In addition to the final follow up survey described above, results from the baseline survey have been analysed and the results presented at the Australian Association of Gerontology annual conference in Melbourne. Using the 11 item Duke Social Support Index as a measure of social support four cut-off points denoting differing levels of social support; low, fair, high, very high, were found. These cut off points enabled point prevalence estimates to be made of these differing levels of social support. As expected most people (78%) had high or very high support but there was a significant group of women who had low support 8% or only fair social support 12%.

Those with low and fair social support had significantly worse scores on mental and physical health related quality of life and were at a higher nutritional risk. In another analysis of the baseline data using multiple regression we found that medication use, quality of life, nutritional risk, life events, life satisfaction, elder abuse, satisfaction with general practitioners and other social factors (marital status and nationality) were significant factors of association with social support. Lower levels of social support were clearly associated with a number of harmful and deleterious health outcomes. These results are now being written up for publication.

4.3.2 What will happen in 1999?

The analysis of the longitudinal data for this substudy will be completed. These data will be reasonably complex to analyse and will require the use of time series analysis. When analysed these data will also be presented at a Conference and submitted for publication.

4.4 DISORDERED EATING, PSYCHOLOGICAL STRESS AND COPING IN YOUNG WOMEN

PhD candidate: Kylie Ball

Supervisor: A/Professor Christina Lee

This longitudinal study aims to investigate relationships among psychological stress, coping, body dissatisfaction, and disordered eating in a cohort of young women. In the main phase of data collection, two mail-out questionnaires assessing such factors as disordered eating behaviours and attitudes, life events stress, perceived stress levels and coping strategies were completed at six monthly intervals by 415 young women. Analyses of responses showed some strong cross-sectional relationships between perceived psychological stress, coping strategies characterized by keeping things to oneself, body weight dissatisfaction, and disordered eating. Preliminary longitudinal analyses suggest that the strongest predictor of disordered eating status at Time 2 was disordered eating status at Time 1. Currently, analyses incorporating structural equation modeling using LISREL software is being planned and undertaken. This will enable a test of multivariate models predicting disordered eating over time.

Cross-sectional findings of the two questionnaires were presented at the International Conference of Behavioural Medicine, in Copenhagen, Denmark, in August 1998. In addition, one other substudy of the project, an analysis of pilot data, has been written up and accepted for publication in *Women and Health*. The literature review on stress and disordered eating, submitted to *Psychology and Health*, has been revised and is currently again under review. It is anticipated that the next six months will be spent completing LISREL analyses and interpreting and writing up the results of these, in conjunction with findings of other substudies. The write-up and submission of the final thesis is expected to occur in June 1999.

4.5 EXPERIENCES OF WOMEN (AGED 45-50) SEEKING HELP FOR PSYCHOLOGICAL DISTRESS

Masters candidate: Sue Outram

Supervisors: Dr Jill Cockburn, A/Professor Margot Schofield

4.5.1 Aims

The original aim of this substudy, to describe the experiences of women seeking help for psychological distress in a community sample of NSW with low mental health scores, has been extended. It will now also include an analysis of the descriptions women used to describe their feelings, the perceived causes of their distress and their reasons for feeling better. Furthermore, data from the national sample have been analysed in order to describe significant socio-demographic and health related variables and report those that predict poor mental health.

4.5.2 Progress

The scope of the research has been extended and an application has been made to upgrade to a PhD thesis. All data have been collected and most of the analyses are now completed. Essentially the project is at the writing up stage, with drafts of 5 chapters completed.

4.5.3 Results

As would be expected there are too many different results to report all of them here, however some interesting results taken from both quantitative and qualitative data are listed below.

- Poor mental health was significantly associated with low education levels, manual work, unpaid work, menopause (particularly surgical menopause), increased visits to the general practitioner, lower levels of social support and life satisfaction, and difficulty managing on income. Multiple logistic regression will provide further information about the specific predictors of poor mental health.
- Women said the main causes of their psychological distress were family worries (74%), followed by physical health and work.
- Two-thirds of the women had talked to a health professional about this episode of psychological distress, and, as expected, the most common professional consulted was the general practitioner.
- While about 70% of women felt that the help provided by the GP was helpful, women were critical of GPs in general. These criticisms focused on the lack of interest and expertise in emotional problems, the inappropriateness of the use of psychotropic drugs, and the lack of holistic care.
- Of those women who reported a change for the better between the period of psychological distress and the followup interview (about one-third), most attributed this to either a change in circumstances or a change in attitude on their part, rather than professional assistance or psychotropic drugs.

4.6 MENOPAUSAL WOMEN: HOW DO THEY EXPLAIN THEIR WEIGHT CHANGE

Masters candidate: Lauren Williams

Supervisors: Dr Wendy Brown

The menopausal years (45-55) are a recognised time of weight gain in women (1). The baseline survey found 48% of the 13,431 mid-age women were overweight or obese (2), and 22% reported gaining more than 5kg without wanting to in the six months prior to the survey (3). To prevent weight gain, and associated health consequences, we need to understand why women gain weight at this life stage. In this sub-study the behavioural and environmental determinants of weight change at menopause will be explored with a nested cohort of approximately 3000 menopausal women from the mid-age cohort.

A key part of the study will be focus group discussions with menopausal women, exploring beliefs about their weight change. A series of focus groups has been conducted with women living in Lismore and surrounds in northern NSW. These groups identified the factors influencing physical activity in this group as: lack of time, energy and willingness to undertake physical activity; change in type of employment; and factors causing dietary change as: health problems of partner or self; children leaving home; and mood swings resulting in emotional eating. These were related to the broader themes of physical changes and symptoms associated with menopause, and social changes associated with a change in the role of women as mothers. Further focus groups will be held in the urban areas of the Central Coast of NSW. Information obtained will be used to develop a questionnaire to quantify these factors for the 3000 women in the nested cohort.

1. National Health and Medical Research Council. Acting on Australia's Weight. Commonwealth of Australia, Canberra, 1997.
2. Brown WJ, Dobson AJ and Mishra G. What is a healthy weight range for middle aged women? International Journal of Obesity and Related Disorders 1998;22;520-528.
3. Research Institute for Gender and Health. Data book for the baseline survey of the Australian Longitudinal Study on Women's Health. University of Newcastle, Newcastle, 1996.

5 RESEARCH ACTIVITIES

5.1 PRESENTATIONS

Title: **PREDICTORS OF BODY DISSATISFACTION AND DISORDERED EATING IN A COMMUNITY SAMPLE OF YOUNG AUSTRALIAN WOMEN**

Authors: Kylie Ball

Name of Conference: 5th International Congress of Behavioural Medicine, Copenhagen, 19 – 22 August 1998

The majority of young women in developed countries are discontented with their bodies, and a significant minority of these women develop serious eating disorders. This paper draws on a large-scale community survey to examine predictors and correlates of body dissatisfaction and of disordered eating.

Data from a nationally representative sample of 12,614 women aged 18-23 years, collected as part of the Women's Health Australia longitudinal survey, demonstrated significant correlations between self-reports of body dissatisfaction and disordered eating, and levels of stress, major life events, and depression. Following this, a sample of 500 women who reported disordered eating and 500 who did not was selected, and these women were surveyed on two occasions six months apart. Analysis demonstrated both cross-sectional and longitudinal relationships between stress, life events, depression, and symptoms of disordered eating.

These findings add to existing evidence, much of which has been based on small samples and has used exclusively cross-sectional designs, suggesting that women at risk of developing eating disorders may be identified and preventive measures taken.

Title: **FAMILY CAREGIVING ROLES AMONG MIDDLE-AGED AUSTRALIAN WOMEN: SELF-RATED HEALTH AND WELL-BEING**

Authors: Christina Lee

Name of Conference: 5th International Congress of Behavioural Medicine, Copenhagen, 19 – 22 August 1998

This study examines the impact of family-based caring for of ill and disabled relatives, a role which falls disproportionately on middle-aged women. The Women's Health Australia survey, a large-scale longitudinal survey of the well-being of Australian women, provides an opportunity to investigate family caregiving using both quantitative and qualitative methods.

Of a nationally representative sample of 14,136 women aged 45-50 years, 19% stated that they regularly provided care for a disabled or frail person. Although carers and non-carers did not differ in health-related behaviors including exercise, smoking, alcohol use and medical screening, chi-square ($\alpha = .001$) showed that carers rated their own health worse than did non-carers, were more likely to report back pain, and were significantly more stressed. Carers were less likely to be employed full-time, but more likely to feel rushed and busy, and 42% were not satisfied with their current caring arrangements.

Qualitative analysis of open-ended responses indicated highly variable circumstances and coping strategies. Caring for parents seemed less burdensome than caring for disabled children. A significant minority were happy with their caring status, while others described an impossible daily struggle. A recurrent theme was a sense of being exploited and unappreciated at a social level, and of inadequacy of health care systems. These results underline the need for greater social, political and economic support for people with special needs, and an awareness that the personal, social and economic burden of family caregiving is one which impacts negatively on the lives of carers.

Title: **GYNAECOLOGICAL PROCEDURES AMONG WOMEN IN URBAN, RURAL AND REMOTE AREAS OF AUSTRALIA: A VIEW FROM THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH**

Authors: Julie Byles & Gita Mishra

Name of Conference: Royal Women's Hospital 60 Year Anniversary Conference, Brisbane, 10-12 September 1998

The Australian Longitudinal Study on Women's Health (Women's Health Australia) is a national study of factors affecting the health of three cohorts of women (aged 18-23, 45-50| 70-75 years at baseline). One key issue is women's access to and choice of health care. Issues for women in rural and remote areas are of particular interest, and women from these areas have been deliberately over-represented in the study.

Among the 14200 women in the middle cohort, 22% had had a hysterectomy prior to the baseline survey. Hysterectomy was more common among women in rural and remote areas. Women in remote areas were 25% more likely to have had a hysterectomy than women in urban areas, even after adjustment for differences in education level, parity and other health care factors. There was also a strong association between hysterectomy and other gynaecological surgery (Adjusted OR: 6.36; 95% CI: 5.69-7.11).

Follow-up data collected in March 1998 will allow exploration of factors that predispose women to have a hysterectomy including menstrual symptoms, health related quality of life, and health care utilisation. Analysis of the relationship between these factors and women's area of residence will provide a much clearer index of access to gynaecological care for women in all parts of Australia.

Title: THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH

Authors: Wendy Brown, Annette Dobson, Lois Bryson & Julie Byles

Name of Conference: 30th Annual Conference of the Public Health Association of Australia, Hobart, 13-16 September 1998

This longitudinal study began in 1996 with collection of baseline data from more than 42,000 women in three age cohorts (18-23 (N= 14762); 45-50 (N=14072) and 70-75 years (N=12767). Follow-up surveys are planned for three yearly intervals over the next twenty years, so that over a period of twenty years, we will have data from women aged 18-95 years. The central aim of the study is to identify those factors that promote and those that reduce good health for women, while a primary goal is to direct the findings towards the development of more appropriate and effective health policies for women. This paper will review early progress with the study and results which indicate that social, economic and technological change since the birth of the women in the oldest cohort has resulted in the three groups effectively living their lives within very different social contexts, with distinctive health impacts.

Title: LEISURE TIME PHYSICAL ACTIVITY IN AUSTRALIAN WOMEN: RELATIONSHIP WITH WELL-BEING AND SYMPTOMS

Authors: Wendy J Brown, Christina Lee, Gita Mishra & Adrian Bauman

Name of Conference: 30th Annual Conference of the Public Health Association of Australia, Hobart, 13-16 September 1998

Cross-sectional baseline data from the Australian Longitudinal Study on Women's Health (N = 14,762 young women (18-23 years); 14,065 mid-age women (45-50 years), 13,023 older women (70-75 years)) were used to assess associations between a physical activity (PA) score (derived from self reported (mailed survey) vigorous and less vigorous exercise), and indicators of health and well-being.

There were significant positive associations between PA score and SF-36 physical and mental health summary scores in each cohort ($p < 0.001$). Odds ratios for reporting a range of symptoms were lower for women who reported low/moderate activity (eg for young women, OR for constipation = 0.76 (CI 0.65-0.89), for mid-age women, OR for tiredness = 0.70 (0.63-0.78), for older women, OR for clumsiness = 0.72 (0.64-0.81)) than for sedentary women. There was no threshold level of PA above which health benefits appeared to increase significantly. The findings suggest that low/moderate levels of exercise are associated with a range of health benefits for women of all ages.

Title: LEAKING URINE – PREVALENCE AND ASSOCIATED FACTORS IN AUSTRALIAN WOMEN

Authors: Pauline Chiarelli, Wendy Brown & Patrick McElduff

Name of Conference: 30th Annual Conference of the Public Health Association of Australia, Hobart, 13-16 September 1998

The prevalence of leaking urine and associated variables were examined in three large cohorts of Australian women aged 18- 23 ('young' N= 14761), 45 - 50 ('mid-age' N=14070) and 70 - 75 ('older' N= 12893) years (participants in the Women's Health Australia project). The proportion of women reporting leaking urine was 12.8% (95% CI: 12.2 - 13.3), 36.1% (35.2 - 37.0) and 35% (34.1 - 35.9) in each of the three cohorts respectively. Logistic regression analysis showed significant associations between leaking urine and parity in the young and mid-age women, and between leaking urine and constipation, other bowel symptoms, body mass index and urine that burns or stings, in all three groups. In the mid-age and older cohorts, women who reported having both hysterectomy and prolapse repair, or prolapse repair alone, were also more likely to report leaking urine. Lower scores on the physical and mental component summary scores of the SF36 suggest lower quality of life among women who report leaking urine, compared with those who do not.

Title: WOMEN AND LEISURE: DOES ALL WORK AND NO PLAY MAKE JILL UNWELL?

Authors: Peter Brown & Wendy Brown

Name of Conference: World Leisure and Recreation Association Conference, Sao Paulo, Brazil, October 1998.

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

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

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

Title: **OLDER WOMEN OF THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH**

Authors: Julie Byles

Name of Conference: The Australian Association of Gerontology 1998 National Conference, Melbourne, 15-17 October 1998.

The Australian Longitudinal Study on Women's Health (Women's Health Australia) was established to explore biological, psychological, social and environmental factors affecting the health of women in Australia. The study involves three cohorts of women aged 18-23 years, 45-5- years, and 70-75 years at the start of the study in 1996. The older cohort involves 12,624 women from all over Australia. These women provide a picture of ageing that challenges negative stereotypes and declining well-being. Despite common symptoms, such as stiff or painful joints (80%), back pain (73%), eyesight problems (68%), over one-third of the older women rated their health as excellent or very good and only 4% rated their health as poor. Similarly, while women in the older cohort had lower scores on the physical health-related quality of life sub-scales of the Short Form - 36 when compared to women in the other cohorts, mental health sub-scale scores were generally higher ($p < 0.001$).

One aim of the study is to observe changes in these women's self-rated health, morbidity, quality of life, and health care use, and to identify factors associated with maintenance of healthy ageing. Here we present a profile of women taking part in the study and highlight key issues to be explored as longitudinal data accumulate.

Title: **FALLS AND SERIOUS INJURY AMONG OLDER AUSTRALIAN WOMEN**

Authors: Julie Byles, Lynette MacKenzie & Gita Mishra

Name of Conference: The Australian Association of Gerontology 1998 National Conference, Melbourne, 15-17 October 1998.

Falls are a major cause of injury and hospitalisation among older Australians. This paper describes the 12 month period prevalence of falls among a national cohort of 12,486 women aged 70-75 years. Six hundred and eighteen of these women (4.95%) reported a fall which caused serious injury within 12 months prior to survey. For women reporting such falls, the odds for women who had not fallen. Over 60% of the four hundred and ninety-two women who reported major personal injury also reported they had a serious fall. Falls were also associated with admission to hospital (OR=3.2), and with fracture (OR=9.3). This paper explores medical (co-morbidity and medications), physical (disability, hormone replacement, exercise, BMI, Nutritional risk, alcohol and smoking), and social factors (social support, living arrangements, life events, financial security) associated with falls. Better understanding of these factors is essential to enable falls prevention programs to support health older Australians.

Title: **SOCIAL SUPPORT AND OLDER WOMEN: WHAT IS A HEALTHY LEVEL?**

Authors: Brendan Goodger, Gita Mishra & Julie Byles

Name of Conference: The Australian Association of Gerontology 1998 National Conference, Melbourne, 15-17 October 1998.

Background: The 11 item Duke Social Support Index (DSSI) is being used to assess the health impacts of low social support among older people in a number of Australian studies. Using the DSSI and key indicators of health and wellbeing we suggest an optimum level of social support necessary for maintaining and promoting health amongst older people. The DSSI was administered to 12455 women aged 70-75 who completed the baseline survey for the Australian Longitudinal Study on Women's Health.

Results: The DSSI has scores ranging from 11-33 and in this study had mean and median scores of 28.2 and 29.0 respectively. Using the statistical smoothing technique Loess, various levels of social support denoting stratum of risk were calculated. The stratum of risk were developed by reference to standard measures of health covering areas such as health status, quality of life, service use and nutrition.

Conclusions: These results strongly suggest that an optimum level of social support can be defined and that this factor has clear benefits for older woman's health related quality of life, health care utilization, health and nutritional status. The development of an optimum level of social support provides opportunities for the development of a range of health promotion activities to those who maybe at risk of low social support. Such strategies are becoming more important as the consequences of population ageing become more apparent.

Title: **FACTORS ASSOCIATED WITH LOW SOCIAL SUPPORT AND EFFECTS ON THE HEALTH OF OLDER AUSTRALIAN WOMEN**

Authors: Brendan Goodger, Gita Mishra & Julie Byles

Name of Conference: The Australian Association of Gerontology 1998 National Conference, Melbourne, 15-17 October 1998.

Background: Overseas research indicates that social support can have major importance to the health of older women. In Australia little is known about the factors of association between social support and older woman. Knowing these factors may suggest avenues for health promotion targeted specifically at those older women who are likely to suffer low social support. The 11 item Duke Social Support Index (DSSI) which is being validated for use in Australia with older woman was administered to 12455 women aged 70-74 who completed the baseline survey for the Australian Longitudinal Study on Women's Health.

Results: Using multiple regression models we found that hypothesized factors accounted for 34% of the variance in social support as measured by the DSSI. These factors which we all highly significant (p value <0.005) included, medication use, health related quality of life, nutritional risk, life events, life satisfaction, health care utilization, risk of elder abuse, satisfaction with general practitioner services and other social factors (marital

status and nationality). Lower levels of social support were clearly associated with a number of harmful and deleterious health outcomes.

Conclusions: These results provide further support for the construct validation of the DSSI and confirm previous research conducted overseas. These findings will be of use to both health care planners involved in service delivery and health care professionals in their clinical practice. A further substudy to explore these findings using a longitudinal design is being conducted as part of the Australian Longitudinal Study on Women's Health.

Title: **DIETARY INTERVENTION VS SUPPLEMENTATION FOR THE TREATMENT OF IRON DEFICIENCY**

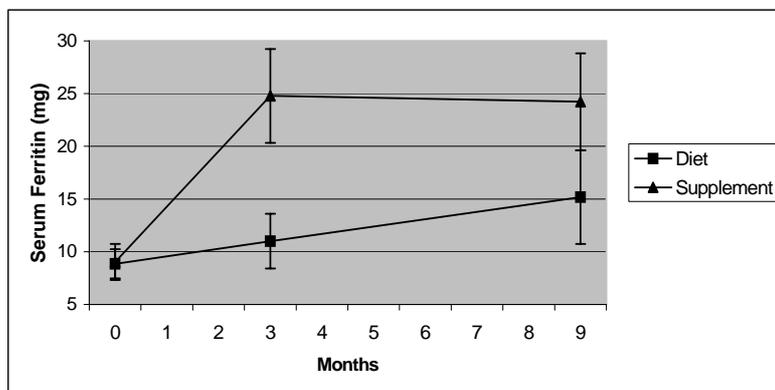
Authors: Amanda J Patterson, Wendy J Brown & David CK Roberts

Name of Conference: Challenges for the 21st century: a joint meeting for the Nutrition Society of Australia and the Australasian Clinical Nutrition Society, Adelaide, 29 November - 2 December, 1998.

While nutritionists advocate dietary intervention for the treatment of iron deficiency, most General Practitioners are thought to prescribe iron supplements for this problem.

Diet and supplement treatment for iron deficiency were compared in iron deficient women of childbearing age in a three month intervention trial, with follow-up measurements after a six month non-intervention phase. Twenty two women took 300 mg iron sulphate daily, while 22 women followed a high iron diet. The diet was based on the Australian Meat and Livestock Corporation's "Eating for Vitality" program, which encompasses both adequate servings of iron-rich foods and combining enhancers and inhibitors of iron absorption appropriately. Serum ferritin and dietary intake (7 day weighed food records) were measured before and after the intervention and at the six month follow-up.

Change in serum ferritin over time for the diet and supplement intervention groups are shown in the figure. Mean serum ferritin improved by from 9.0 mg to 24.8 mg for the supplement group during the intervention and remained stable at the six month follow-up (24.2 mg). Serum ferritin for the diet group showed a small increase from 8.9 mg to 11.0mg at three months, but improved to 15.2 mg during the six month non-intervention phase.



Mean serum ferritin for iron deficient women following either diet or supplement treatment for 3 months with a 6 month follow-up.

During the intervention period, dietary intake data for the diet intervention group, adjusted for energy intake, showed a significant increase in total iron, haem iron, vitamin C, grams of meat/fish/poultry and bioavailable dietary iron calculated by the Monsen method (1). Non-haem iron intake did not increase and calcium intake decreased. Due to an increase in within-group variation there was insufficient power to determine whether these changes were maintained at the six month follow-up. However, the mean intake of each nutrient was similar at three and nine months. Dietary intake data, adjusted for energy intake, did not change for the supplement group.

1. Monsen ER, Hallberg L, Layrisse M, Hegsted DM, Cook JD, Mertz W, Finch CA. Estimation of available dietary iron. *Am J Clin Nutr* 1978; 31:134-41.

Title: WOMEN'S HEALTH AUSTRALIA

Authors: Christina Lee

Name of Conference: Australian Society for Behavioural Health and Medicine Annual Conference, Melbourne, 13-15 December 1998.

This longitudinal multidisciplinary study began in 1996 with collection of baseline data from around 42,000 women in three age cohorts (18-23; 45-50; 70-75). Follow-up surveys are planned for three yearly intervals over the next twenty years, eventually providing data on women aged from 18 to 95; the mid-aged group was re-surveyed in 1998 and the older group will be surveyed in 1999. The main mailout survey aims to identify psychological, social, demographic and health-related variables that promote or reduce good health for women, while sub-studies explore specific issues in detail.

Analysis indicates fundamental differences between the age groups, and this paper presents highlights from main and sub-studies within each group. The youngest show high levels of risk-taking and of psychological distress, while a targeted substudy has found strong relationships between stress and disordered eating. Among the mid-aged women, family caregiving is associated with poorer physical and psychological health, and the second survey identifies the need for targeted research on the effects of family violence. The older women have surprisingly high levels of psychological well-being, despite physical limitations, and the second survey will allow an exploration of psychological factors which predict continued well-being in older age.

5.2 PUBLICATIONS

5.3.1 *Papers published*

Title: IS LIFE A PARTY FOR YOUNG WOMEN?

Authors: Brown WJ, Ball K & Powers J

Abstract:

Baseline data for the Australian Longitudinal Study on Women's Health (now known as the Women's Health Australia or WHA project) were collected from women in three age groups (18 - 23; 45 - 50; 70 - 75) in 1996. The project aims to explore how changes in biological, psychological, social and lifestyle factors impact over time on women's physical and emotional health. Participants in the study were randomly selected from the

HIC/Medicare data base, and represent women from all walks of life, from every State and Territory of Australia.

This paper focuses on lifestyle variables, as well as causes of, and methods of coping with stress, in the young cohort (N=14600). The most common causes of stress in this group were money, study and work/employment issues, and the most common method of coping was talking to a good friend. Almost 20% of the cohort reported eating (more or less) as a method of coping with stress, and 17% reported using exercise as a stress reduction strategy. One third of the cohort were current smokers and almost one fifth reported binge drinking (more than five drinks) at least weekly.

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

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

Published: *ACHPER Healthy Lifestyles Journal*, 1998; 45(3): 21-26.

5.3.2 *Papers accepted*

Title: **RELATIONSHIPS BETWEEN DISORDERED EATING AND UNWANTED SEXUAL EXPERIENCES: A REVIEW**

Authors: Ball K, Kenardy J & Lee C

Abstract:

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

Accepted: *Australian Psychologist*, 1998.

Title: HEALTH HABITS AND PSYCHOLOGICAL FUNCTIONING AMONG YOUNG, MIDDLE-AGED AND OLDER AUSTRALIAN WOMEN

Authors: Lee C

Abstract:

The Women's Health Australia (WHA) project aims to assess psychosocial influences on the health of Australian women, to inform policy and service delivery in Australia. Pilot data from a representative sample of 612 women from three age groups (18-22, 45-49, and 70-74) included the Women's Health Questionnaire, 12-item General Health Questionnaire, and Medical Outcomes Study SF-12 and Social Support Scale, as well as self-reports of menstrual status, height and weight, exercise status, and use of alcohol and tobacco. Psychological distress was highest in the youngest age group, and depression was associated with unhealthy body weight, smoking, and lack of exercise. The findings suggest that young adulthood, rather than middle or old age, is the time of greatest distress for women. Further, the connection between depressed mood and unhealthy lifestyles may be associated with the later development of disease.

Accepted: *British Journal of Health Psychology, 1998.*

Title: EMPLOYMENT AND WOMEN'S HEALTH

Authors: Bryson L & Warner-Smith P.

Abstract:

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

Accepted: *Just Policy, 1998.*

5.3.3 Papers submitted

Title: NEVER TOO LATE: OLDER PEOPLE'S PERCEPTIONS OF PHYSICAL ACTIVITY

Authors: Brown W, Fuller B, Lee C, Cockburn J & Adamson L

Abstract:

Issue Addressed. A series of focus groups was conducted to explore older people's attitudes to, practices, and perceptions of physical activity, in order to inform the development of appropriate strategies to encourage participation among this population group.

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

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

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

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

Submitted: *Health Promotion Journal of Australia, 1998.*

6 COMMUNICATION WITH PARTICIPANTS - 1998 NEWSLETTER

The main communication in this period has been in developing and mailing out the 1998 newsletter to participants, which was sent out in late October (see Appendix 5). Change of address cards were included in the mail-out. This mail-out generated 1285 Return to Senders (RTS: 882 young, 226 mid-age and 177 older) and over 1100 new addresses. The older cohort RTSs have priority for tracking, ready for the first follow-up questionnaire for the older cohort which will be sent out in March next year.