

Technical Report: Comparison of the Australian Longitudinal Study on Women's Health cohorts with women of the same age in the 2001 Census.

Jenny Powers, February 2004

Objective

The purpose of this report was to use the 2001 Australian Census to identify the nature and extent of response bias in the WHA cohorts.

Recommendations

The WHA cohorts (Survey 2 for Younger and Survey 3 for Mid and Older) under-represent Indigenous women and those of non-English background. The number of Indigenous women remaining in the WHA cohorts is too small to undertake reliable analyses. While there are more women of non-English background, the results obtained from analyses of these groups should be treated with caution.

The WHA cohorts also tended to be of higher socio-economic status as indicated by higher educational qualifications with more employment and better occupations. These potential biases need to be acknowledged when discussing findings from Surveys 2 (Younger) and 3 (Mid and Older). However, the diversity of educational qualifications, employment and occupation may be sufficient to avoid biases when investigating the relationship between socio-economic status and health.

Large amounts of missing data in the 2001 Census make comparisons difficult for the Older cohort and for marital status.

Background

In 1996, more than 40,000 women enrolled in the Australian Longitudinal Study on Women's Health, commonly known as Women's Health Australia (WHA). Women in three age groups (Younger aged 18-23 years, Mid aged 45-50 years and Older aged 70-75 years in 1996) were selected from the national health insurance database, Medicare, which covers everyone in Australia. Sampling was random within each age group, with women from rural and remote areas sampled at twice the rate of women in urban areas. Response rates in the three cohorts cannot be specified exactly due to uncertainties about the accuracy of the Medicare database. Thus estimated response rates were 41-42% of the Younger, 53-56% of the Mid and 37-40% of the Older cohorts in 1996¹.

In view of these response rates, potential response bias needs to be assessed so that the generalisability of the results may be determined. Thus the sociodemographic characteristics of Younger, Mid and Older respondents to the 1996 surveys were compared to the 1996 Census¹. Participants in each of the cohorts were reasonably representative of the general population of women of the same age in Australia, but respondents were more likely to be Australian born and to have a post-school qualification (certificate, diploma or university degree), particularly women in the Younger and Mid cohorts.

In the years since the initial surveys in 1996 there have been further losses of participants, particularly in the Younger cohort. Losses of women from all cohorts between Survey 1 and Survey 2 were found to be related to being born outside Australia, having less education and being a current smoker (Young et al, under review 2003). In addition, poorer health was related to loss of women from the Older cohort.

Aim

The 2001 Census provides an opportunity to determine the nature and extent of response bias in the WHA surveys. This report compares characteristics of the WHA cohorts at Surveys 2 (Younger cohort, 2000) and 3 (Mid-age and Older cohorts, 2001 and 2002) with the 2001 Census in order to assess the ongoing generalisability of findings from the WHA project.

Methods

The number of women responding to Surveys 2 and 3 was 9,689, 11,202 and 8,646 in the Younger (Survey 2), Mid and Older cohorts (Survey 3) respectively. Once deaths and illnesses such as dementia were taken into account, these numbers represent responses of 68%, 83% and 79% of Survey 1 respondents respectively. Data were missing for area of residence for 3% to 4% of women in the three cohorts, so data are presented for 9,315 Younger, 11,031 Mid and 8,418 Older women in the WHA cohorts.

In August 2003 customised tables were obtained from the Australian Bureau of Statistics (ABS) for women who were in the same age groups as the WHA cohorts (23-28, 50-55 and 75-80 years) at the time of the 2001 Census. The comparison data for the WHA cohorts came from Survey 1 in 1996 for Indigenous status, country of birth and language spoken at home as it was thought that these characteristics would not change over time. For the Mid and Older cohorts, highest educational qualification was also obtained at Survey 1, whereas for the Younger cohort it was obtained from Survey 2. All other comparison data were sourced from Survey 2 for the Younger and Survey 3 for the Mid and Older cohorts.

Classification of area

The seven categories for the Rural, Remote and Metropolitan Areas (RRMA) classification based on the 1991 Census were collapsed to four broad categories: urban centres (Urban and Other Metropolitan Centres), large rural centres, small rural centres and other rural/remote areas (Other Rural Areas, Remote Centre and Other Remote Areas including Other Territories).

The following concerns about the use of RRMA were expressed (I. Indrapala, personal communication, 23rd June, 2003). "A number of boundary changes have occurred between 1991 and 2001, particularly in Victoria (where the changes are so complicated that they create a nightmare for anyone trying to match the 1991 geography with the present geography). These make comparability with the earlier data difficult. ... Just to give an example, the Shire of Kaniva in the RRMA is in the Other Remote Areas of Victoria. After the 1991 Census, this shire was amalgamated with a major part of Kowree Shire, a part of Arapiles Shire and a part of Glenelg Shire to create a new shire called West Wimmera. These other shires are in the Other Rural Area of Victoria. Is this new shire to be kept in Other Remote Areas or Other Rural Areas? I don't think there are problems with other States, but Victoria certainly presents a problem." This is not a problem for the following comparison tables as Other Rural Areas and Other Remote Areas are in the same category, ie Other rural/remote areas.

Indigenous identification

Similar questions were asked in the Census and in the 1996 surveys of the WHA cohorts (Table 1). The response options for the Census and WHA data were collapsed to Indigenous and non-Indigenous.

Table 1. Questions about Indigenous status used in the 2001 Census and 1996 WHA surveys.

Database	Questions used	Response options
Census Q17	Is the person of Aboriginal or Torres Strait Islander origin? <i>For persons of both Aboriginal and Torres Strait Islander origin, mark both 'Yes' boxes.</i>	No Yes, Aboriginal Yes, Torres Strait Islander
WHA Y1q79 M1q91 O1q70	Are you of Aboriginal or Torres Strait Islander origin? <i>Circle one number only</i>	No Aboriginal Torres Strait Islander

Between the 1996 and 2001 Censuses the population of Australia grew by 6% and the Indigenous population increased by 16%². Twelve percent of the increase in the Indigenous population was due to births and deaths and a further 4% was primarily due to an increasing propensity for people to identify as Indigenous on Census forms. The question about Indigenous status was only asked at Survey 1 and there is the possibility that some women in the WHA cohorts may have identified themselves as Indigenous in later surveys although they did not at Survey 1 in 1996. Thus the estimated number of Indigenous women in the WHA cohorts may be a little low.

Table 2. Indigenous status of women aged 23-28 years

	WHA Younger cohort		ABS	
	N	%	N	%
Number	9315		760728	
Urban				
Indigenous	53	0.9	7802	1.3
Non-Indigenous	5572	98.7	554688	95.1
Not stated	23	0.4	20713	3.6
Total	5648	100.0	583203	100.0
Large rural				
Indigenous	18	1.9	1850	4.3
Non-Indigenous	919	97.5	40141	92.9
Not stated	6	0.6	1211	2.8
Total	943	100.0	43202	100.0
Small rural				
Indigenous	15	1.7	1692	4.3
Non-Indigenous	873	98.0	36455	92.6
Not stated	3	0.3	1225	3.1
Total	891	100.0	39372	100.0
Other rural/remote				
Indigenous	46	2.5	8525	9.0
Non-Indigenous	1781	97.2	82520	86.9
Not stated	6	0.3	3906	4.1
Total	1833	100.0	94951	100.0

Table 3. Indigenous status of women aged 50-55 years

	WHA Mid cohort		ABS	
	N	%	N	%
Number	11031		729814	
Urban				
Indigenous	21	0.5	3192	0.6
Non-Indigenous	4127	98.6	502774	96.3
Not stated	37	0.9	16329	3.1
Total	4185	100.0	522295	100.0
Large rural				
Indigenous	12	0.8	723	1.8
Non-Indigenous	1492	98.5	38893	95.5
Not stated	11	0.7	1092	2.7
Total	1515	100.0	40708	100.0
Small rural				
Indigenous	10	0.6	724	1.6
Non-Indigenous	1552	98.7	44372	96.0
Not stated	11	0.7	1139	2.5
Total	1573	100.0	46235	100.0
Other rural/remote				
Indigenous	36	1.0	3675	3.0
Non-Indigenous	3699	98.4	113567	94.2
Not stated	23	0.6	3334	2.8
Total	3758	100.0	120576	100.0

Table 4. Indigenous status of women aged 75-80 years.

	WHA Older cohort		ABS	
	N	%	N	%
Number	8418		335372	
Urban				
Indigenous	12	0.3	389	0.2
Non-Indigenous	3415	94.4	218781	91.8
Not stated	191	5.3	19090	8.0
Total	3618	100.0	238260	100.0
Large rural				
Indigenous	2	0.2	103	0.5
Non-Indigenous	943	92.2	19898	91.5
Not stated	78	7.6	1742	8.0
Total	1023	100.0	21743	100.0
Small rural				
Indigenous	2	0.2	96	0.4
Non-Indigenous	1178	92.6	24543	91.5
Not stated	92	7.2	2190	8.2
Total	1272	100.0	26829	100.0
Other rural/remote				
Indigenous	6	0.2	596	1.2
Non-Indigenous	2339	93.4	43884	90.4
Not stated	160	6.4	4060	8.4
Total	2505	100.0	48540	100.0

Indigenous women in all age groups were consistently under-represented in the WHA samples, although in urban areas and for Older women the proportion of Indigenous women was reasonably consistent with the Census (Tables 2-4). The under-representation was most apparent in the Younger cohort and non-urban women. The greatest difference existed in remote areas and was not surprising as English is likely to be a second language for most Indigenous women in these areas so participation in WHA was unlikely. It is interesting to note that there were more missing data in the Census than in WHA and a similar pattern of higher rates of missing in the Older age group.

Country of birth

The questions and response options for country of birth were almost identical in the Census and WHA surveys (Table 5).

Table 5. Questions about country of birth in the 2001 Census and 1996 WHA surveys.

Database	Questions used	Response options
Census Q11	In which country was the person born? <i>Mark one box</i>	Australia England Scotland New Zealand Italy Greece Viet Nam Other – please specify
WHA Y1q80, M1q92, O1q71	In which country were you born? <i>Circle one number only</i>	Australia United Kingdom Italy Greece New Zealand Vietnam Other – please specify

The ABS customised table provided data on three categories: Australian born, main English speaking countries and non-English speaking countries. Response options including the “other response” option were coded so that country of birth was classified in the WHA surveys in the same manner as the Census.

Table 6. Country of birth of women aged 23-28 years.

	WHA Younger cohort		ABS	
	N	%	N	%
Number	9315		760728	
Urban				
Australia	5040	89.2	424403	72.8
Main English Speaking Countries	251	4.4	41023	7.0
Non-English Speaking Countries	316	5.6	93098	16.0
Not stated	41	0.7	24679	4.2
Total	5648	100.0	583203	100.0
Large rural				
Australia	900	95.4	38346	88.8
Main English Speaking Countries	23	2.4	1615	3.7
Non-English Speaking Countries	10	1.1	1774	4.1
Not stated	10	1.1	1469	3.4
Total	943	100.0	43204	100.0
Small rural				
Australia	858	96.3	35387	89.9
Main English Speaking Countries	20	2.2	1414	3.6
Non-English Speaking Countries	7	0.8	1099	2.8
Not stated	6	0.7	1469	3.7
Total	891	100.0	39369	100.0
Other rural/remote				
Australia	1786	97.4	84470	89.0
Main English Speaking Countries	30	1.6	3724	3.9
Non-English Speaking Countries	13	0.7	2463	2.6
Not stated	4	0.2	4306	4.5
Total	1833	100.0	94963	100.0

Table 7. Country of birth of women aged 50-55 years.

	WHA Mid cohort		ABS	
	N	%	N	%
Number	11031		729814	
Urban				
Australia	2857	68.3	296605	56.8
Main English Speaking Countries	721	17.2	73221	14.0
Non-English Speaking Countries	561	13.4	131079	25.1
Not stated	46	1.1	21389	4.1
Total	4185	100.0	522294	100.0
Large rural				
Australia	1260	83.2	32446	79.7
Main English Speaking Countries	153	10.1	3875	9.5
Non-English Speaking Countries	87	5.7	2877	7.1
Not stated	15	1.0	1510	3.7
Total	1515	100.0	40708	100.0
Small rural				
Australia	1291	82.1	35926	77.7
Main English Speaking Countries	169	10.7	4925	10.7
Non-English Speaking Countries	94	6.0	3599	7.8
Not stated	19	1.2	1783	3.9
Total	1573	100.0	46233	100.0
Other rural/remote				
Australia	3056	81.3	94997	78.8
Main English Speaking Countries	429	11.4	12555	10.4
Non-English Speaking Countries	227	6.0	8230	6.8
Not stated	46	1.2	4784	4.0
Total	3758	100.0	120566	100.0

Table 8. Country of birth of women aged 75-80 years.

	WHA Older cohort		ABS	
	N	%	N	%
Number	8418		335372	
Urban				
Australia	2509	69.3	141887	59.6
Main English Speaking Countries	509	14.1	29462	12.4
Non-English Speaking Countries	421	11.6	50430	21.2
Not stated	179	4.9	16480	6.9
Total	3618	100.0	238259	100.0
Large rural				
Australia	791	77.3	16892	77.7
Main English Speaking Countries	110	10.8	1844	8.5
Non-English Speaking Countries	54	5.3	1457	6.7
Not stated	68	6.6	1553	7.1
Total	1023	100.0	21746	100.0
Small rural				
Australia	974	76.6	20091	74.9
Main English Speaking Countries	155	12.2	2927	10.9
Non-English Speaking Countries	61	4.8	1981	7.4
Not stated	82	6.4	1832	6.8
Total	1272	100.0	26831	100.0
Other rural/remote				
Australia	1993	79.6	37593	77.5
Main English Speaking Countries	234	9.3	4220	8.7
Non-English Speaking Countries	120	4.8	3176	6.5
Not stated	158	6.3	3545	7.3
Total	2505	100.0	48534	100.0

Women of non-English speaking background (NESB) were significantly under-represented in all age groups of WHA women. The proportion of urban NESB women was considerably lower in WHA women than in the Census. Younger urban WHA women were least likely to be representative of urban women born outside Australia. There were more missing data for country of birth across all age groups in the Census than in WHA (Tables 6-8). If the missing data were distributed proportionally between the categories, the proportions of Australian born women would be a little closer in the WHA samples and the Census.

Language spoken at home

The questions about language spoken at home were almost identical in the WHA surveys and the 2001 Census (Table 9). The WHA questions were only asked in 1996 and it is possible that the language status of some women may have changed in the five years since that time. If anything, you would expect English to be spoken at home by more of the WHA women. However according to ABS the opposite was true for the Australian population: 'English was the only language spoken at home by 79.1% of the population, a decrease from 81.4% in 1996', suggesting that more people of non-English people are now resident in Australia³.

Table 9. Questions about language spoken at home in the 2001 Census and 1996 WHA surveys

Database	Questions used	Response options
Census Q15	Does the person speak a language other than English at home? <i>Mark one box only</i> <i>If more than one language, write the one that is spoken most often</i>	No, English only Yes, Italian Yes, Greek Yes, Cantonese Yes, Mandarin Yes, Arabic Yes, Vietnamese Yes, other – please specify
WHA Y1q82, M1q94, O1q73	Do you usually speak a language other than English at home? <i>Circle one number only</i>	No, I speak only English at home Yes, Italian Yes, Greek Yes, Cantonese Yes, Mandarin Yes, German Yes, Arabic Yes, other – please specify on line

The ABS customised table included only two categories for language spoken at home: English and a language other than English. The WHA data were grouped to form the same two categories.

Table 10. Language spoken at home by women aged 18-23 years.

	WHA Younger cohort		ABS	
	N	%	N	%
Number	9315		760728	
Urban				
English	5001	88.5	437349	75.0
Language Other Than English	591	10.5	123761	21.2
Not stated	56	1.0	22093	3.8
Total	5648	100.0	583203	100.0
Large rural				
English	918	97.3	39989	92.6
Language Other Than English	15	1.6	1809	4.2
Not stated	10	1.1	1406	3.3
Total	943	100.0	43204	100.0
Small rural				
English	855	96.0	36654	93.1
Language Other Than English	26	2.9	1319	3.4
Not stated	10	1.1	1396	3.5
Total	891	100.0	39369	100.0
Other rural/remote				
English	1782	97.2	84829	89.3
Language Other Than English	38	2.1	5191	5.5
Not stated	13	0.7	4941	5.2
Total	1833	100.0	94961	100.0

Table 11. Language spoken at home by women aged 50-55 years

	WHA Mid cohort		ABS	
	N	%	N	%
Number	11031		729814	
Urban				
English	3775	90.2	400689	76.7
Language Other Than English	341	8.1	104620	20.0
Not stated	69	1.6	16985	3.3
Total	4185	100.0	522294	100.0
Large rural				
English	1453	95.9	37832	92.9
Language Other Than English	40	2.6	1642	4.0
Not stated	22	1.5	1234	3.0
Total	1515	100.0	40708	100.0
Small rural				
English	1508	95.9	42925	92.8
Language Other Than English	43	2.7	1973	4.3
Not stated	22	1.4	1335	2.9
Total	1573	100.0	46233	100.0
Other rural/remote				
English	3615	96.2	111381	92.4
Language Other Than English	73	1.9	5243	4.3
Not stated	70	1.9	3942	3.3
Total	3758	100.0	120566	100.0

Table 12. Language spoken at home by women aged 75-80 years

	WHA Older cohort		ABS	
	N	%	N	%
Number	8418		335372	
Urban				
English	3064	84.7	179746	75.4
Language Other Than English	290	8.0	41630	17.5
Not stated	264	7.3	16883	7.1
Total	3618	100.0	238259	100.0
Large rural				
English	885	86.5	19144	88.0
Language Other Than English	38	3.7	963	4.4
Not stated	100	9.8	1639	7.5
Total	1023	100.0	21746	100.0
Small rural				
English	1112	87.4	23564	87.8
Language Other Than English	49	3.9	1360	5.1
Not stated	111	8.7	1907	7.1
Total	1272	100.0	26831	100.0
Other rural/remote				
English	2205	88.0	42392	87.3
Language Other Than English	74	3.0	2383	4.9
Not stated	226	9.0	3762	7.8
Total	2505	100.0	48537	100.0

Overall, women speaking a language other than English at home were under-represented and this was particularly the case in the urban areas (Tables 10-12). These findings were consistent with the under-representation of NESB women according to country of birth. Younger WHA women living in remote areas were more likely to speak English at home than women of the same age in the Census. Again this finding was consistent with the higher percentage of young Indigenous women in remote areas. Missing data were high in the older age group in both WHA (7% to 10%) and Census data (7% to 8%) and higher in the Census data than WHA for the Younger and Mid groups.

Marital status

Comparison of marital status was complicated. The Census specifically asks about registered marital status (Table 13, Q6). Social marital status (whether people are married or living in a de facto relationship) is obtained from one of two questions (Table 13, Q5, Q44) depending on whether the person was present in the household on the night of the 2001 Census. If the person was present, Q5 was used and Q44 was used if they were absent. These questions are used to create social marital status which consists of three categories: registered marriage, de facto or single (i.e. same as our question in the Younger and Mid).

Table 13. Questions about marital status in the 2001 Census and WHA surveys

Database	Questions used	Response options
Census Q5, Q44	Q5. What is the person's relationship to Person 1/Person 2? <i>Examples of other relationships: son-in-law, granddaughter, uncle, boarder</i> Q44 is the same as Q5 except that it refers to Any persons who usually live in this dwelling who were absent on the night of Tuesday, 7 August 2001	Husband or wife of Person 1 De facto partner of Person 1 Child of Person 1 Stepchild of Person 1 Brother or sister of Person 1 Unrelated flatmate or co-tenant of Person 1 Other relationship to Person 1 – please specify
Q6	What is the person's present marital status? <i>'Married' refers to registered marriages</i>	Never married Widowed Divorced Separated but not divorced Married
WHA Y2q87, M3q85	This question is about your relationship status based on your current living arrangements. Are you: <i>Mark one only</i>	Living in a registered marriage Living in a de facto relationship Not married
Y2q88, M3q86	What is your FORMAL registered marital status? <i>Mark one only</i>	Never married Married Separated Divorced Widowed
O3q49	What is your present marital status? <i>Mark one only</i>	Married De facto (in a relationship) Widowed Separated Divorced Never married

There were some problems with the Census measure as a relatively large proportion of women were in non-classifiable households (5-15%) such as colleges, hostels, nursing homes, convents, prisons. In addition some women may have had difficulty answering the Census question and fallen into the non-classified category. Women living in non-classified households are likely to be disproportionately spread according to marital status. For example, young women living in colleges are more likely to be single. Mid-age and older women living in convents will also be single, whereas women living in hostels, nursing homes or prisons may be married, widowed or never married. In the WHA cohorts classification of marital status was not dependent on the type of household in which the woman was living. Thus a Younger woman living in a college could record her marital status as not married and an Older women living in a nursing home may say she is married. These differences in data collection may make comparisons between the Census and WHA cohorts unreliable.

Table 14. Marital status of women aged 23-28 years

	WHA Younger cohort		ABS	
	N	%	N	%
Number	9315		760728	
Urban				
Married	1154	20.4	163547	28.0
Defacto	1158	20.5	94388	16.2
Widowed	2	0.0	663	0.1
Separated	29	0.5	15604	2.7
Divorced	16	0.3	6470	1.1
Never married	3164	56.0	257934	44.2
Not classified/not stated	125	2.2	44596	7.6
Total	5648	100.0	583202	100.0
Large rural				
Married	250	26.5	12875	29.8
Defacto	202	21.4	8297	19.2
Widowed	0	0.0	40	0.1
Separated	2	0.2	1223	2.8
Divorced	5	0.5	516	1.2
Never married	456	48.4	16365	37.9
Not classified/not stated	28	3.0	3891	9.0
Total	943	100.0	43207	100.0
Small rural				
Married	277	31.1	12422	31.5
Defacto	198	22.2	7851	19.9
Widowed	0	0.0	48	0.1
Separated	12	1.3	1174	3.0
Divorced	3	0.3	441	1.1
Never married	381	42.8	13620	34.6
Not classified/not stated	20	2.2	3817	9.7
Total	891	100.0	39373	100.0
Other rural/remote				
Married	599	32.7	31084	32.7
Defacto	431	23.5	19604	20.6
Widowed	1	0.1	150	0.2
Separated	9	0.5	2538	2.7
Divorced	7	0.4	795	0.8
Never married	741	40.4	27299	28.7
Not classified/not stated	45	2.5	13486	14.2
Total	1833	100.0	94956	100.0

Table 15. Marital status of women aged 50-55 years

	WHA Mid cohort		ABS	
	N	%	N	%
Number	11031		729814	
Urban				
Married	2978	71.2	338373	64.8
Defacto	331	7.9	23938	4.6
Widowed	88	2.1	18040	3.5
Separated	102	2.4	26899	5.2
Divorced	449	10.7	63766	12.2
Never married	149	3.6	23566	4.5
Not classified/not stated	88	2.1	27710	5.3
Total	4185	100.0	522292	100.0
Large rural				
Married	1101	72.7	25246	62.0
Defacto	112	7.4	1797	4.4
Widowed	36	2.4	1518	3.7
Separated	31	2.0	2264	5.6
Divorced	152	10.0	5071	12.5
Never married	40	2.6	1572	3.9
Not classified/not stated	43	2.8	3238	8.0
Total	1515	100.0	40706	100.0
Small rural				
Married	1202	76.4	30113	65.1
Defacto	113	7.2	2376	5.1
Widowed	43	2.7	1658	3.6
Separated	17	1.1	2221	4.8
Divorced	135	8.6	4980	10.8
Never married	26	1.7	1434	3.1
Not classified/not stated	37	2.4	3446	7.5
Total	1573	100.0	46228	100.0
Other rural/remote				
Married	2978	79.2	80284	66.6
Defacto	288	7.7	6654	5.5
Widowed	80	2.1	3930	3.3
Separated	51	1.4	4619	3.8
Divorced	211	5.6	8827	7.3
Never married	77	2.0	3554	2.9
Not classified/not stated	73	1.9	12691	10.5
Total	3758	100.0	120559	100.0

Table 16. Marital status of women aged 75-80 years

	WHA Older cohort		ABS	
	N	%	N	%
Number	8418		335372	
Urban				
Married	1583	43.8	79569	33.4
Defacto	11	0.3	1660	0.7
Widowed	1672	46.2	104429	43.8
Separated	41	1.1	5236	2.2
Divorced	167	4.6	11147	4.7
Never married	129	3.6	8301	3.5
Not classified/not stated	15	0.4	27915	11.7
Total	3618	100.0	238257	100.0
Large rural				
Married	420	41.1	6901	31.7
Defacto	4	0.4	151	0.7
Widowed	527	51.5	9643	44.3
Separated	14	1.4	458	2.1
Divorced	31	3.0	768	3.5
Never married	24	2.3	630	2.9
Not classified/not stated	3	0.3	3204	14.7
Total	1023	100.0	21755	100.0
Small rural				
Married	572	45.0	9635	35.9
Defacto	6	0.5	176	0.7
Widowed	604	47.5	11549	43.0
Separated	11	0.9	534	2.0
Divorced	50	3.9	939	3.5
Never married	25	2.0	587	2.2
Not classified/not stated	4	0.3	3413	12.7
Total	1272	100.0	26833	100.0
Other rural/remote				
Married	1146	45.7	17040	35.1
Defacto	15	0.6	390	0.8
Widowed	1181	47.1	20595	42.4
Separated	30	1.2	980	2.0
Divorced	69	2.8	1290	2.7
Never married	56	2.2	1329	2.7
Not classified/not stated	8	0.3	6913	14.2
Total	2505	100.0	48537	100.0

Tables 14-16 showed over-representation of women who had never married in the Younger and married women in the Mid and Older cohorts. There were also more widowed women in the Older cohort. However, comparisons were difficult due to the large percentages of unclassifiable households in the 2001 Census. Some of the differences between the WHA and Census data may be explained by young women living in colleges and older women living in nursing homes and hostels (unclassified households in the Census).

Lone person households

The questions used to determine social marital status were also used to determine whether the household consisted of a lone person.

Table 17. Questions about lone person households used in the 2001 Census and WHA surveys.

Database	Questions used	Response options
Census Q5, Q44	Q5. What is the person's relationship to Person 1/Person 2? <i>Examples of other relationships: son-in-law, granddaughter, uncle, boarder</i> Q44 is the same as Q5 except that it refers to Any persons who usually live in this dwelling who were absent on the night of Tuesday, 7 August 2001	Husband or wife of Person 1 De facto partner of Person 1 Child of Person 1 Stepchild of Person 1 Brother or sister of Person 1 Unrelated flatmate or co-tenant of Person 1 Other relationship to Person 1 – please specify
WHA Y2q84a	Who lives with you? <i>Mark all that apply</i>	No-one, I live alone
M3q90a	How many people live with you now? <i>Mark all that apply</i>	No one, I live alone
O3q51a	Who lives with you? <i>Mark all that apply</i>	No one, I live alone

The ABS customised table included two categories for household (lone person household and other households) and a not stated category.

Table 18. Lone person households for women aged 23-28 years.

	WHA Younger cohort		ABS	
	N	%	N	%
Number	9315		760728	
Urban				
Lone person household	291	5.2	42832	7.3
Other households	5230	92.6	531950	91.2
Not stated	127	2.2	8420	1.4
Total	5648	100.0	583202	100.0
Large rural				
Lone person household	76	8.1	3815	8.8
Other households	852	90.3	38304	88.7
Not stated	15	1.6	1083	2.5
Total	943	100.0	43202	100.0
Small rural				
Lone person household	64	7.2	3101	7.9
Other households	805	90.3	35474	90.1
Not stated	22	2.5	797	2.0
Total	891	100.0	39372	100.0
Other rural/remote				
Lone person household	131	7.1	6268	6.6
Other households	1679	91.6	84408	88.9
Not stated	23	1.3	4275	4.5
Total	1833	100.0	94951	100.0

Table 19. Lone person households for people aged 50-55 years

	WHA Mid cohort		ABS	
	N	%	N	%
Number	11031		729814	
Urban				
Lone person household	413	9.9	56059	10.7
Other households	3761	89.9	460258	88.1
Not stated	11	0.3	5978	1.1
Total	4185	100.0	522295	100.0
Large rural				
Lone person household	176	11.6	5300	13.0
Other households	1336	88.2	34495	84.7
Not stated	3	0.2	913	2.2
Total	1515	100.0	40708	100.0
Small rural				
Lone person household	134	8.5	5555	12.0
Other households	1429	90.8	39968	86.4
Not stated	10	0.6	712	1.5
Total	1573	100.0	46235	100.0
Other rural/remote				
Lone person household	300	8.0	10903	9.0
Other households	3442	91.6	106648	88.4
Not stated	16	0.4	3025	2.5
Total	3758	100.0	120576	100.0

Table 20. Lone person households for women aged 75-80 years

	WHA Older cohort		ABS	
	N	%	N	%
Number	8418		335372	
Urban				
Lone person household	1686	46.6	94572	39.7
Other households	1906	52.7	127178	53.4
Not stated	26	0.7	16510	6.9
Total	3618	100.0	238260	100.0
Large rural				
Lone person household	519	50.7	9344	43.0
Other households	494	48.3	10609	48.8
Not stated	10	1.0	1790	8.2
Total	1023	100.0	21743	100.0
Small rural				
Lone person household	612	48.1	11225	41.8
Other households	648	50.9	13865	51.7
Not stated	12	0.9	1739	6.5
Total	1272	100.0	26829	100.0
Other rural/remote				
Lone person household	1164	46.5	18926	39.0
Other households	1328	53.0	26329	54.2
Not stated	13	0.5	3285	6.8
Total	2505	100.0	48540	100.0

There were few differences between the Census and WHA in the percentage of young and mid-age women who were living in single households (Tables 18-20). Older WHA women appeared more likely to be living in lone person households and this was consistent with the higher percentage of widows in the WHA cohort. However the relatively large percentage of unclassified households in the Census for older women (7% to 8%) created problems in comparing the Census and WHA data for lone person households. People living in boarding houses, nursing homes, hotels, convents and prisons were not classified as living in a household. The apparent over-representation of Older women living on their own in the WHA surveys is interesting as a review of previous studies reported higher attrition among people living alone⁴.

The WHA data does not allow for unclassifiable households, but rather asks the question as to whether the woman lives alone. Women living in nursing homes and hostels may well be solitary but are not living in a lone person household. In Survey 3 for Older women, 25 women were living in a nursing home and 46 were living in a hostel. Half of these women responded that they were living with non-family members, a quarter that they were living alone, 7% that they were living with their spouse or children and 17% did not indicate who they lived with. If women living in unclassified households were excluded from the Census figures, the percentage of lone person households in the Census would be closer to that for WHA women.

Highest educational qualification achieved

In the 2001 Census, there were two questions which related to the highest educational qualification achieved. The first was the highest level achieved at primary or secondary school with specific response options (Table 21). The second question about the highest educational qualification completed was filled in by respondents and classified by the ABS according to the Australian Standard Classification of Education⁵.

Table 21. Questions about highest educational qualifications in the 2001 Census and WHA surveys

Database question	Questions used	Response options
Census Q25	What is the highest level of primary or secondary school the person has completed? <i>Mark one box only</i> <i>For persons who returned after a break to complete their schooling, mark the highest level completed when they last left</i>	Still at school Did not go to school Year 8 or below Year 9 or equivalent Year 10 or equivalent Year 11 or equivalent Year 12 or equivalent
Q27	What is the level of the <i>highest</i> qualification the person has <i>completed</i> ? <i>For example, trade certificate, bachelor degree, associate diploma, certificate 2, advanced diploma</i>	
WHA M1q90, O1q69	What is the highest qualification you have completed? <i>Circle one number only</i>	No formal qualifications School or Intermediate Certificate Higher School or Leaving Certificate Trade/apprenticeship (eg Hairdresser, Chef) Certificate/diploma (eg Child Care, Technician) University degree Higher university degree (eg Grad Dip, Masters, PhD)
Y2q94	Which is the HIGHEST qualification you have completed? <i>Mark one only</i>	No formal qualifications Year 10 or equivalent (eg School Certificate) Year 12 or equivalent (eg Higher School Certificate) Trade/apprenticeship (eg hairdresser, chef) Certificate/diploma (eg child care, technician) University degree Higher university degree (eg Grad Dip, Masters, PhD)

The customised table provided by the ABS included ten categories for educational qualifications: did not go to school, year 8, year 9, year 10, year 11, year 12, certificate, advanced diploma and diploma, bachelor degree and higher degree. These categories were collapsed to no formal qualifications, year 10 or equivalent, year 12 or equivalent, certificate or diploma, bachelor degree and higher degree.

Questions about the highest educational qualification achieved were only asked of the Mid and Older women in Survey 1 (Table 21) as change in educational qualifications was unlikely in these age groups. The response options to these questions were not equivalent to the response options for Survey 2 for the Younger women.

To compare the 2001 Census data for women aged 23-28 years, 'no formal qualifications' included the Census categories, did not go to school, year 8 and year 9, 'year 10 or equivalent' included years 10 and 11 and 'year 12 or equivalent' was year 12. For women aged 50-55 or 75-80 years, 'no formal qualifications' included the Census categories, did not go to school and year 8, 'year 10 or equivalent' included years 9 and 10 and 'year 12 or equivalent' included years 11 and 12. The highest Australian

school qualification for older women may have been year 11 (Leaving certificate) which was sufficient to obtain entrance to university, although in some States, a twelfth year known as Leaving Honours was available. As the Census did not distinguish between advanced diploma and diploma, the Census categories, Certificate and Diploma were combined and the WHA categories, Trade and Certificate/diploma were combined.

Table 22. Highest educational qualification achieved by women aged 23-28 years.

	WHA Younger cohort		ABS	
	N	%	N	%
Number	9315		760728	
Urban				
No formal qualifications	45	0.8	19290	3.3
Year 10 or equivalent	357	6.3	87029	14.9
Year 12 or equivalent	1203	21.3	160796	27.6
Certificate/ diploma	1224	21.7	130777	22.4
Bachelor degree	2281	40.4	140495	24.1
Higher degree	386	6.8	17422	3.0
Not stated/inadequate description	152	2.7	27394	4.7
Total	5648	100.0	583203	100.0
Large rural				
No formal qualifications	23	2.4	2057	4.8
Year 10 or equivalent	112	11.9	9554	22.1
Year 12 or equivalent	234	24.8	12379	28.7
Certificate/ diploma	241	25.6	9698	22.4
Bachelor degree	252	26.7	6969	16.1
Higher degree	46	4.9	729	1.7
Not stated/inadequate description	35	3.7	1818	4.2
Total	943	100.0	43204	100.0
Small rural				
No formal qualifications	24	2.7	2292	5.8
Year 10 or equivalent	148	16.6	10638	27.0
Year 12 or equivalent	236	26.5	10244	26.0
Certificate/ diploma	243	27.3	8801	22.4
Bachelor degree	160	18.0	5116	13.0
Higher degree	30	3.4	550	1.4
Not stated/inadequate description	50	5.6	1728	4.4
Total	891	100.0	39369	100.0
Other rural/remote				
No formal qualifications	42	2.3	6304	6.6
Year 10 or equivalent	261	14.2	24035	25.3
Year 12 or equivalent	503	27.4	25629	27.0
Certificate/ diploma	481	26.2	19360	20.4
Bachelor degree	378	20.6	12932	13.6
Higher degree	80	4.4	1508	1.6
Not stated/inadequate description	88	4.8	5191	5.5
Total	1833	100.0	94959	100.0

Table 23. Highest educational qualification achieved by women aged 50-55 years.

	WHA Mid cohort		ABS	
	N	%	N	%
Number	11031		729814	
Urban				
No formal qualifications	588	14.1	59458	11.4
Year 10 or equivalent	1171	28.0	172164	33.0
Year 12 or equivalent	737	17.6	98466	18.9
Certificate/ diploma	842	20.1	87526	16.8
Bachelor degree	488	11.7	52027	10.0
Higher degree	317	7.6	25206	4.8
Not stated/inadequate description	42	1.0	27447	5.3
Total	4185	100.0	522294	100.0
Large rural				
No formal qualifications	241	15.9	4673	11.5
Year 10 or equivalent	518	34.2	17263	42.4
Year 12 or equivalent	236	15.6	5640	13.9
Certificate/ diploma	304	20.1	6523	16.0
Bachelor degree	137	9.0	3386	8.3
Higher degree	71	4.7	1325	3.3
Not stated/inadequate description	8	0.5	1898	4.7
Total	1515	100.0	40708	100.0
Small rural				
No formal qualifications	307	19.5	5428	11.7
Year 10 or equivalent	551	35.0	20292	43.9
Year 12 or equivalent	221	14.0	6680	14.4
Certificate/ diploma	291	18.5	7369	15.9
Bachelor degree	127	8.1	3145	6.8
Higher degree	67	4.3	1168	2.5
Not stated/inadequate description	9	0.6	2151	4.7
Total	1573	100.0	46233	100.0
Other rural/remote				
No formal qualifications	677	18.0	14673	12.2
Year 10 or equivalent	1263	33.6	49525	41.1
Year 12 or equivalent	645	17.2	19480	16.2
Certificate/ diploma	737	19.6	18616	15.4
Bachelor degree	283	7.5	9002	7.5
Higher degree	127	3.4	3437	2.9
Not stated/inadequate description	26	0.7	5821	4.8
Total	3758	100.0	120554	100.0

Table 24. Highest educational qualification achieved by women aged 75-80 years.

	WHA Older cohort		ABS	
	N	%	N	%
Number	8418		335372	
Urban				
No formal qualifications	944	26.1	72590	30.5
Year 10 or equivalent	1357	37.5	61311	25.7
Year 12 or equivalent	504	13.9	33355	14.0
Certificate/ diploma	475	13.1	15600	6.5
Bachelor degree	136	3.8	6128	2.6
Higher degree	53	1.5	1456	0.6
Not stated/inadequate description	149	4.1	47819	20.1
Total	3618	100.0	238259	100.0
Large rural				
No formal qualifications	319	31.2	7277	33.5
Year 10 or equivalent	383	37.4	5466	25.1
Year 12 or equivalent	126	12.3	2443	11.2
Certificate/ diploma	106	10.4	1195	5.5
Bachelor degree	28	2.7	476	2.2
Higher degree	6	0.6	73	0.3
Not stated/inadequate description	55	5.4	4815	22.1
Total	1023	100.0	21745	100.0
Small rural				
No formal qualifications	404	31.8	9140	34.1
Year 10 or equivalent	514	40.4	6829	25.5
Year 12 or equivalent	138	10.8	3034	11.3
Certificate/ diploma	120	9.4	1460	5.4
Bachelor degree	29	2.3	513	1.9
Higher degree	4	0.3	91	0.3
Not stated/inadequate description	63	5.0	5765	21.5
Total	1272	100.0	26832	100.0
Other rural/remote				
No formal qualifications	782	31.2	17923	36.9
Year 10 or equivalent	957	38.2	11337	23.4
Year 12 or equivalent	277	11.1	5398	11.1
Certificate/ diploma	280	11.2	2511	5.2
Bachelor degree	69	2.8	1079	2.2
Higher degree	15	0.6	194	0.4
Not stated/inadequate description	125	5.0	10102	20.8
Total	2505	100.0	48544	100.0

Overall Younger WHA women had higher post-school qualifications. The differences in educational achievement were most pronounced for young women living in urban and large rural centres (Table 22). Although overall the Mid WHA women had higher post-school qualifications than Australian women of the same age, there was also a higher percentage of WHA women with no formal qualifications, particularly in smaller rural and more remote areas (Table 23). The Older WHA women also appear to be more educated, with more women completing either year 10, a certificate or diploma (Table 24). However the comparison for these women may not be valid as approximately 20% either did not state or inadequately described their highest level of education in the Census (Table 24). The high level of missing data in the 2001 Census may be due to the use of different terminology to describe different levels of education to that which was used when the older women attended school or

other educational institutions. Furthermore the terminology used in countries other than Australia may also differ to that used in the 2001 Census and this may exacerbate the missing data problem.

Labour force status for women by area and age group

Three questions on the 2001 Census determined labour force status: q32 determines whether the person was employed, q42 and q43 determined whether the person was unemployed or not in the labour force respectively (Table 25).

Table 25. Questions about labour force statistics in the 2001 Census and WHA surveys

Database	Questions used	Response options
Census Q32	Q32. Last week, did the person have a full-time or part-time job of any kind? <i>Mark one box only</i> <i>A 'job' means any type of work including casual or temporary work or part-time work, if it was for one hour or more</i>	Yes, worked for payment or profit Yes, but absent on holidays, on paid leave, on strike or temporarily stood down Yes, unpaid work in a family business Yes, other unpaid work. Go to q42 No, did not have a job. Go to q42.
Q42	Did the person actively look for work at any time in the last four weeks? <i>Examples of actively looking for work include being registered with Centrelink as a job seeker; checking or registering with any other employment agency; writing, telephoning or applying in person to an employer for work; or advertising for work.</i>	No, did not look for work. Go to q44 Yes, looked for full-time work Yes, looked for part-time work
Q43	If the person had found a job, could the person have started work last week?	Yes, could have started work last week No, already had a job to go to No, temporarily ill or injured No, other reason
WHA	In the last week, how much time in total did you spend doing the following things?	Response options were the same for all parts of the question:
M3q71a,	Full-time paid work	I don't do this activity
M3q71b,	Permanent part-time paid work	1-15 hours
M3q71c,	Casual paid work	16-24 hours
M3q71d,	Home duties (own/family home)	25-34 hours
M3q71e,	Work without pay (eg family business)	35-40 hours
M3q71f,	Looking for work	41-48 hours
M3q71g,	Unpaid voluntary work	49 hours or more
M3q71j	Studying	
	In the last week, how much time in total did you spend doing the following things?	Response options were the same for all parts of the question:
Y2q75a,	Full-time paid work	I don't do this activity
Y2q75b,	Permanent part-time paid work	1-15 hours
Y2q75c,	Casual paid work	16-24 hours
Y2q75d,	Home duties (own/family home)	25-34 hours
Y2q75e,	Work without pay (eg family business)	35-40 hours
Y2q75f,	Studying	41-48 hours
Y2q75g	Unpaid voluntary work	49 hours or more

The ABS customised table for labour force statistics included the categories: employed, unemployed, not in the labour force and not stated. In the WHA data, labour force statistics were only available for the Mid cohort and are based on code developed by Anne Russell and endorsed by the data management group. The young women were not asked if they were looking for work. Thus the only categories available for the Young cohort were 'employed' and 'unemployed/not in the labour force'. In addition, the 2001 Census questions were more specific about whether a woman was actively looking for work and able to start work in the last week. Older WHA women were not offered any questions about employment.

Table 26. Employment status of women aged 23-28 years.

	WHA Younger cohort		ABS	
	N	%	N	%
Number	9315		760728	
Urban				
Employed	4904	86.8	405107	69.5
Unemployed/not in the labour force	695	12.3	158331	27.1
Not stated	49	0.9	19765	3.4
Total	5648	100.0	583203	100.0
Large rural				
Employed	762	80.8	27040	62.6
Unemployed/not in the labour force	170	18.0	14915	34.5
Not stated	11	1.2	1249	2.9
Total	943	100.0	43204	100.0
Small rural				
Employed	707	79.4	22983	58.4
Unemployed/not in the labour force	170	19.1	15169	38.5
Not stated	14	1.6	1217	3.1
Total	891	100.0	39369	100.0
Other rural/remote				
Employed	1478	80.6	55531	58.5
Unemployed/not in the labour force	333	18.2	35336	37.2
Not stated	22	1.2	4098	4.3
Total	1833	100.0	94965	100.0

Table 27. Labour force statistics for women aged 50-55 years.

	WHA Mid cohort		ABS	
	N	%	N	%
Number	11031		729814	
Urban				
Employed	3223	77.0	327894	62.8
Unemployed	71	1.7	13075	2.5
Not in the labour force	867	20.7	166101	31.8
Not stated	24	0.6	15224	2.9
Total	4185	100.0	522294	100.0
Large rural				
Employed	1138	75.1	24947	61.3
Unemployed	23	1.5	1256	3.1
Not in the labour force	347	22.9	13525	33.2
Not stated	7	0.5	980	2.4
Total	1515	100.0	40708	100.0
Small rural				
Employed	1182	75.1	25945	56.1
Unemployed	19	1.2	1541	3.3
Not in the labour force	362	23.0	17747	38.4
Not stated	10	0.6	1000	2.2
Total	1573	100.0	46233	100.0
Other rural/remote				
Employed	2923	77.8	72583	60.2
Unemployed	32	0.9	3244	2.7
Not in the labour force	776	20.6	41510	34.4
Not stated	27	0.7	3228	2.7
Total	3758	100.0	120565	100.0

Employed women were over-represented in the Younger and Mid cohorts in comparison to the 2001 Census. This bias was more pronounced in smaller rural and remote areas. Missing data was higher in the Census than WHA surveys, but were sufficiently low that it was unlikely to affect comparisons.

Occupation

In the 2001 Census, occupation was only recorded for those who were employed or worked without pay in the family business. Two questions were used, one to establish the occupational code and the other to verify the occupation based on the main tasks performed (Table 28). The questions on occupation in the WHA surveys were directed at employed women with a separate category for no paid job. Some, but not all women working without pay in a family business answered these questions. Younger WHA women were asked what was their occupation or the occupation they were working towards if they were students. Therefore occupation data for the Younger women were not comparable to the Census.

Table 28. Questions about occupation in the 2001 Census and WHA surveys.

Database	Questions used	Response options or instructions
Census Q34	In the main job held last week, what was the person's occupation?	<i>Give full title</i> <i>For example, Childcare Aide, Maths Teacher, Pastrycook, Tanning Machine Operator, Apprentice Toolmaker, Sheep and Wheat Farmer.</i> <i>For public servants, state official designation and occupation.</i> <i>For armed services personnel, state rank and occupation.</i>
Q35	What are the main tasks that the person himself/herself usually performs in that occupation?	<i>Give full details</i> <i>For example, looking after children at a day care centre, teaching secondary school students, making cakes and pastries, operating leather tanning machine, learning to make and repair tools and dies, running a sheep/wheat farm.</i> <i>For managers, state main activities managed</i>
WHA M3q80a	We would like to know your and your partner's main occupation now:	Manager or administrator (eg magistrate, farm manager, media producer, director of nursing, school principal) Professional (eg accountant, doctor, registered nurse, allied health professional, teacher, artist) Associate professional (eg technician, office manager, branch manager, shop manager, tennis coach, retail buyer, youth worker, police officer) Tradesperson or related worker (eg signwriter, cook, dressmaker, hairdresser, gardener, florist) Advanced clerical or service worker (eg bookkeeper, credit officer, radio dispatcher, secretary, personal assistant, flight attendant, law clerk) Intermediate clerical, sales or service worker (eg accounts clerk, checkout supervisor, typist, word processing/data entry operator, receptionist, child care worker, nursing assistant, hospitality worker) Intermediate production or transport worker (eg sewing machinist, machine operator, bus driver) Elementary clerical, sales or service worker (eg filing/mail clerk, parking inspector, sales assistant, telemarketer, housekeeper) Labourer or related worker (eg cleaner, factory worker, general farm hand, kitchenhand, fast food cook) No paid job.

The customised ABS table had the same occupation categories as those used in the WHA survey for the Mid cohort (Table 28).

Table 29. Occupation category for women aged 50-55 years and in the labour force.

Number	WHA Mid cohort		ABS	
	N	%	N	%
	8466		451368	
Urban				
Managers and Administrators	235	7.3	19065	5.8
Professionals	849	26.3	72582	22.1
Associate Professionals	302	9.4	38491	11.7
Tradespersons and Related Workers	77	2.4	7975	2.4
Advanced Clerical and Service Workers	484	15.0	30235	9.2
Intermediate Clerical, Sales and Service Workers	521	16.2	84213	25.7
Intermediate Production and Transport Workers	28	0.9	9733	3.0
Elementary Clerical, Sales and Service Workers	168	5.2	33683	10.3
Labourers and Related Workers	200	6.2	26127	8.0
Inadequately described/not stated	359	11.1	5790	1.8
Total	3223	100.0	327894	100.0
Large rural				
Managers and Administrators	82	7.2	1277	5.1
Professionals	276	24.3	5317	21.3
Associate Professionals	92	8.1	3343	13.4
Tradespersons and Related Workers	38	3.3	742	3.0
Advanced Clerical and Service Workers	126	11.1	1748	7.0
Intermediate Clerical, Sales and Service Workers	193	17.0	6226	25.0
Intermediate Production and Transport Workers	15	1.3	579	2.3
Elementary Clerical, Sales and Service Workers	62	5.5	2851	11.4
Labourers and Related Workers	94	8.3	2444	9.8
Inadequately described/not stated	160	14.1	420	1.7
Total	1138	100.0	24947	100.0
Small rural				
Managers and Administrators	110	9.3	1553	6.0
Professionals	246	20.8	4898	18.9
Associate Professionals	140	11.8	3680	14.2
Tradespersons and Related Workers	39	3.3	795	3.1
Advanced Clerical and Service Workers	114	9.6	1915	7.4
Intermediate Clerical, Sales and Service Workers	160	13.5	6305	24.3
Intermediate Production and Transport Workers	6	0.5	657	2.5
Elementary Clerical, Sales and Service Workers	72	6.1	2859	11.0
Labourers and Related Workers	113	9.6	2785	10.7
Inadequately described/not stated	182	15.4	498	1.9
Total	1182	100.0	25945	100.0
Other rural/remote				
Managers and Administrators	359	12.3	10887	15.0
Professionals	574	19.6	13164	18.1
Associate Professionals	206	7.0	9290	12.8
Tradespersons and Related Workers	112	3.8	2471	3.4
Advanced Clerical and Service Workers	276	9.4	4762	6.6
Intermediate Clerical, Sales and Service Workers	368	12.6	14312	19.7
Intermediate Production and Transport Workers	38	1.3	1759	2.4
Elementary Clerical, Sales and Service Workers	128	4.4	5991	8.3
Labourers and Related Workers	326	11.2	8555	11.8
Inadequately described/not stated	536	18.3	1391	1.9
Total	2923	100.0	72582	100.0

WHA data were not verified using main tasks performed and differences in occupation may be due to differences in interpretation of the different occupation categories (Table 29). This may account for the higher percentage of WHA women with more professional occupations however this finding was consistent with the slightly higher qualifications of WHA women. In addition, there was a higher percentage of missing WHA data than in the 2001 Census. Approximately half the missing WHA data could be accounted for by women working without pay in for example, a family business.

Hours worked

In the 2001 Census employed (includes working unpaid in a family business) women were asked to record the number of hours they had worked in the last week (Table 30). If they were on holidays, ill or otherwise not working in the last week they were asked to record zero hours worked. As this was not an option in the WHA surveys, how would a woman answer if she works full-time, part-time or casually but last week she was on holidays? The option 'I don't do this activity' would be incorrect and it is likely that the woman would answer the number of hours she would normally work in a week and thus overestimate the number of hours worked in the last week.

Table 30. Questions about number of hours worked in the 2001 Census and WHA surveys.

Database question	Questions used	Response options
Census Q32	Q32. Last week, did the person have a full-time or part-time job of any kind? <i>Mark one box only</i> <i>A 'job' means any type of work including casual or temporary work or part-time work, if it was for one hour or more</i>	Yes, worked for payment or profit Yes, but absent on holidays, on paid leave, on strike or temporarily stood down Yes, unpaid work in a family business Yes, other unpaid work. Go to q42 No, did not have a job. Go to q42.
Q40	Last week, how many hours did the person work in all jobs? <i>Subtract any time off, add any overtime or extra time worked</i>	None Hours worked
WHA	In the last week, how much time in total did you spend doing the following things?	Response options were the same for all parts of the question:
Y2q75a,M3q71a,	Full-time paid work	I don't do this activity
Y2q75b,M3q71b,	Permanent part-time paid work	1-15 hours
Y2q75c,M3q71c,	Casual paid work	16-24 hours
Y2q75e,M3q71e	Work without pay (eg family business)	25-34 hours
		35-40 hours
		41-48 hours
		49 hours or more

The customised table provided by ABS includes the categories for hours worked: 0, 1-15, 16-24, 25-34, 35-40, 41-48, 49 or more hours and not stated. The number of hours worked for the Younger and Mid were calculated on the basis of the mid-points of the categories in Table 30. The code was developed by Anne Russell and Jess Ford and endorsed by the data management group.

Table 31. Hours worked by employed women aged 23-28 years.

	WHA Younger cohort		ABS	
	N	%	N	%
Number	7851		510660	
Urban				
Hours worked 0	-		15723	3.9
Hours worked 1-15	508	10.4	34175	8.4
Hours worked 16-24	417	8.5	31669	7.8
Hours worked 25-34	469	9.6	38648	9.5
Hours worked 35-40	1644	33.5	181173	44.7
Hours worked 41-48	1153	23.5	53880	13.3
Hours worked 49+	713	14.5	40749	10.1
Not stated	0		9090	2.2
Total	4904	100.0	405107	100.0
Large rural				
Hours worked 0	-		1223	4.5
Hours worked 1-15	89	11.7	2864	10.6
Hours worked 16-24	73	9.6	2635	9.7
Hours worked 25-34	87	11.4	3246	12.0
Hours worked 35-40	264	34.6	11384	42.1
Hours worked 41-48	155	20.3	3015	11.2
Hours worked 49+	94	12.3	2154	8.0
Not stated	0		519	1.9
Total	762	100.0	27040	100.0
Small rural				
Hours worked 0	-		1116	4.9
Hours worked 1-15	103	14.6	2959	12.9
Hours worked 16-24	64	9.1	2368	10.3
Hours worked 25-34	77	10.9	2874	12.5
Hours worked 35-40	225	31.8	9050	39.4
Hours worked 41-48	142	20.1	2401	10.4
Hours worked 49+	96	13.6	1720	7.5
Not stated	0		495	2.2
Total	707	100.0	22983	100.0
Other rural/remote				
Hours worked 0	-		2718	4.9
Hours worked 1-15	208	14.1	6500	11.7
Hours worked 16-24	150	10.1	6008	10.8
Hours worked 25-34	164	11.1	6737	12.1
Hours worked 35-40	447	30.2	20052	36.1
Hours worked 41-48	295	20.0	5946	10.7
Hours worked 49+	214	14.5	6183	11.1
Not stated	0		1386	2.5
Total	1478	100.0	55530	100.0

Table 32 Hours worked by employed women aged 50-55 years.

	WHA Mid cohort		ABS	
	N	%	N	%
Number	8466		451374	
Urban				
Hours worked 0	-		14115	4.3
Hours worked 1-15	470	14.6	35178	10.7
Hours worked 16-24	492	15.3	43957	13.4
Hours worked 25-34	474	14.7	51871	15.8
Hours worked 35-40	935	29.0	112874	34.4
Hours worked 41-48	470	14.6	26864	8.2
Hours worked 49+	382	11.9	35285	10.8
Not stated	0		7750	2.4
Total	3223	100.0	327894	100.0
Large rural				
Hours worked 0	-		1199	4.8
Hours worked 1-15	166	14.6	3174	12.7
Hours worked 16-24	164	14.4	3399	13.6
Hours worked 25-34	193	17.0	4044	16.2
Hours worked 35-40	305	26.8	7655	30.7
Hours worked 41-48	161	14.1	1912	7.7
Hours worked 49+	149	13.1	3022	12.1
Not stated	0		542	2.2
Total	1138	100.0	24947	100.0
Small rural				
Hours worked 0	-		1329	5.1
Hours worked 1-15	209	17.7	3756	14.5
Hours worked 16-24	171	14.5	3836	14.8
Hours worked 25-34	183	15.5	4168	16.1
Hours worked 35-40	290	24.5	7213	27.8
Hours worked 41-48	147	12.4	1780	6.9
Hours worked 49+	182	15.4	3239	12.5
Not stated	0		624	2.4
Total	1182	100.0	25945	100.0
Other rural/remote				
Hours worked 0	-		4067	5.6
Hours worked 1-15	501	17.1	9509	13.1
Hours worked 16-24	450	15.4	9361	12.9
Hours worked 25-34	442	15.1	10794	14.9
Hours worked 35-40	644	22.0	18419	25.4
Hours worked 41-48	387	13.2	4838	6.7
Hours worked 49+	499	17.1	13677	18.8
Not stated	0		1923	2.6
Total	2923	100.0	72588	100.0

Approximately 4% of young and mid-age women appear to be on holidays, ill or otherwise not at work in the 2001 Census. Presumably this category should be redistributed in proportion through the other categories as the women involved are likely to be across all groups. This would have most effect on the percentage of women in the largest category (35-40 hours) resulting in a greater difference between the WHA women and the Australian female population in women working full-time, but not over-time.

Compared to the Census, Younger WHA women were more likely to be working more than 40 hours a week, whereas the Mid group were closer to the national average. Mid-age WHA women were more likely to work part-time or to work over-time than Australian women of the same age.

The WHA questions for hours worked were used to determine 'employed' status and thus there were no missing data for hours worked in the WHA data.

Sociodemographic characteristics of the cohorts weighted by area

To correct for over-sampling of women from rural and remote areas at Survey 1, all responses were weighted for area so that the WHA populations were representative of the Australian population for women in the same age groups. The data were then compared with the 2001 Census data for women in the same age groups (Table 33). The extent of bias differed by area, particularly for Indigenous status, country of birth and language spoken at home. Weighting for area produces more valid distributions for these variables.

At Survey 2, Younger WHA women were less likely to be Indigenous or from a non-English speaking background (Table 33). They were more likely to be Australian born, to speak English at home and to have never married. They had more educational qualifications, were more likely to be employed and were working longer hours per week suggesting that they were in a higher socioeconomic group than women of the same age in the 2001 Census. The differences in Indigenous status, language spoken at home and country of birth were similar to differences found between the 1996 Census and the first survey of these women. However the pattern of education and employment changed between the 1996 and 2001 Censuses for Younger WHA women and women of the same age in the Census. Whereas at the 1996 Census almost 70% of young women had no post school qualifications (both WHA and the general population), 49% and 42% had no post school qualifications in the 2001 Census and WHA cohort respectively. Furthermore, Younger WHA women were less likely to be employed in 1996 but were much more likely to be employed (in 2000) than women of their same age at the Census in 2001.

At Survey 3, Mid-age WHA women were more likely to be Australian born, to speak English at home and to be married than Australian women of the same age (Table 33). They were less likely to be separated or divorced. WHA women had higher educational qualifications, were more likely to be employed and employed women were working longer hours than women of the same age in the Australian population. These differences were consistent with differences observed between the 1996 Census and the first survey for WHA women. However there have been more losses in the WHA Mid-age cohort of Indigenous women and women from a non-English speaking background and thus the current Mid-age WHA cohort is becoming less representative of Indigenous and migrant women.

Older WHA women were more likely to be Australian born and to speak English at home than women of the same age in the 2001 Census (Table 33). The high level of missing data in the 2001 Census made it difficult to make comparisons for marital status and educational qualifications, although there appeared to be more married women with higher educational qualifications in the WHA cohort. Similar patterns were seen at the 1996 Census.

There was consistently more missing data in the 2001 Census for these sociodemographic characteristics than in the WHA surveys for all cohorts.

Table 33. Sociodemographic characteristics for Younger, Mid-age and Older respondents and for women of the same age in the 2001 Australian Census. Percentages are weighted for area to allow for over-sampling in rural and remote areas.

	Younger (23-28 years)		Mid-age (50-55 years)		Older (75-80 years)	
	WHA	ABS	WHA	ABS	WHA	ABS
	%	%	%	%	%	%
Number	9,689	760,728	11,202	729,814	8,646	335,372
Indigenous status						
Non-indigenous	98.4	93.8	98.5	95.9	93.8	91.6
Indigenous	1.2	2.6	0.6	1.1	0.3	0.4
Not stated	0.4	3.6	0.9	3.0	5.9	8.1
Country of birth						
Australia	90.6	76.6	71.5	63.0	71.5	64.5
Other English speaking	4.0	6.3	15.6	13.0	13.0	11.5
Non-English speaking	4.7	12.9	11.7	20.0	10.1	17.0
Not stated	0.7	4.2	1.2	4.0	5.4	7.0
Language spoken at home						
English	90.0	78.7	91.4	81.2	85.0	79.0
Language other than English	9.0	17.4	6.9	15.5	7.0	13.8
Not stated	1.0	3.9	1.7	3.2	8.0	7.2
Marital status						
Married	22.5	28.9	73.1	65.0	43.7	33.7
De facto	20.4	17.1	7.7	4.8	0.4	0.7
Separated/ divorced	0.8	3.8	11.7	16.3	5.4	6.4
Widowed	0	0.1	2.1	3.4	46.9	43.6
Never married	53.9	41.4	3.2	4.1	3.1	3.2
Not classified/ not stated	2.4	8.6	2.2	6.5	0.5	12.4
Single person household						
Lone person household	5.9	7.4	9.5	10.7	47.1	40.0
Other households	91.9	90.7	90.1	87.9	52.1	53.1
Not classified/ not stated	2.2	1.9	0.4	1.5	0.8	7.0
Highest educational qualification						
Less than Year 12	9.0	21.2	44.7	47.1	65.4	57.2
Year 12	21.9	27.5	17.0	17.8	13.4	13.2
Trade/ certificate/ diploma	22.5	22.2	20.1	16.4	12.2	6.2
University degree	43.3	24.4	17.3	13.5	4.6	3.0
Not classified/ not stated	3.3	4.7	0.9	5.1	4.4	20.4
Labour force status						
Employed	85.5	67.1	76.7	61.8	NA	
Unemployed/ not in labour force	13.5	29.4	22.6	35.4		
Not classified/ not stated	1.0	3.5	0.7	2.8		
Hours worked for employed only						
Less than 35 hours per week	29.9	31.6	45.6	45.1	NA	
35-40 hours per week	33.1	43.4	27.4	32.4		
More than 40 hours per week	37.0	22.7	27.0	20.1		
Not classified/ not stated	0	2.3	0	2.4		

Labour force status and hours worked were not available for Older WHA women

Summary

Women of non-English speaking background were under-represented in each of the WHA cohorts, a bias that has worsened since the 1996 Census comparison. Indigenous women were also under-represented, particularly in the Younger cohort and those living in rural and remote areas. Of the three WHA cohorts, the Younger women appeared to be the least representative of Australian women of the same age. This is not surprising as the greatest losses to follow-up have occurred in the Younger cohort.

The WHA women were almost certainly of higher socio-economic status as evidenced by more education and employment and more highly paid occupations in Surveys 2 (Younger) and 3 (Mid). The WHA women tended to have higher educational qualifications, particularly the Younger women, who were more likely to have a certificate, diploma or degree. The high level of missing data for older women in the 2001 Census meant that valid comparisons could not be made. The higher educational qualifications of the Mid-age women were consistent with more professional occupations, more employment and longer hours worked. In the 1996 Census comparison Younger WHA women were less likely to be employed than Australian women of the same age. However at the 2001 Census, Younger WHA women reported more employment and longer working hours than Australian women of the same age and again this was consistent with higher qualifications.

In contrast to the Younger women, who were more likely to have never married, Mid-age and Older women were more likely to be married. The Older women were also more likely to be widowed and to live alone, although marital status and type of household were not available for between 7% and 12% of women of the same age in the Census.

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