

# Landscapes of healthy ageing

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## ABSTRACT

The main aim of this paper is to explore changes in health for older Australian women by comparing the prevalence of key health and health care indicators at three time points. Since women in rural and remote parts of Australia may be expected to have different health outcomes and different service use to urban women, the prevalence of these variables at each time point is compared for women living in urban, rural and remote parts of Australia.

Women in the older cohort of the Australian Longitudinal Study on Women's Health (ALSWH) – widely known as Women's Health Australia – were aged 70–75 at the time of the first survey in 1996. They have since been invited to complete two follow-up surveys and a third is intended for 2005. In each survey, women were asked to complete a large number of closed questions about their health and lifestyle. For this study, the factors compared were health status (health-related quality of life, symptoms, vision, hearing, help with daily tasks, falls); health behaviours (smoking, physical activity); and health service use.

Overall, there were few differences in health between women living in urban, large rural, small rural, or other rural and remote areas at each survey. While the change in the health status of the women was relatively small, it accelerated in the second period of observation. Although the increase in formal health care was not great, the need for care increased considerably over the six year period of observation. The main difference between women in different areas was that urban women had generally higher levels of service use. ALSWH data also showed that women who moved to more urbanised areas had more symptoms of physical ill health, poorer mental health, higher perceived access to health care, but lower service use than women who had not moved. These data suggest that women who move from rural to more urbanised areas are a vulnerable and potentially disadvantaged group of older women, who require particular consideration in policy and planning, and in the analysis of issues associated with spatial distribution of inequality.

## INTRODUCTION

Healthy ageing is important for all Australians. The proportion of the Australian population who are aged 65 years and over is increasing and it is predicted that in 2051, 25% of the Australian population will be aged over 65 years. Moreover, 4% (over a million people) will be aged 85 years<sup>1</sup> and while life expectancy at birth is currently 83 years for women this value will increase to 88 years by the year 2027.<sup>2</sup> Even now, women who have reached the age of 65 can expect to live another 20 years.<sup>3</sup> It is important to understand how health changes as women age, and how these changes affect different groups of women.

The experience of ageing, the need for care, and service availability are likely to vary greatly between people living in large capital cities such as Sydney, and those living in rural parts of Australia where the nearest neighbour may be kilometres away, and the nearest hospital several hours drive. However, little is known about the health of older people living in rural

and remote areas. ALSWH has begun to address this knowledge deficit with respect to the health of older women living in rural and remote areas.

While 70% of women live in cities<sup>4</sup> a significant minority live in rural and remote parts of Australia. Around 8% of the people living in these areas are aged 65 years and older. The proportion of older people in the rural population is also increasing at a rate faster than in other parts of Australia. One of the main reasons for this is that the restructuring of Australia's rural industries over the last three decades has reduced the employment opportunities in rural and remote areas. The result has been migration of young adults to coastal areas where prospects of employment are more favourable.<sup>5</sup> Among the consequences of this net loss of younger people from rural areas is a shortage of family support for older people, and a weakening of support networks generally. As family and friends provide the majority of care for older Australians<sup>6,7</sup>, this net loss in the younger population is likely to increase the demands on services made by ageing rural and remote populations.

The data available on the health of people in rural areas generally suggest that these people may have some health disadvantages relative to urban dwellers. These include greater exposure to injury<sup>8</sup>, higher rates of mortality and morbidity<sup>4,8</sup>, higher prevalence of some risk factors for illness including higher prevalence of 'overweight', smoking, hypertension and high cholesterol<sup>9</sup>, and a shortage of health care providers and services in some areas<sup>9</sup>.

Rurality is also a barrier to use of GP services by older women<sup>10</sup>, and the lack of GPs and specialists in rural areas means that rural residents have reduced access to screening and preventive services.<sup>10,12</sup> They are also more likely to be hospitalised for the type of care that urban dwellers would receive routinely from outpatient services.<sup>8,11</sup> On the other hand, there may also be some health advantages for older people living in rural and remote areas, including increased access to aged care hostel places<sup>4</sup> and nursing home beds, a closer integration between general practitioner, hospital care and community care, and better access to some community services.<sup>8</sup>

The main aim of this paper is to present changes in the health of older women living in urban, rural and remote parts of Australia, by comparing the prevalence of key health and health care indicators at three time points.

## METHODS

The Australian Longitudinal Study on Women's Health (ALSWH) was established in 1996 and is a population-based study of changes in the health of a national sample of Australian women. The sample includes three age-cohorts of women who were selected through random sampling from the Health Insurance Commission data base. Women living in rural and remote parts of Australia were deliberately over-sampled (at twice the rate of women in urban areas) to allow more reliable comparisons of health for women living in different parts of Australia, and to enable insights into the different experiences and changes in health for women living in different areas. The details of the survey have been published elsewhere<sup>1,2</sup> and overviews of the survey, its rationale and methods, can be located on the Study's web site: <http://www.newcastle.edu.au/centre/wha>. One of the main focuses of the ALSWH is to investigate 'healthy ageing'.

Women in the older cohort were aged 70–75 years at the time of the first postal survey in 1996 and have since been invited to complete two follow-up surveys – Survey 2 in 1999 and Survey 3 in 2002. A fourth Survey is intended for 2005. Each Survey included a large number of closed questions about the women's health and lifestyle. Withdrawals and reasons for withdrawal are

continually recorded by staff in the study office, and deaths are ascertained through the National Death Index.<sup>14</sup>

## Main measures

**Area of residence:** Current postcode was used to classify the women as living in an 'urban', 'large rural', 'small rural' or 'other rural and remote' area according to an Australian government classification scheme.<sup>15</sup>

**Health:** The main measure of health used in the study is the *Medical Outcomes Study Short-Form 36 (SF-36) Health Survey* which is an international, standard, generic measure of health-related quality of life. The SF-36 provides an eight scale health profile (SF-36 Sub-scales) and two Summary Scores representing physical and mental health. The scales measure:

- physical functioning
- bodily pain
- role limitations due to physical health problems
- general health perceptions
- vitality, energy or fatigue
- general mental health
- psychological distress or well-being
- role limitations due to emotional problems and
- social functioning.

In Surveys 1 and 3, women were asked if they had often experienced any of a list of common symptoms of ill health (such as stiff and painful joints, back pain, chest pain, difficulty breathing, leaking urine, constipation or poor memory) in the past year. Women were also asked to indicate whether they had slipped or tripped, fallen to the ground, been injured as a result of a fall, or sought medical attention for a fall occurring in the last year.

**Disability:** In Surveys 2 and 3, women were asked if they had difficulty seeing newspaper print, even with glasses, and/or difficulty hearing a conversation, even with a hearing aid. Women were also asked whether they needed help with daily tasks because of long-term illness, disability or frailty, and also whether they regularly provided care to another person.

**Health behaviours:** 'Smoking status' was classified as current smoker, ex-smoker and non-smoker. 'Alcohol use' was categorised as non-drinker, rarely drinks, low risk drinker (up to two drinks per day) and risky drinker (three or more drinks per day). A physical activity score was derived from questions about the total time spent in brisk walking and moderate and vigorous activities in the last week. Scores were categorised as: 'sedentary' (<10 minutes per week); 'low' (10 to 150 minutes per week); 'moderate' (150 to 300 minutes per week); and 'high' (300 or more minutes per week).<sup>16</sup>

**Health service use:** In each survey, health service use in the last year was evaluated using the number of visits to a general practitioner, hospital admissions and consultations with specialists and allied health professionals.

Specific questions asked whether women were using hormone replacement therapy (HRT), and whether they were using “Medications to help you sleep”. Women were also asked “Which of the following groups have you sought advice or help from in the last 6 months?”: Responses were selected from nursing, community health or respite services, and ambulance services.

**Perceived access to health care:** This was assessed in Survey 2. Participants were asked seven questions on health care such as: “Thinking about your own health care, how would you rate the following (now)?”:

- access to medical specialists if you need them
- access to a hospital if you need it.

Responses of ‘poor’, ‘fair’, ‘good’, ‘very good’, and ‘excellent’ were scored on a scale of 1 to 5. Responses to the seven questions were averaged to provide a ‘mean access to health care’ score.

**Socio-demographic factors:** Information was sought on age women left school, their highest educational qualification and country of birth.

## Analysis

Responses were described for each survey for those women who answered all three surveys. Percentages, means and 95% confidence intervals for the whole group were adjusted because of over-sampling of women from urban, rural and remote areas. Bivariate analyses (Chi-square or t-test) were undertaken to compare responses from each Survey for women living in postcodes classified as ‘urban’, ‘large rural’, ‘small rural’ or ‘other rural and remote area’.

A separate analysis was undertaken to explore the health of women who moved from rural/remote to more urban areas between Survey 1 and Survey 2. Univariate analyses ( $\chi^2$  tests, F tests) were used to compare sub-groups of women according to area of residency and change in area classification. Analysis of co-variance (ANCOVA) was used to examine the relationship between change in SF-36 and area of residency, whilst adjusting for the baseline scores. For outcome variables that were binary, multiple logistic regression models were used to assess the relationship with area of residency after adjustment for highest educational qualification, and country of birth.

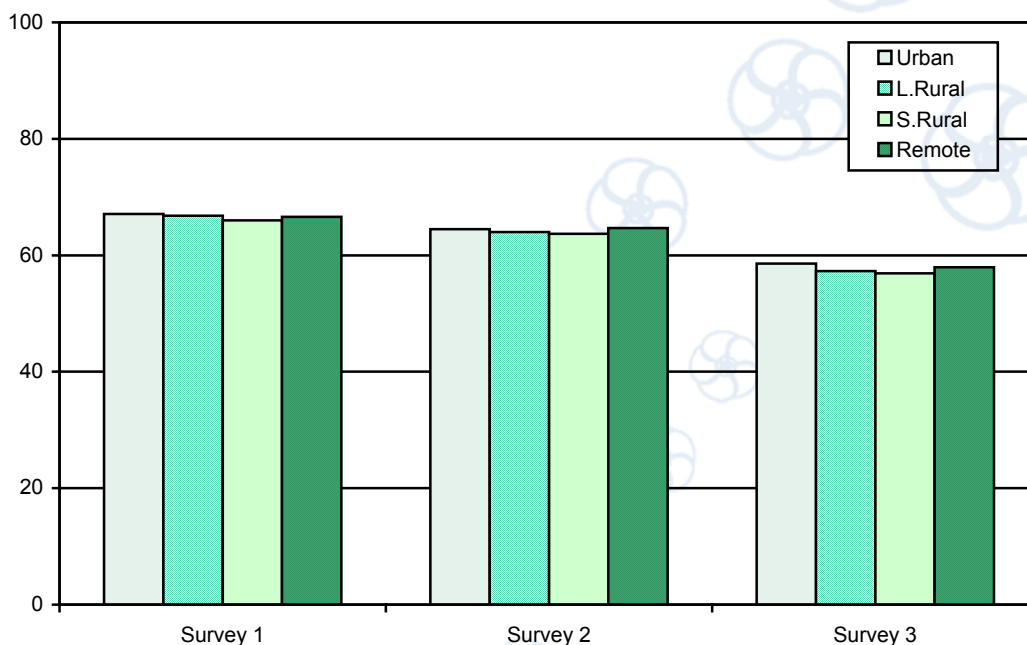
## RESULTS

In 1996, 12 432 women aged 70–75 years agreed to participate in the ALSWH and completed Survey 1. A total of 8647 women completed Survey 3 (69.6% of the original cohort), and 8397 women completed all three Surveys. Between Surveys 1 and 3, 1421 (11.4%) women had died or become too frail (eg due to stroke, dementia) to complete the survey. A further 1180 (9.5%) withdrew from the study, 318 (2.5%) could not be contacted, and 866 (7.0%) did not complete Survey 3 for other reasons. Based on their reported residential postcode in Survey 1, 3364 women lived in urban areas, 1028 lived in areas classified as ‘large rural’, 1311 lived in ‘small rural’ and 2694 lived in areas classified as ‘other rural/remote’.

## Differences between urban, rural and remote areas

There were no differences in health-related quality of life (see Figure 1), symptoms, falls, disability or health related behaviour between women living in 'urban', 'large rural', 'small rural or 'other rural and remote' areas at each Survey, except that women living in remote areas were less likely to exercise than those living in urban areas ( $p < .001$  at Surveys 2 and 3). However, health service use was generally higher for women living in urban rather than non-urban areas (Table 1). Urban women were significantly more likely to consult a general practitioner, a specialist, or an allied health professional than women in the rural or remote areas. There was little difference in the percentage of women reporting admission to hospital within 12 months. Women living in 'other rural and remote areas' were less likely to take hormone replacement therapy or medications to help them sleep ( $p < .005$  at all time points).

**Figure 1** Physical Function subscale of SF-36 for women in urban, rural and remote areas at Surveys 1, 2 and 3



## Factors associated with moving from rural/remote to more urban areas

While the data show few differences for women according to area classification at each survey, a small proportion of women moved house and changed area classification between surveys. Between Survey 1 and Survey 3, just over 2% of urban women moved from an urban to a non-urban area. In contrast, around 11% moved from non-urban areas, with 6%, 3% and 2% moving to urban, less remote and more remote localities respectively.

Several health and social factors were related to women's area of residence, or whether they had moved between Surveys 1 and 2 (Table 2). There was a significant trend for women who moved to have more symptoms of ill health than women who remained in their original classifications ( $p < 0.01$ ). Also, unlike women in other areas who recorded significant increases in Mental Health SF-36 sub-scale scores, women who moved had no significant increase in these scores. Among women who remained in their original classifications, there was a

significant trend for the increase in Mental Health scores to be greater with increasing remoteness ( $p < 0.001$ ).

**Table 1 Health service use for 8397 women by locality**

	Urban n1=3364 n2=3474 n3=3554 %	Large rural n1=1028 n2=1011 n3=1030 %	Small rural n1=1311 n2=1289 n3=1286 %	Other rural/ remote n1=2694 n2=2623 n3=2527 %
<b>In the last year had</b>				
Five or more general practitioner visits				
70–75 years	53.5	47.0	50.6	46.3
73–78 years	60.7	52.5	54.7	51.4
76–81 years	66.1	58.8	57.7	55.0
Specialist consultation				
70–75 years	55.5	49.4	48.9	46.2
73–78 years	51.7	42.5	44.4	42.0
76–81 years	53.0	41.7	43.7	40.9
Admission to hospital				
70–75 years	20.7	19.9	22.1	21.7
73–78 years	25.9	26.0	27.9	26.0
76–81 years	29.2	26.9	28.4	30.0
Allied health professional consultation				
70–75 years	72.3	68.1	68.4	66.9
73–78 years	77.0	74.5	72.5	70.7
76–81 years	78.5	74.6	73.3	74.9
Respite, nursing or community health services				
73–78 years	5.8	6.8	10.1	9.6
76–81 years	9.0	9.8	13.2	13.3
Ambulance service				
73–78 years	4.9	6.2	6.1	5.1
76–81 years	7.6	6.6	7.5	6.3

Numbers for each item vary due to missing data (1.1% to 10.3%)  $p < .001$  for highlighted figures across urban, large rural, small rural and other rural and remote areas.

Perceived access to health care decreased with increasing remoteness. However, those women who moved to urban areas recorded scores that were consistent with those of women already living in capital cities and metropolitan areas.

## DISCUSSION

This analysis shows that while women living in rural and remote areas have similar levels of health and disability to women in urban areas, they have different levels of service use. However, those women who moved areas may have moved because of their health, or to gain better access to services, and so the lack of difference may be due to a ‘survivor effect’.

In a separate analysis of the older women in the study, 3% had moved from rural or remote areas to urban areas between Survey 1 and Survey 2. Women in remote areas were most likely to move, with 11% of women living in these areas having moved at Survey 2. There was a significant trend for those older women who had moved to have more symptoms of ill health at Survey 2 than women who had not moved. Moreover, women who remained in place recorded significant improvement in their mental health between Survey 1 and Survey 2, but women who moved had no such improvement.

**Table 2 Main factors associated with moving from rural/remote to more urban areas**

	Stayed the same at baseline and follow-up					
	Capital city / other metropolitan	Large rural	Small rural	Other rural/ remote/ other remote	Moved to more urban area in 1999	
Symptoms	Adjusted* means, or odds ratio and (95% confidence intervals) P values					
Number of symptoms						
Follow-up	3.8 (3.7–3.9)	3.7 (3.6–3.9)	3.8 (3.6–3.9)	3.6 (3.5–3.7)	4.2 (3.8–4.5)	0.006
<i>SF-36</i>						
General mental health						
Difference	0.6 (0.1–1.0)	0.9 (0.1–1.6)	1.4 (0.7–2.1)	1.9 (1.5–2.4)	1.1 (–0.5–2.7)	<0.001
<i>Health Service Use</i>						
Access to health care						
Follow-up	3.81 (3.78–3.83)	3.72 (3.67–3.77)	3.58 (3.54–3.63)	3.48 (3.45–3.51)	3.80 (3.70–3.90)	<0.001
<i>Community Services</i>						
Number of community services used						
Follow-up	0.55 (0.52–0.58)	0.66 (0.61–0.72)	0.66 (0.61–0.72)	0.63 (0.59–0.66)	0.58 (0.46–0.70)	<0.001

Adjusted for baseline scores, highest educational qualification, and country of birth.

Women who moved to more urban areas had higher perceived access to health care, but had lower reported use of community services than women in rural or remote areas. These data suggest that women who move from rural to more urban areas are a vulnerable and potentially disadvantaged group of older women, who require particular consideration in policy and planning, and in the analysis of issues associated with the spatial distribution of inequality.

A limitation of this study is that the women who remain in the cohort and who contributed to all three Surveys are likely to be biased towards better health. For instance, the mean scores on the SF-36 sub-scales for these women were around 2–5 points higher than the mean scores for the original cohort (depending on the sub-scale). Also, separate analyses<sup>17</sup> have shown that the women who did not respond to Survey 2 had lower self-rated health at Survey 1 than women who remained in the study. This effect may well be expected for those women who died between Surveys, but the effect was also observed (although less strongly) among those with whom the study lost contact, were reported to be too frail, withdrew or did not complete for some other reason. Women who were not born in Australia were also less likely to remain in the study than Australian-born women, and there was an increased risk of losing contact with women from rural and remote areas (compared with urban areas) and widowed, separated or divorced women (compared with married women). However, the data provide a detailed profile of the health of a large group of community dwelling older women who are usually under-represented in health and morbidity statistics.<sup>17</sup>

## CONCLUSION

The results of this study are significant because they identify, for the first time, a group of older women who appear to be particularly vulnerable and less healthy than their urban or rural counterparts, and who tend to move from rural and remote to urban areas, possibly in search of better access to health services. It seems reasonable to suggest that members of this group

are likely to be marginalised in the sense that as a result of moving, they lose contact with their established social and kin networks. As it is well established that such networks provide the majority of care for older Australians, this is of particular relevance to health service planners and providers. Without consideration of the particular needs and characteristics of these older women, the inequities in health outcomes for this group of older Australians may be exacerbated, and the financial cost to the health system is likely to increase as a result.

## RECOMMENDATION

Particular consideration in policy and planning, and in the analysis of issues associated with spatial distribution of inequality, should be given to older women who move from a rural to a more urbanised area.

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## PRESENTER

**Julie Byles** is Director of the Centre for Research and Education in Ageing at the University of Newcastle and an investigator on the Australian Longitudinal Study on Women's Health (Women's Health Australia). She has a strong interest in the health of older women and the availability and appropriateness of health services for these women. Her research interests in ageing include the role of health services in maintaining quality of life for older people, and in determining physical, psychological and social factors associated with 'positive ageing'. She has specific interests in the areas of health assessment, medication use by older people, the epidemiology of sleep disturbance in older age, and in improving nutrition for healthy ageing.