Australian Longitudinal Study on Women's Health

1921-26 COHORT

SUMMARY 1996 – 2013

October 2014.

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1 EXECUTIVE SUMMARY

The Australian Longitudinal Study on Women's Health (ALSWH) is a longitudinal population-based survey of over 60,000 Australian women in four cohorts. This report is a summary of data for 12,432 women in the cohort born 1921-26 who completed the baseline survey in 1996 (aged 70-75 years), and surviving women for each survey point up to May 2013 (aged 87-92). To reduce bias due to non-death attrition, data have been imputed for surviving women who did not return surveys using data for women who did return surveys. The data therefore represent changes in the population for women who survive to different ages.

Sociodemographic characteristics: Throughout the 17 years of the study, the majority (80%) of women in this cohort have resided in cities or inner regional areas, with less than 20% living in outer regional or remote/very remote areas. In 1996, when the women were aged 70 to 75 years, some 30% were already widowed, with this proportion rising to almost 80% by 85 to 90 years. The percentage of women living alone showed a corresponding increase from 35% to almost 60%.

Most of the women lived in a house, though the percentage has declined from 75% to 58% over the study period, while the percentage of women in a retirement village, nursing home, or in a hostel doubled from around 10% to 20%. At age 70 to 75 years, more than one in four (27%) reported difficulties in managing on their income, but this figure declined to around 20% by age 85 to 90 years.

Lifestyle: Most women (80%) were in the healthy weight or overweight BMI categories during the study, though the percentage of underweight women increased from 3% at age 70 to 75 years to 7% by 85 to 90 years. In terms of physical activity, one third of women (34%) were inactive at age 73 to 78 years, increasing to 56% by 85 to 90 years. However, 20% of the women at this age still engaged in moderate or high levels of physical activity.

Less than 5% of the women were categorised as risky drinkers through the study period, with non-drinkers increasing from 35% at age 70 to 75 years to 46% by 85 to 90 years.

Health and health service use: The percentage of the women who rated their health as fair or poor increased from 27% at age 70 to 75 years to 45% by age 85 to 90 years. Derived from a series of standard questions that assess self-reported quality of life, the two main sub-scales showed only a slight decline for the mean score for *mental health* that contrasted with a marked decline in the mean score for *physical functioning*.

The change in self-rated health and physical functioning was reflected in increases in the percentage reporting high blood pressure (48% at age 70 to 75 years to 70% by 85 to 90 years), diabetes (9% to 17%), heart disease (17% to 36%), and those who reported having had a stroke (6% to 11%). The percentage of those with osteoporosis doubled from 20% to 40%. At age 70 to 75 years, 42% of women reported having arthritis, but this figure reached 64% at 85 to 90 years. The decline in health was also seen in the increase in GP consultations, with the percentage of women who consulted their GP more than 12 times over the previous year rising from 15% to 20%.

Functional abilities and caring: The percentage of women who reported needing help from others for daily tasks due to long-term illness rose fourfold, from 8% at age 70 to 75 years to 34% by age 87 to 92 years. This was also evident in the increase of scores that assess difficulties with *activities of*

daily living (such as dressing and bathing) and *instrumental activities of daily living* (such as cooking and driving).

Women were also likely to be caring for others because of that person's illness or disability. At age 70-75, women were twice as likely to be caring for someone else (17%) than needing care for themselves. By Survey 6, this ratio was reversed, with around 10% of women aged 85-90 years caring for another person. The percentage of women who reported providing care for children on at least an occasional basis declined from 45% at age 73 to 78 years to 14% at 85 to 90 years.

Potential policy implications

Data from earlier surveys highlight that most older women are in good, very good or excellent health during this part of their lives, and are able to live independently and make important contributions to their families and communities, although increasing numbers will report chronic conditions. These data have implications for policies concerning healthy and active ageing which look to optimise quality of life in older age and develop social and physical environments that support older people and allow them to maximise their activity and participation. Health in older age is a significant resource not only for the woman herself, but also for her family and community. The economic contributions of these women must also not be underestimated, and are illustrated in these data in the proportions providing care for others and childcare well into the women's later lives.

Supportive environments for older people include neighbourhoods, housing and transport. The data show how the women transition from living in a house, to living in a unit, retirement village or aged care facility. These changes in housing mirror changes in marital status from being more likely to be married to more likely to be widowed and may also correspond to increasing needs for assistance in activities of daily living. Women may also have moved to be near family, and in so doing allow themselves to have a greater role in caring for grandchildren as well as receiving care for themselves. Appropriate housing for older people has been identified as a critical factor in maintaining functional independence and community participation. Many women would have sold their houses to move to other accommodation, unlocking housing for other parts of the community and releasing the equity to provide for other needs. Appropriate housing is also essential for the delivery of aged care and in keeping with policies for ageing in place.

Healthy behaviours including nutrition and physical activity are key drivers of health in older age. This cohort entered adulthood prior to the global rise in the incidence of obesity. Few women were obese, and women's BMI tended to decrease over time. Underweight is a potential issue for this cohort, particularly as they age and may represent a loss of lean body mass and poor nutrition. Moreover, underweight women are less likely to have survived and are less likely to be included in the later surveys. Increasing levels of physical inactivity may exacerbate these nutritional problems, resulting in poor appetite as well as loss of muscle strength. Physical activity programs for older people can be tailored to their functional capacity, and can help improve strength and balance, reduce falls and improve independence and overall wellbeing.

As the cohort ages, fewer women are able to drive themselves, and they are more likely to be reliant on public transport. Lack of transport options limit women's ability to provide care, participate in social activities, and seek health care. Access to convenient, affordable and safe transport and

appropriate community designs contribute to age friendly environments which can promote social integration and physical health.

The changes in women's health demonstrated in this summary provide important information for understanding the pace of change in the development of health conditions, increasing levels of disability and increasing needs for health and social care and other forms of instrumental support. Self-reporting of conditions on the surveys has been validated against hospital records with good agreement for conditions such as arthritis, moderate agreement for cardiovascular disease, and poor agreement for stroke. Reports of osteoporosis are dependent on access to bone densitometry which is indicated for women over age 70. Increasing reporting of osteoporosis over the study period will reflect both true increases in prevalence as well as increases in diagnoses of pre-existing conditions.

Increasing needs for health care are illustrated by the increasing number of general practitioner visits over successive time points. However, it must be noted that women with the greatest need for health service use are more likely to have died over the course of the study. There is also a suggestion of a potential inequity in access to GP services at the oldest ages, although this requires more thorough investigation.

2 INTRODUCTION AND BACKGROUND

The Australian Longitudinal Study on Women's Health (ALSWH) is a longitudinal population-based survey examining the health of around 60,000 Australian women. The Study follows women in four age cohorts, and a summary of the cohort born 1921-26 (now aged 88-93) who were first surveyed aged 70-75 in 1996 is presented here.

The 12,432 women in the 1921-26 cohort were recruited from the name and address database of the Australian Health Insurance Commission (now Medicare Australia). Sampling was random, except that women living in rural and remote areas were sampled at twice the rate of women in urban areas, in order to capture the heterogeneity of health experiences of women living outside metropolitan areas. All results given in this report have been weighted to account for the over-sampling of women in rural and remote areas. The cohort was surveyed six times between 1996 and 2011, and has been surveyed every six months since November, 2011. These women are now in their late eighties and early nineties, and bi-annual surveying will allow researchers to obtain a greater understanding of ageing and the health care needs of the oldest women. The information collected from women in this cohort will contribute to planning and delivery of appropriate aged care services, and assist with identification of factors associated with increasing levels of dependence, as well as to identify strategies to promote healthy ageing.

This report contains two sections: the first discusses the cohort trajectories on a range of health-related measures, and the second part outlines the key research achievements. Details of publications, reports and cohort participation rates are included as appendices.

2.1.1 Surveys

The 1921-26 cohort receive mailed pen and paper surveys. Some participants elect to complete their surveys over the telephone. Telephone interviews are conducted with trained project assistants based at the University of Newcastle.

The surveys conducted between 1996 and 2011 were sent to the women every three years and contained questions on a broad range of health-related themes, including:

- Physical, social and emotional functioning (SF-36 Health related quality of life measure)
- Degree of difficulties with activities of daily living and need for assistance with activities of daily living
- Sight and hearing difficulties
- Falls
- Physical activity, height and weight
- Demographics and living circumstances

The six monthly follow-up (6MF) of the 1921-26 cohort commenced November 2011. Subsequent surveys are sent on a rolling basis, six months after the return of the previous survey. So if a participant returned the first six monthly survey in December 2011, their second six monthly follow-up survey was mailed in June 2012.

The six monthly follow-up surveys contain a set of core questions to minimise participant burden. As far as possible, the survey questions are not subject to change, which ensures longitudinal integrity.

The survey content and format are approved by the Human Research Ethics Committees at the University of Newcastle and the University of Queensland.

2.1.2 Retention

Numbers are declining in the 1921-26 cohort due to death and increasing frailty. Between 1996 and December 2013, 6,543 (53%) of the original 12,432 participants in the cohort have died, and 2,488 (20%) have requested no more surveys (mainly due to frailty as reported to the research team by participant or proxy). To ensure the best possible retention in this cohort, intensive follow-up and tracking procedures are used, including use of the National Death Index to identify those participants who have died. The Australian Life Tables 2005-2007 (Australian Government Actuary) estimate that women aged 87 will live on average a further 6.1 years and women aged 92 will live on average a further 4.3 years.

Of the 4,707 women who were mailed 6MF Survey 1, 80% completed the survey. Of the 3,754 women who have been mailed 6MF Survey 2, 89% have completed the survey. Of the 3,239 women who have been mailed 6MF Survey 3, 89% have completed the survey. Of the 2,750 women who have been mailed 6MF Survey 4, 87% have completed the survey (See Table 2). At each survey 1-3% of women have indicated that they would prefer to skip the survey and do the next, and between 2-4% have died since the previous survey. At 6MF Survey 1, 9% withdrew from further surveys and a further 3% withdrew at each of 6MF Survey 2 or 6MF Survey 3.

ALSWH will continue to provide support for women to complete further surveys. These support activities include:

- The option to complete the survey by telephone in one or two sessions. It is anticipated that the proportion of telephone interviews will increase over time.
- The option for the participant to ask a family member, carer or other trusted person to complete the survey on their behalf (a proxy completion).
- Provision of a 'not this time' option, whereby participants who are not feeling well enough at one survey time point can elect to skip a survey and do the next.
- Provision of surveys to women living in residential aged care wherever possible.

Details of survey dates and response rates are shown in Table 2-1 and Table 2-2. More detailed information is available in APPENDIX C: 1921-26 cohort participation details, Survey 1 (1996) to Six Monthly Follow-Up Survey 4 (2013).

Table 2-1 ALSWH 1921-26 cohort - schedule of surveys and response rates 1996 - 2011

Survey 1 1996	**Survey 2** 1999	**Survey 3** 2002	**Survey 4** 2005	**Survey 5** 2008	**Survey 6** 2011
Age 70-75 N=12,432	Age 73-78 N=10,434	Age 76-81 N=8,647	Age 79-84 N=7,158	Age 82-87 N=5,561	Age 85-90 N=4,055

Table 2-2 ALSWH 1921-26 cohort six-month follow-up (6MF) survey completions (2011 – 2013)

	6MF 1	**6MF 2**	**6MF 3**	**6MF 4**
Respondents	3,839	3,353	2,894	2,402
Mailed	4,707	3,754	3,239	2,750
% Response	82	89	89	87

3 COHORT TRAJECTORIES 1996 – 2013

The illustrated trajectories reflect the cohort's responses to questions asked in surveys during the years 1996 to 2013. For each trajectory, an example survey question has been included – however, it is important to note that the wording of questions has sometimes changed from survey to survey, and the example question is intended as a guide only. The more recent six-monthly follow-up surveys have not included all of the questions from earlier surveys, so some trajectories will include responses up to Survey 6 (2011), while others will include data from the first four six-monthly follow-up surveys (November 2011 to May 2013). Women are included in the figures up until the time of their death, with imputation of missing data for surviving women who did not return a survey.

Complete data for every survey, including questions and responses, are available in the ALSWH databooks, available at: http://www.alswh.org.au/for-researchers/data/data-books

3.1 Sociodemographic factors

Figures 3-1 to 3-5 show changes in the percentage of women reporting different sociodemographic factors at different time points throughout their later lives. The first six bars on the left of each figure represent the three-yearly surveys, while the four bars on the right represent six monthly survey results with a shorter time interval between surveys.

3.1.1 Area of residence

QUESTION: What is your residential postcode?

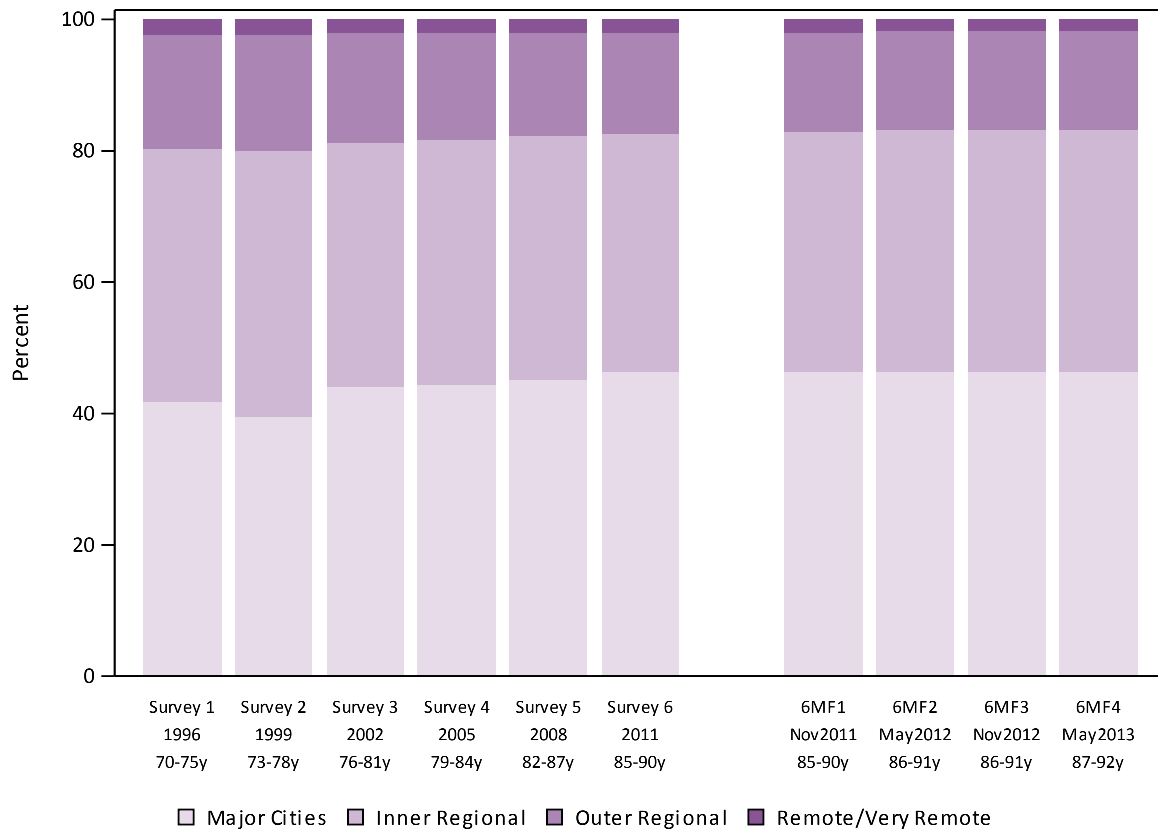

Figure 3-1 Participant area of residence at time of survey from Survey 1 to Six Monthly Follow-Up Survey 4.

The percentages of women living in different area of residence categories remained stable from the baseline survey when the women aged 70 to 75 years through to 2013 (87 to 92 years), with more than 80% of women living in major cities or inner regional areas and less than 20% living in outer regional or remote/very remote areas.

3.1.2 Marital Status/Living arrangements

QUESTION: What is your present marital status?

- Married
- De facto
- Widowed
- Separated
- Divorced
- Never married

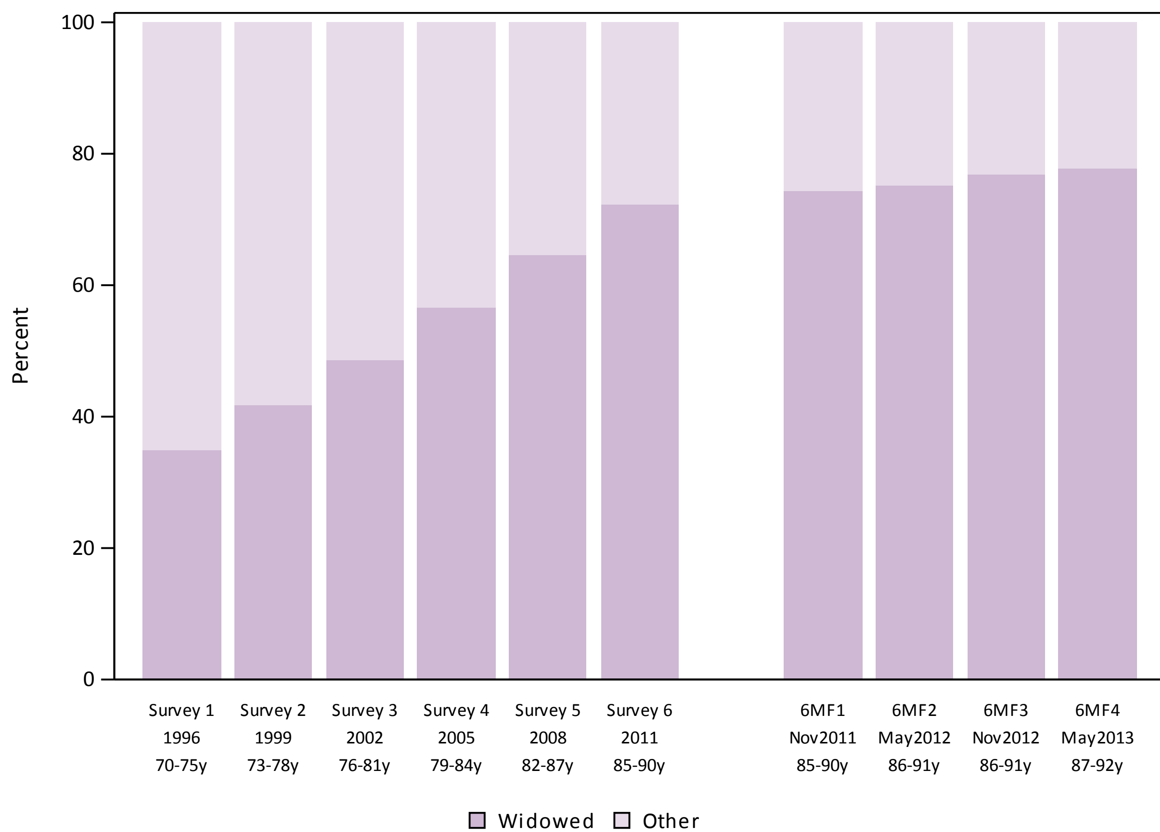

Figure 3-2 Marital status from Survey 1 to Six Monthly Follow-Up Survey 4.

At age 70 to 75 years, over 30% of the women were already widowed. By the time they were aged 87 to 92 years, this figure had increased to almost 80%. Women who were not widowed were mostly married.

QUESTION: Who lives with you?

- No one, I live alone
- Spouse or partner
- Own children
- Other family members
- Non family members

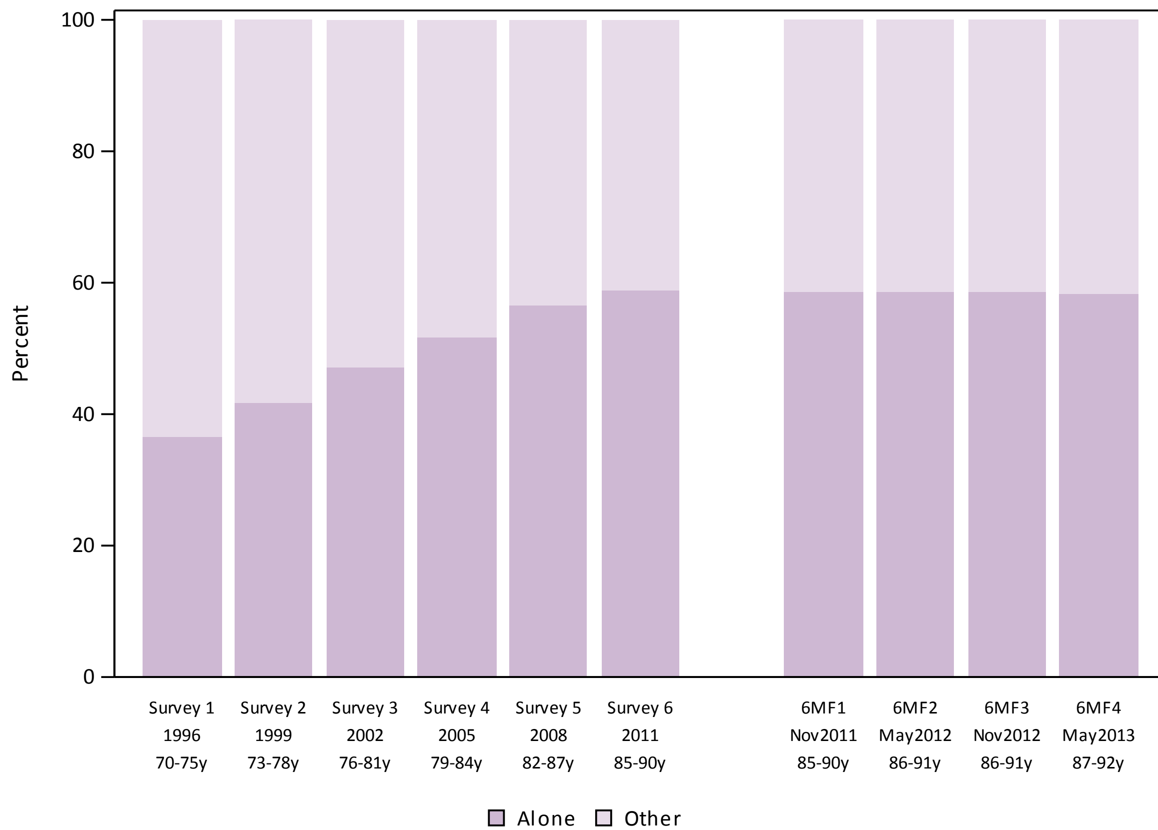

Figure 3-3 Living arrangements from Survey 1 to Six Monthly Follow-Up Survey 4.

The percentage of women living alone increased progressively from 36% at age 70 to 75 years to almost 60% by 85 to 90 years and has remained stable thereafter.

QUESTION: Which of the following best describes your housing situation? Do you live in:

- A house
- A flat / unit / apartment / villa / townhouse
- Mobile home / caravan / cabin / houseboat
- Retirement village / self-care unit
- Nursing Home
- Hostel
- Other

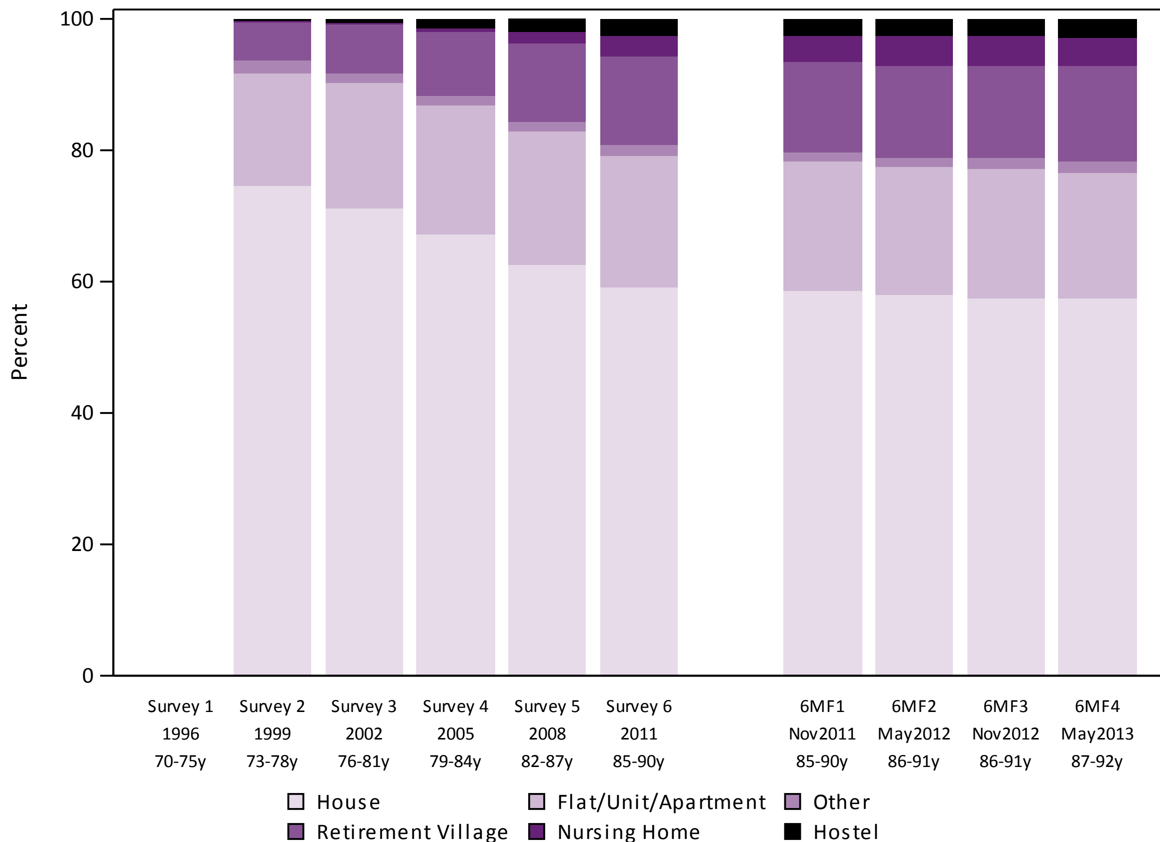

Figure 3-4 Housing from Survey 1 to Six Monthly Follow-Up Survey 4.

While the majority of women reported living in a house from age 73 to 78 years (Survey 2) onwards, the percentage has declined from 74% down to 57% by age 87 to 92 years. Over the same period, the percentage of women in a retirement village, nursing home, or in a hostel increased from less than 10% to more than 20%.

3.1.3 Ability to manage on income

QUESTION: How do you manage on the income you have available?

- It is impossible
- Difficult all the time
- Difficult some of the time
- Not too bad
- It is easy

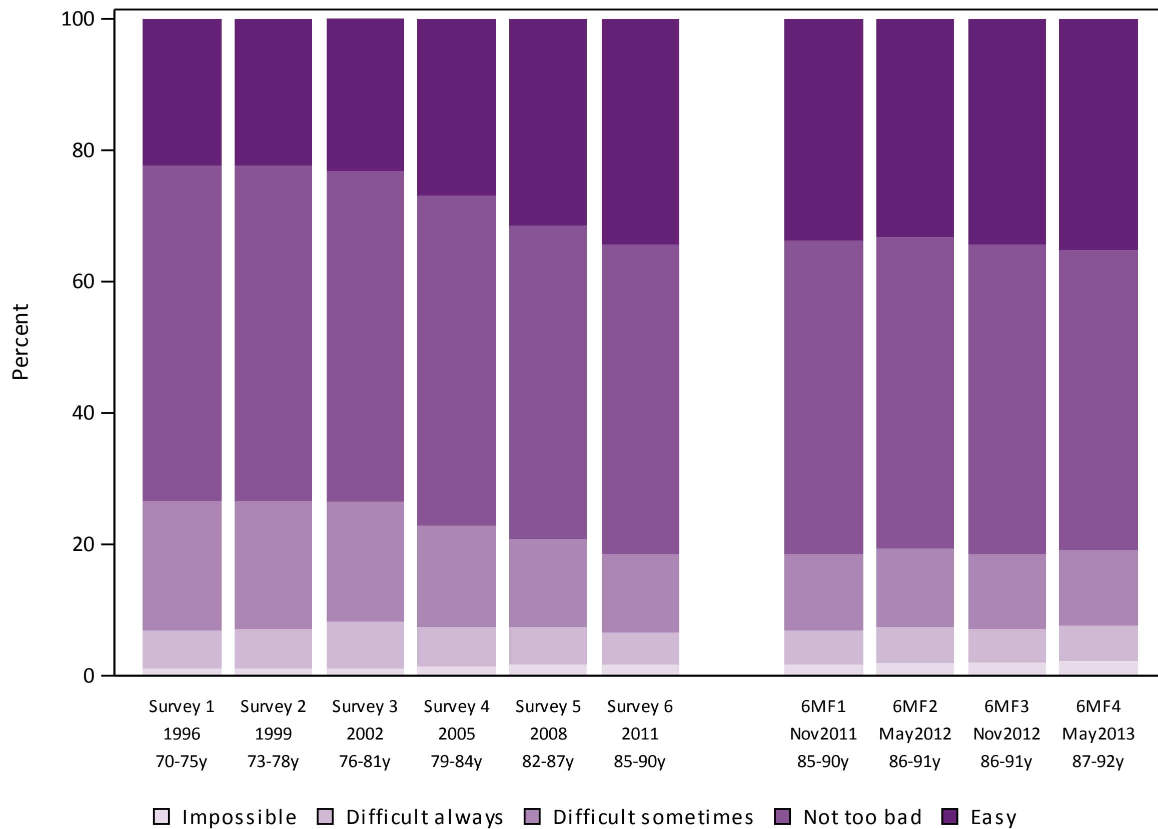

Figure 3-5 Rating of ability to manage on income from Survey 1 to to Six Monthly Follow-Up Survey 4.

Although the majority of women found it 'easy' or 'not too bad' to manage on their income through the study period, 27% of the women at age 70 to 75 years reported difficulties in managing on their income. This proportion declined to around 20% by age 85 to 90 years and has been steady across the six-monthly surveys.

3.2 Lifestyle

3.2.1 Weight and Body Mass Index (BMI)

QUESTION: How tall are you without shoes? + QUESTION: How much do you weigh without clothes or shoes?

BMI [weight (kg)/height (m)^2] is calculated from responses to both questions.

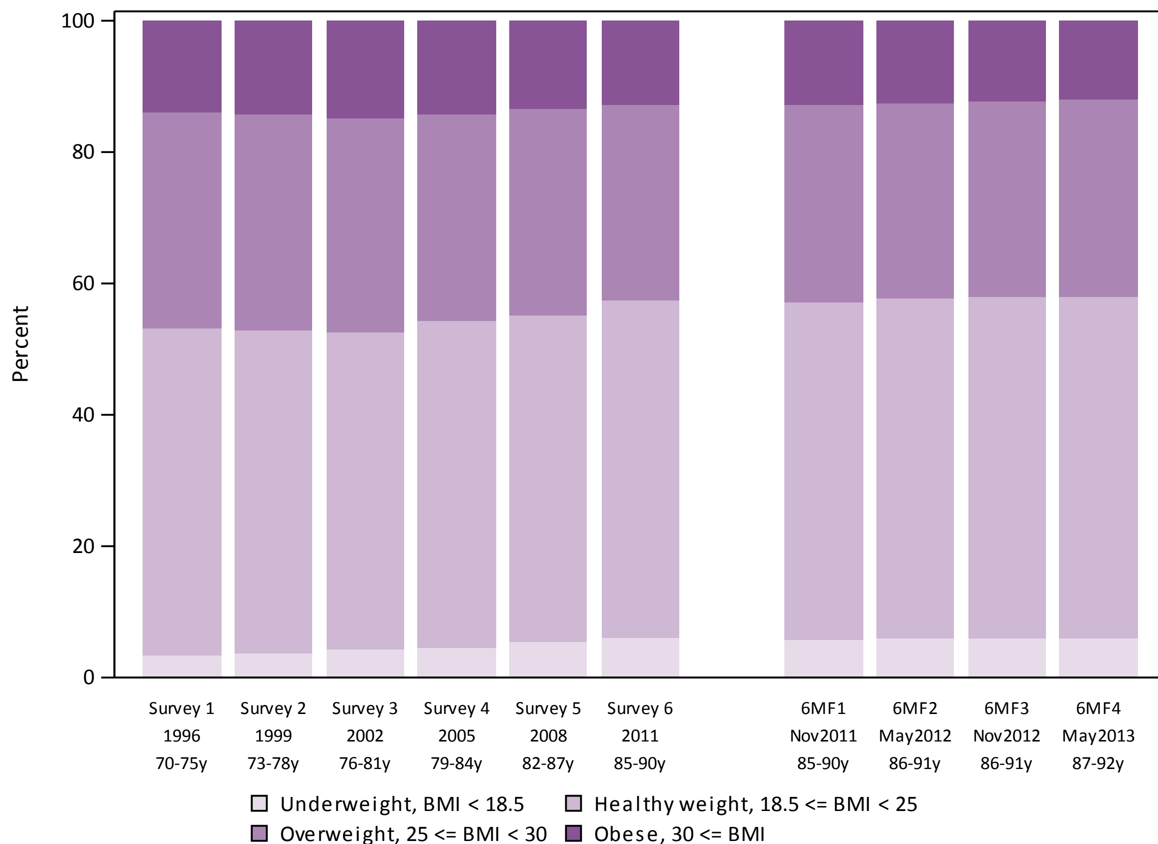

Figure 3-6 Body Mass Index (BMI) from Survey 1 to Six Monthly Follow-Up Survey 4.

At each survey, around 80% of the women were in the healthy weight or overweight BMI categories, with a slight decline in the percentage of overweight women from 33% at age 70 to 75 years, to 30% by 85 to 90 years. Over the same period a similar decline was evident for women in the obese BMI category (from 14% to 13%), and an increase was seen in the percentage of underweight women (from 3% to 6%).

3.2.2 Alcohol

QUESTION: How often do you usually drink alcohol? + QUESTION: On a day when you drink alcohol, how many drinks do you usually have?

Alcohol consumption is calculated from responses to each question. Note: Low risk drinker includes up to two drinks per day and rarely drinks; risky drinker includes 3 to 4 drinks per day and 5 or more drinks per day. Categories are based on 2002 NHMRC guidelines.

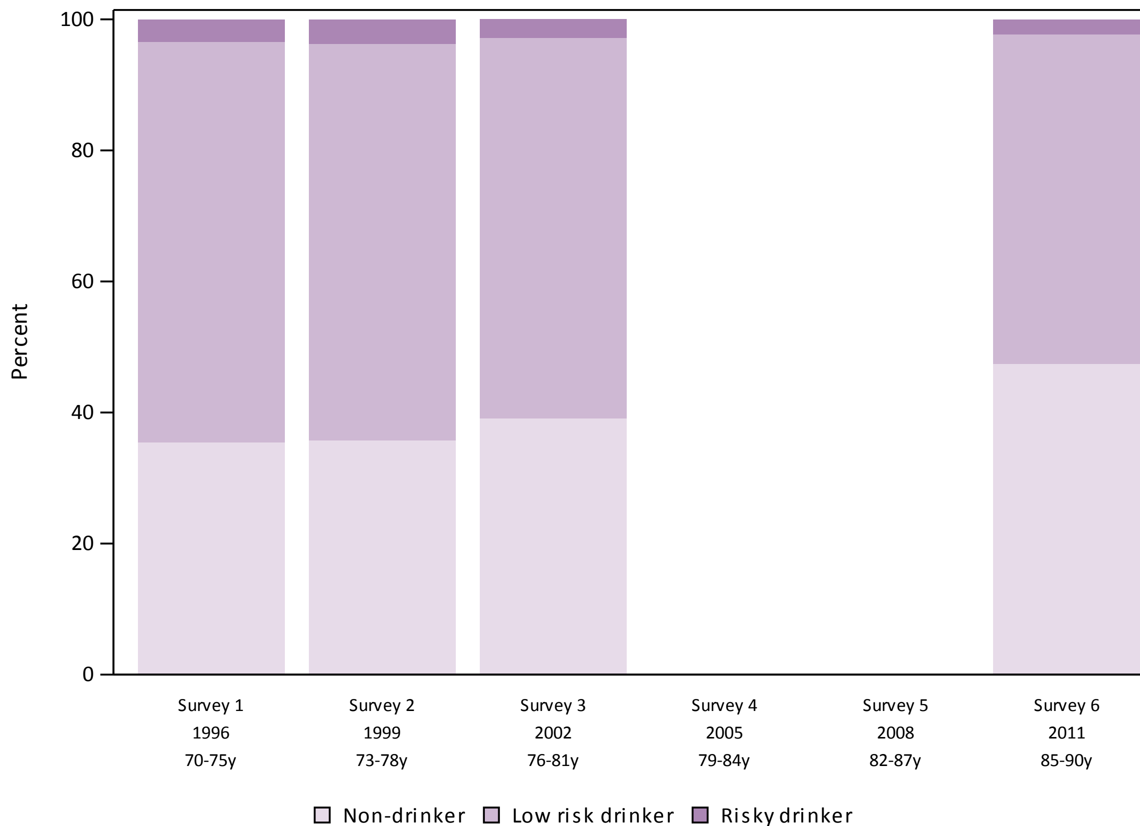

Figure 3-7 Alcohol consumption from Survey 1 to Survey 6.

Note : Questions on alcohol were not asked at Survey 4 and 5

The percentage of non-drinkers increased from 35% at age 70 to 75 years to 48% by 85 to 90 years, with a corresponding decline in the 61% of women at baseline who were low risk drinkers. Less than 4% of the women were categorised as risky drinkers.

3.2.3 Physical Activity

QUESTION: How many times did you do each type of activity last week? Only count the number of times when the activity lasted for 10 minutes or more.

- Walking briskly (for recreation or exercise, or to get from place to place)
- Moderate leisure activity (like social tennis, moderate exercise classes, recreational swimming, dancing), or more vigorous leisure activity (that makes you breathe harder or puff and pant)
- Vigorous work in the house or garden (like vacuuming, mopping, cleaning windows, digging, mowing, etc.)

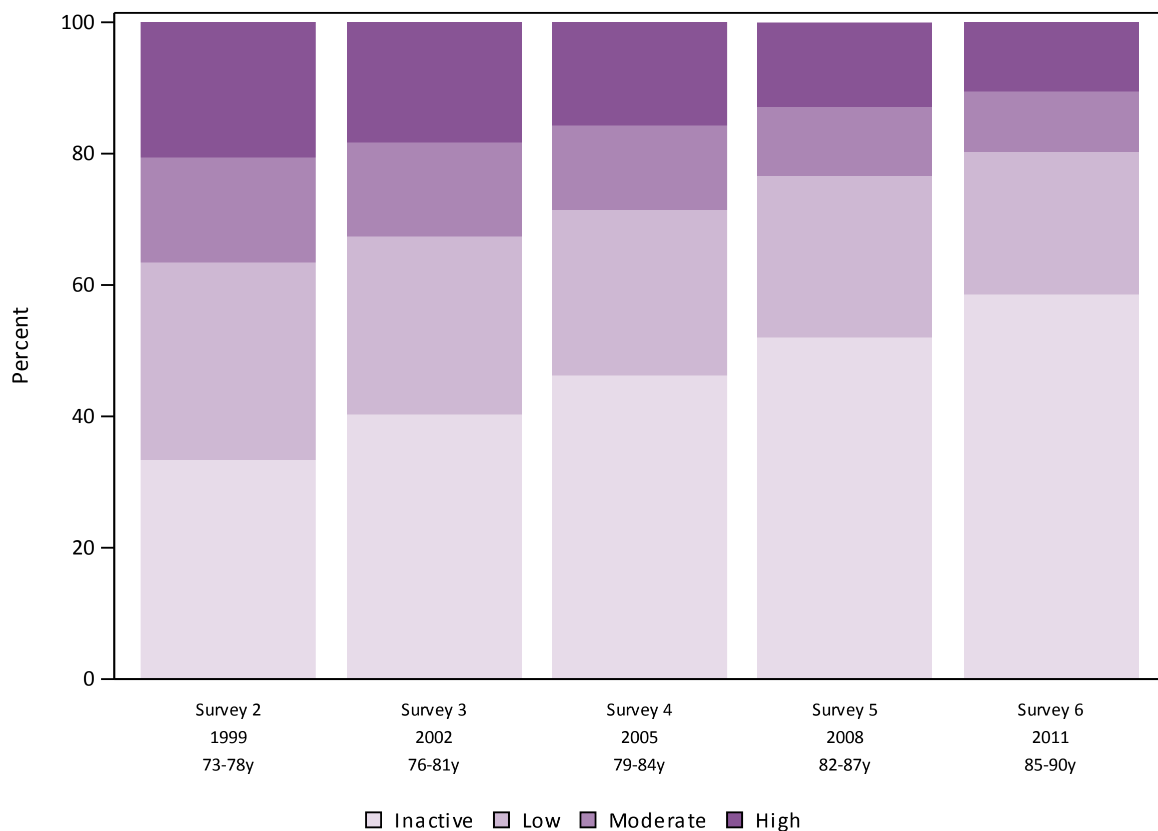

Figure 3-8 Physical activity from Survey 2 to Survey 6.

Note: Physical activity questions asked at Survey 1 are not comparable with those asked at subsequent surveys and have not been included.

The percentage of women classified as inactive increased from 34% at age 73 to 78 years to 59% by 85 to 90 years. Although the figure for moderate or high levels of physical activity declined over the study period, almost 20% of women were still in this category at age 85 to 90 years.

3.3 Health

3.3.1 Self-Rated Health

QUESTION: In general, would you say your health is:

- Excellent
- Very good
- Good
- Fair
- Poor

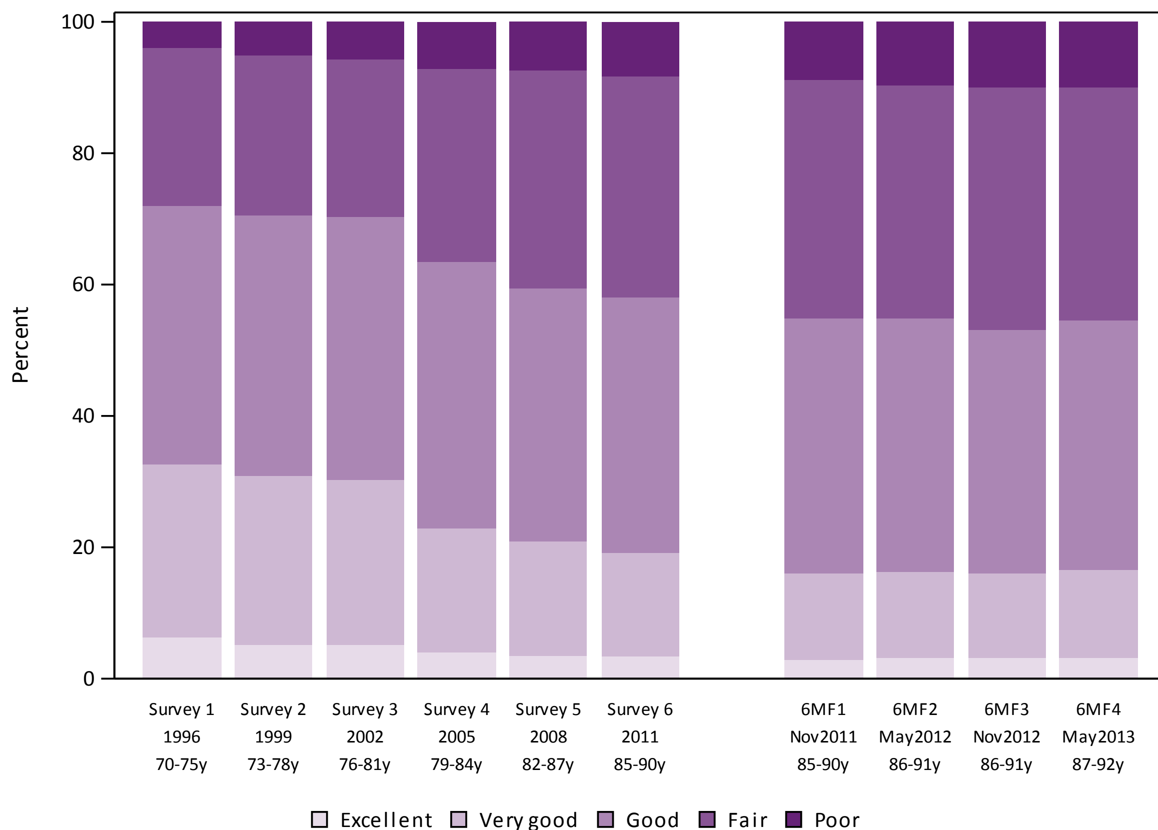

Figure 3-9 Self-rated health from Survey 1 to Six Monthly Follow-Up Survey 4

At age 70 to 75 years, 33% of women rated their health as 'excellent' or 'very good', but by 85 to 90 years this had declined to less than 20%. Conversely, the percentage of women with fair or poor self-rated health increased from 28% to 42% over the same period.

3.3.2 Health-related Quality of Life – two main subscales of the SF-36

Scores on the SF-36 are used to measure Health-related quality of life (HRQOL) with two of the main sub-scales being physical functioning (PF), as a marker of physical health, and mental health (MH) (Ware et al, 1993). All scales are positively scored so that higher scores represent better outcomes.

Physical functioning

QUESTION: The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

- Vigorous activities such as running, lifting heavy objects, participating in strenuous sports
- Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf
- Lifting or carrying groceries
- Climbing several flights of stairs
- Climbing one flight of stairs
- Bending, kneeling or stooping
- Walking more than one kilometre
- Walking half a kilometre
- Walking 100 metres
- Bathing or dressing yourself

(Response options: Yes, limited a lot; Yes, limited a little; No, not limited at all).

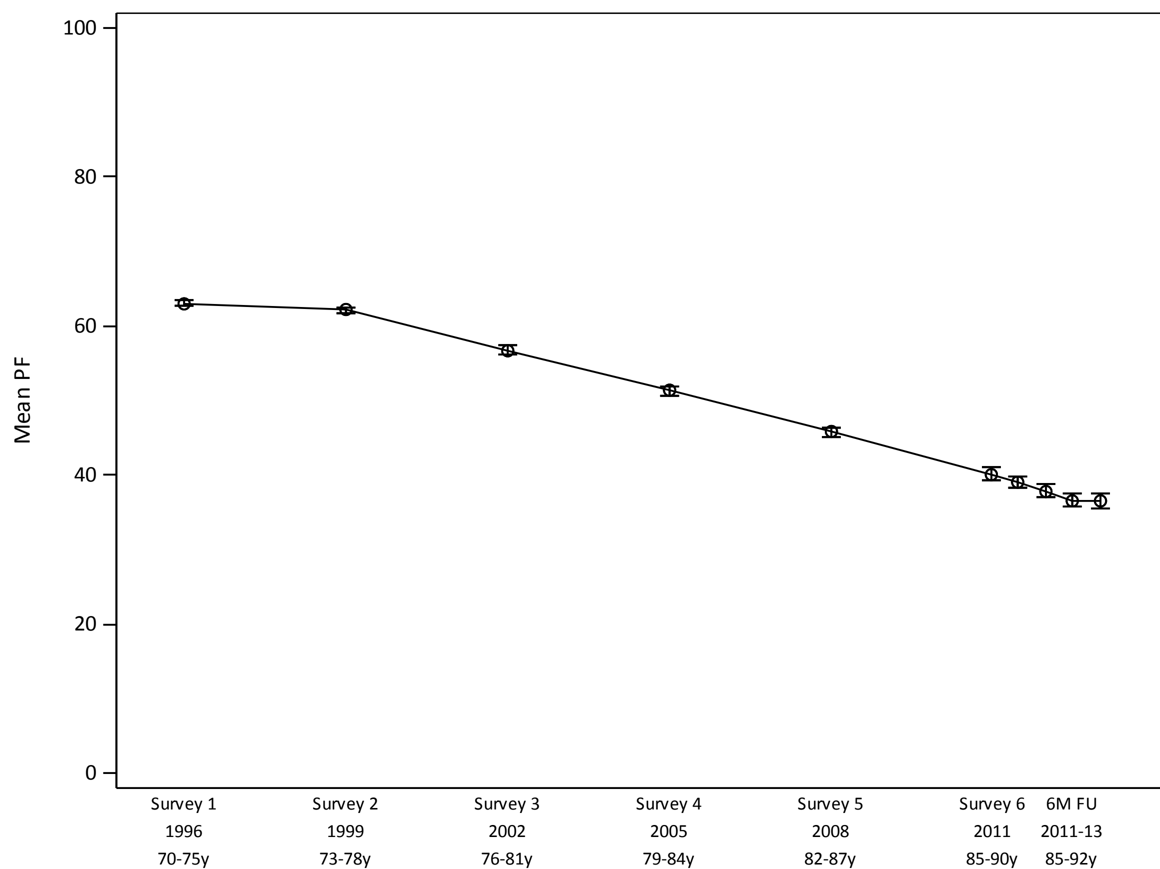

Figure 3-10 Mean physical functioning score from Survey 1 to Six Monthly Follow-Up Survey 4

The mean score for physical functioning declined from 64 at age 70 to 75 years to 37 at 85 to 92 years.

Mental health

QUESTION: For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past four weeks:

- Have you been a very nervous person
- Have you felt so down in the dumps that nothing could cheer you up
- Have you felt calm and peaceful
- Have you felt down
- Have you been a happy person

(Response options: All of the time, most of the time, a good bit of the time, some of the time, a little of the time, none of the time)

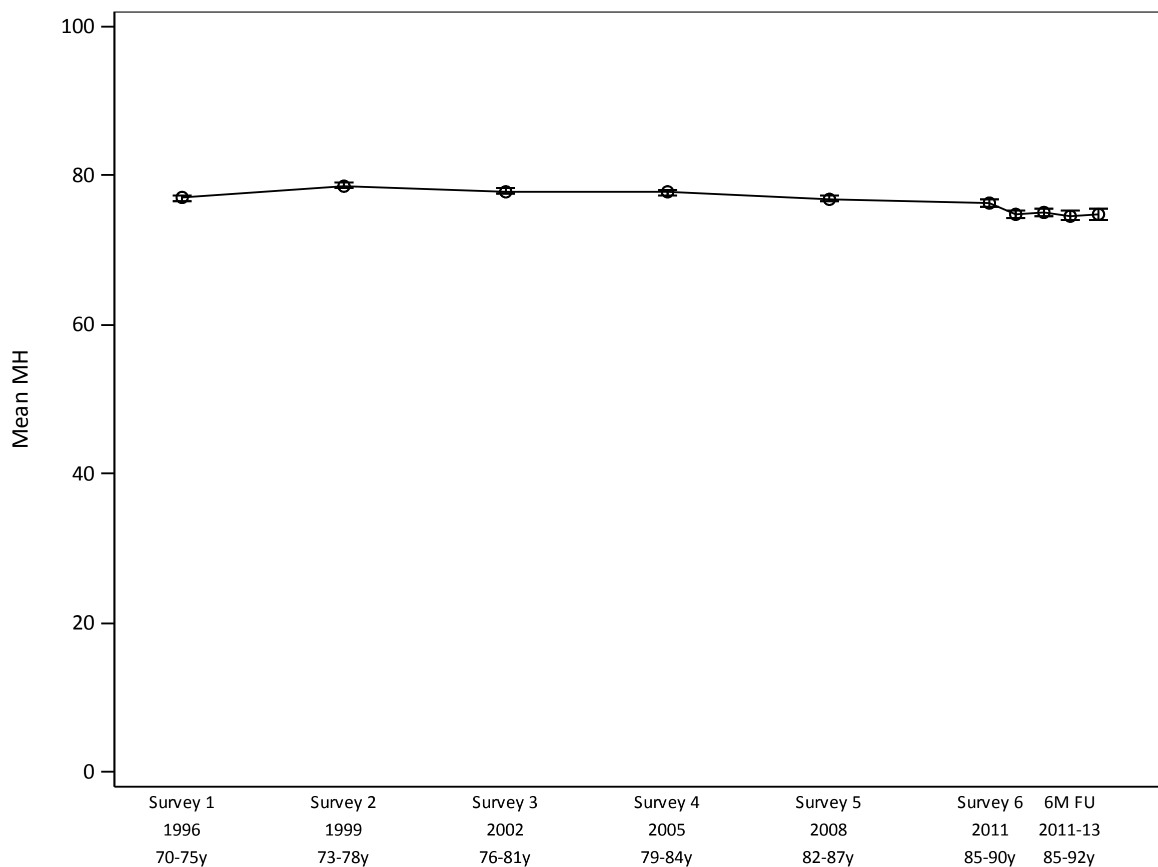

Figure 3-11 Mean mental health scores from Survey 1 to Six Monthly Follow-Up Survey 4.

The mean score for mental health showed only slight decline over the study period, remaining in the range of 78 to 75.

3.3.3 Physical conditions

QUESTION: In the last three years, have you been diagnosed with or treated for high blood pressure (hypertension)?

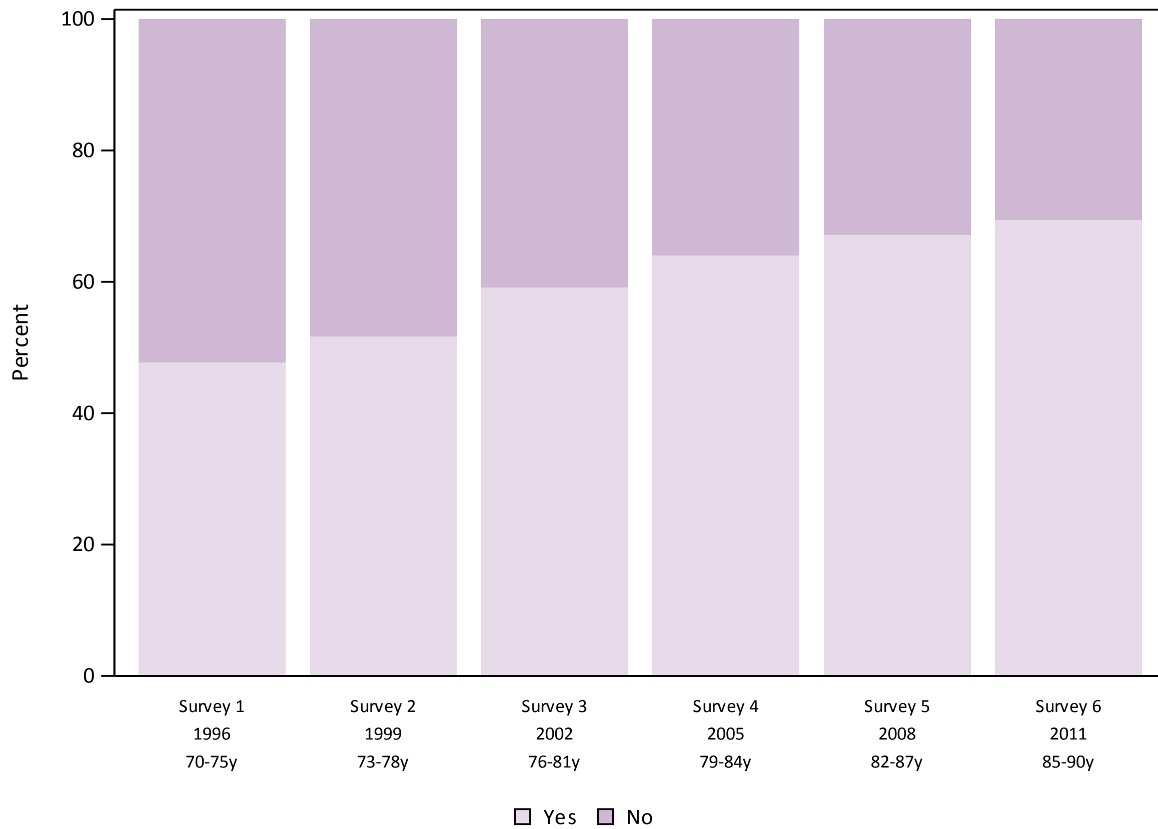

Figure 3-12 Diagnosis or treatment for hypertension from Survey 1 to Survey 6.

Note: At Survey 1, the women were asked if they had 'ever' been diagnosed with hypertension and at all subsequent surveys, they were asked if they had been diagnosed with hypertension in the last three years (i.e., since the previous survey).

At age 70 to 75 years, 48% of the women reported having high blood pressure, with this figure increasing to 69% by 85 to 90 years. Questions on chronic conditions were not included in the six month follow-up surveys.

QUESTION: In the last 3 years have you been diagnosed with or treated for angina, heart attack, or other heart problems?

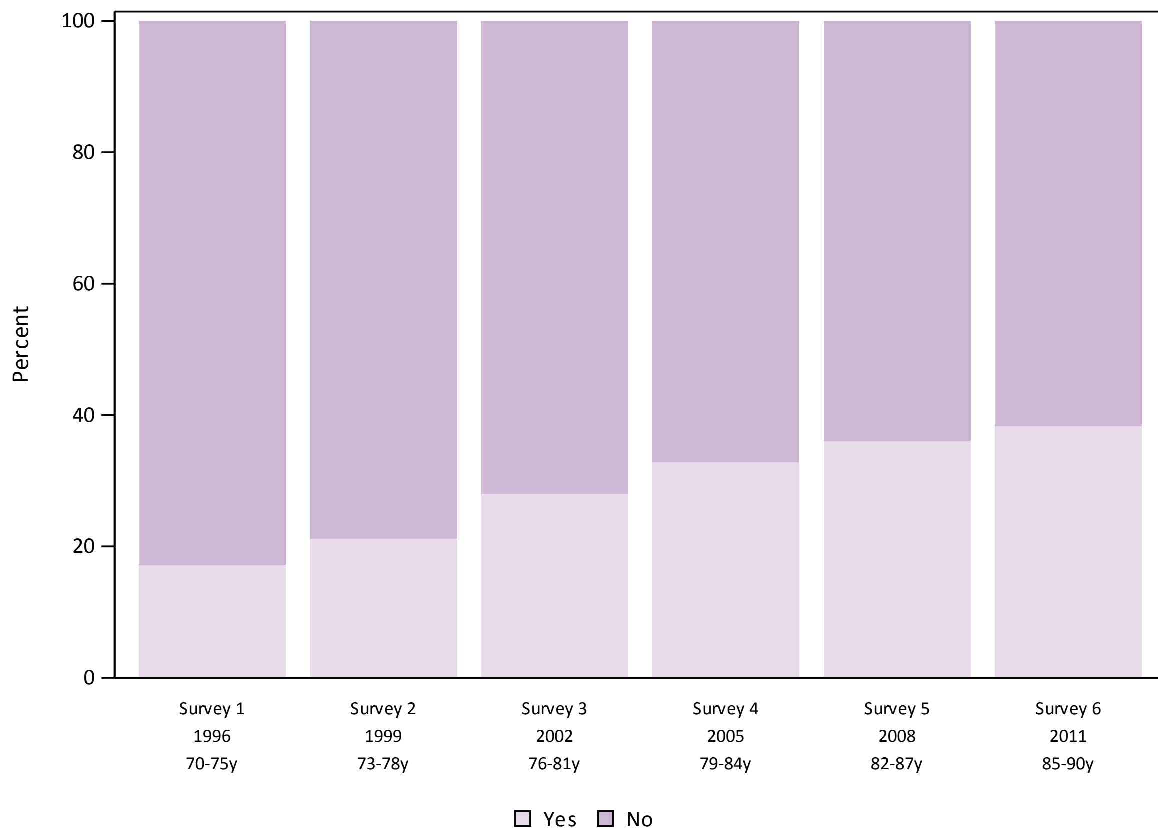

Figure 3-13 Diagnosis or treatment for heart disease from Survey 1 to Survey 6.

Note: At Survey 1, the women were asked if they had 'ever' been diagnosed with angina, heart attack, or other heart problems and at all subsequent surveys, they were asked if they had been diagnosed with angina, heart attack, or other heart problems in the last three years (i.e., since the previous survey).

The percentage of women reporting heart disease doubled over the survey period from 17% at age 70 to 75 years to 38% by 85 to 90 years.

QUESTION: In the last three years, have you been diagnosed with or treated for stroke?

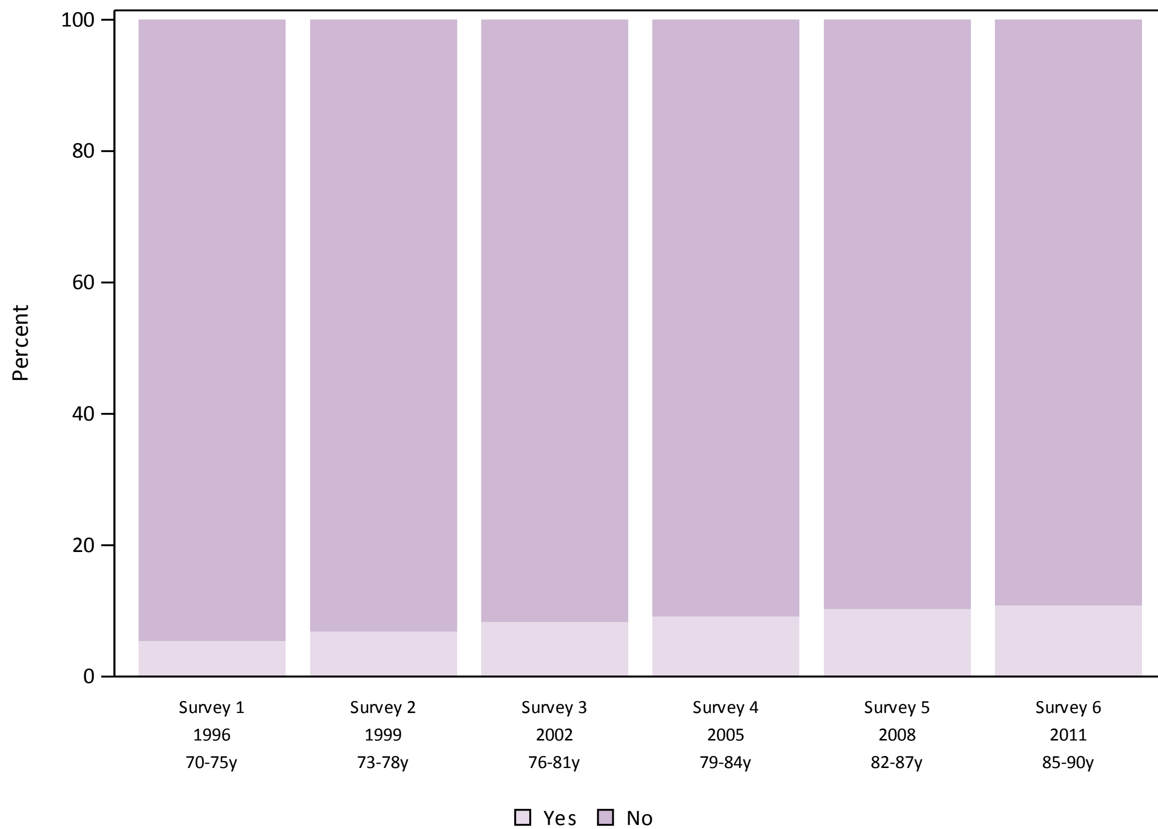

Figure 3-14 Diagnosis or treatment for stroke from Survey 1 to Survey 6.

Note: At Survey 1, the women were asked if they had 'ever' been diagnosed with stroke and at all subsequent surveys, they were asked if they had been diagnosed with stroke in the last three years (i.e., since the previous survey).

The percentage of women who reported having had a stroke increased from 6% at age 70 to 75 years to 11% by 85 to 90 years.

QUESTION: In the last three years, have you been diagnosed with or treated for diabetes (high blood sugar)?

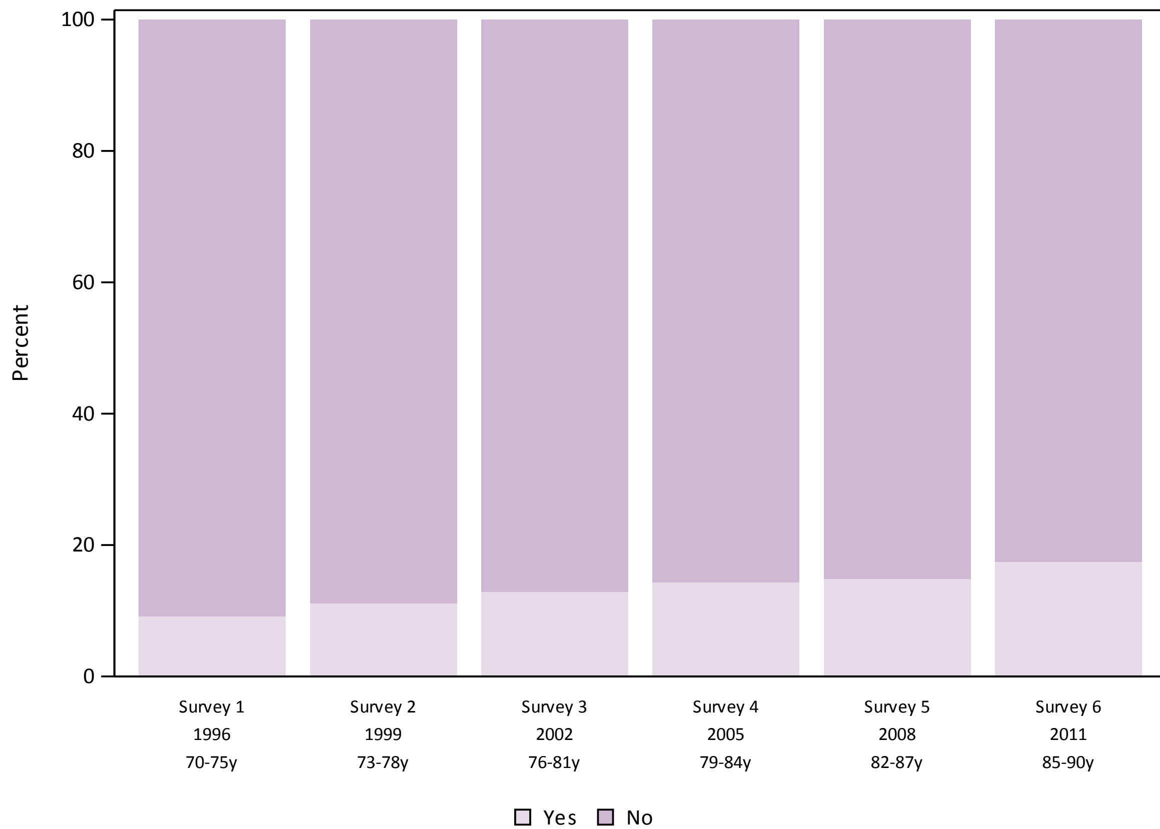

Figure 3-15 Diagnosis or treatment for diabetes from Survey 1 to Survey 6.

Note: At Survey 1, the women were asked if they had 'ever' been diagnosed with diabetes (high blood sugar) and at all subsequent surveys, they were asked if they had been diagnosed with diabetes (high blood sugar) in the last three years (i.e., since the previous survey)

The percentage of women reporting diabetes increased from 9% at age 70 to 75 years to 17% by 85 to 90 years.

QUESTION: In the last three years, have you been diagnosed with or treated for asthma?

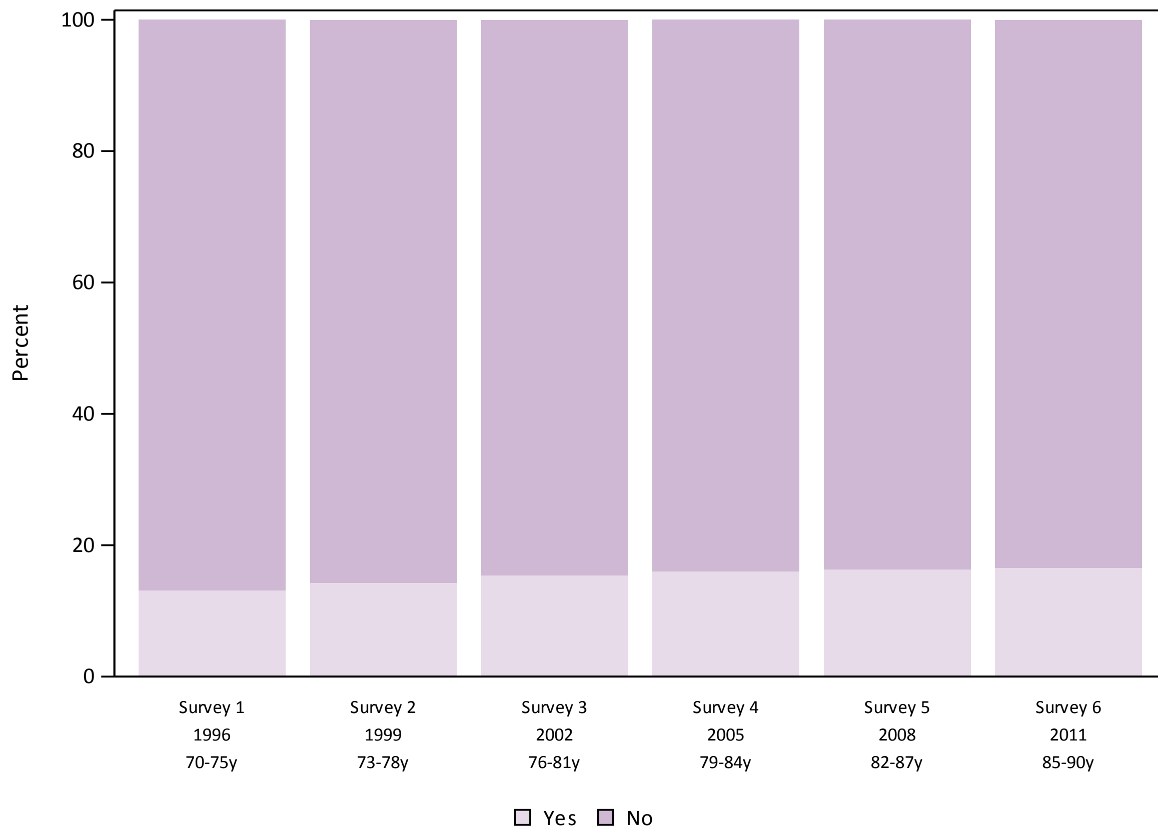

Figure 3-16 Diagnosis or treatment for asthma from Survey 1 to Survey 6.

Note: At Survey 1, the women were asked if they had 'ever' been diagnosed with asthma and at all subsequent surveys, they were asked if they had been diagnosed with asthma in the last three years (i.e., since the previous survey).

There was a slight increase in the percentage of women reporting asthma over the study period, from 13% at age 70 to 75 years to 17% by 85 to 90 years.

QUESTION: In the last three years, have you been diagnosed with or treated for bronchitis/emphysema?

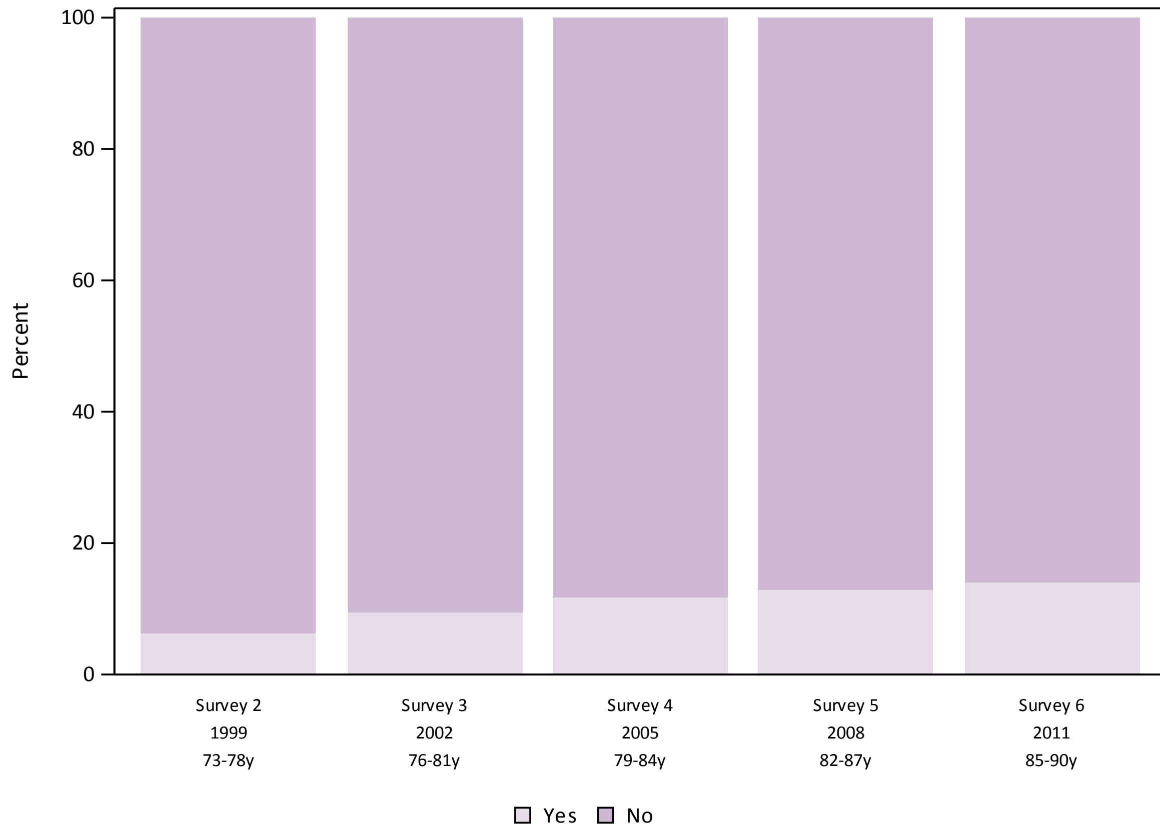

Figure 3-17 Diagnosis or treatment for bronchitis/emphysema from Survey 2 to Survey 6.

Note: At Survey 1, women were asked whether they had 'ever' been diagnosed with bronchitis or emphysema Responses from this survey have not been included.

The percentage of women reporting bronchitis/emphysema doubled from 6% at age 73 to 78 years to 14% by 85 to 90 years.

QUESTION: In the last three years, have you been diagnosed with or treated for arthritis?

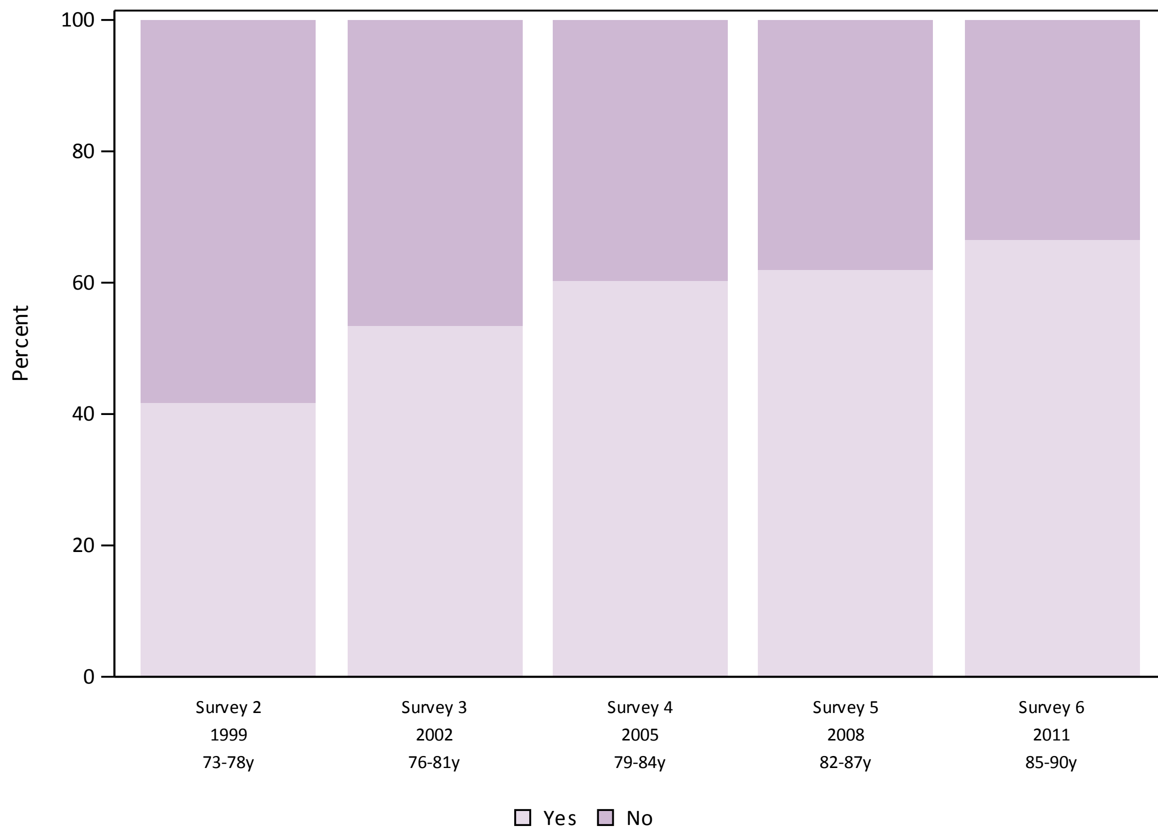

Figure 3-18 Diagnosis or treatment for arthritis from Survey 2 to Survey 6.

Note: At Survey 1, the women were not asked this question so only responses from Surveys 2 to 6 have been included.

Arthritis was reported by 42% of women at age 73to 78 years, increasing to 60% when the women were aged 79 to 84 years and then increased further to 67% at 85 to 90 years.

QUESTION: In the last three years, have you been diagnosed with or treated for osteoporosis?

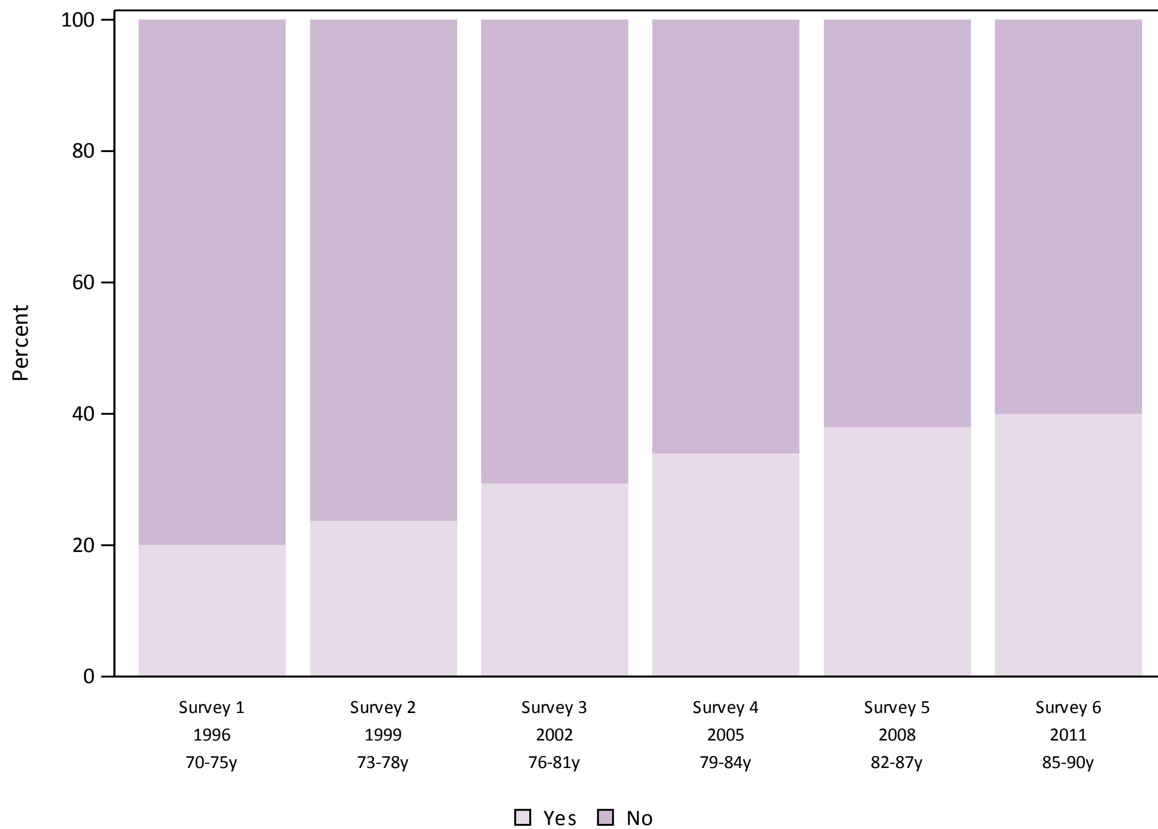

Figure 3-19 Diagnosis or treatment for osteoporosis from Survey 1 to Survey 6.

Note: At Survey 1, the women were asked if they had 'ever' been diagnosed with osteoporosis and at all subsequent surveys, they were asked if they had been diagnosed with osteoporosis in the last three years (i.e., since the previous survey).

The percentage of women who reported osteoporosis doubled from 20% at age 70 to 75 years to 40% by 85 to 90 years.

QUESTION: In the last 3 years have you been diagnosed with or treated for skin cancer?

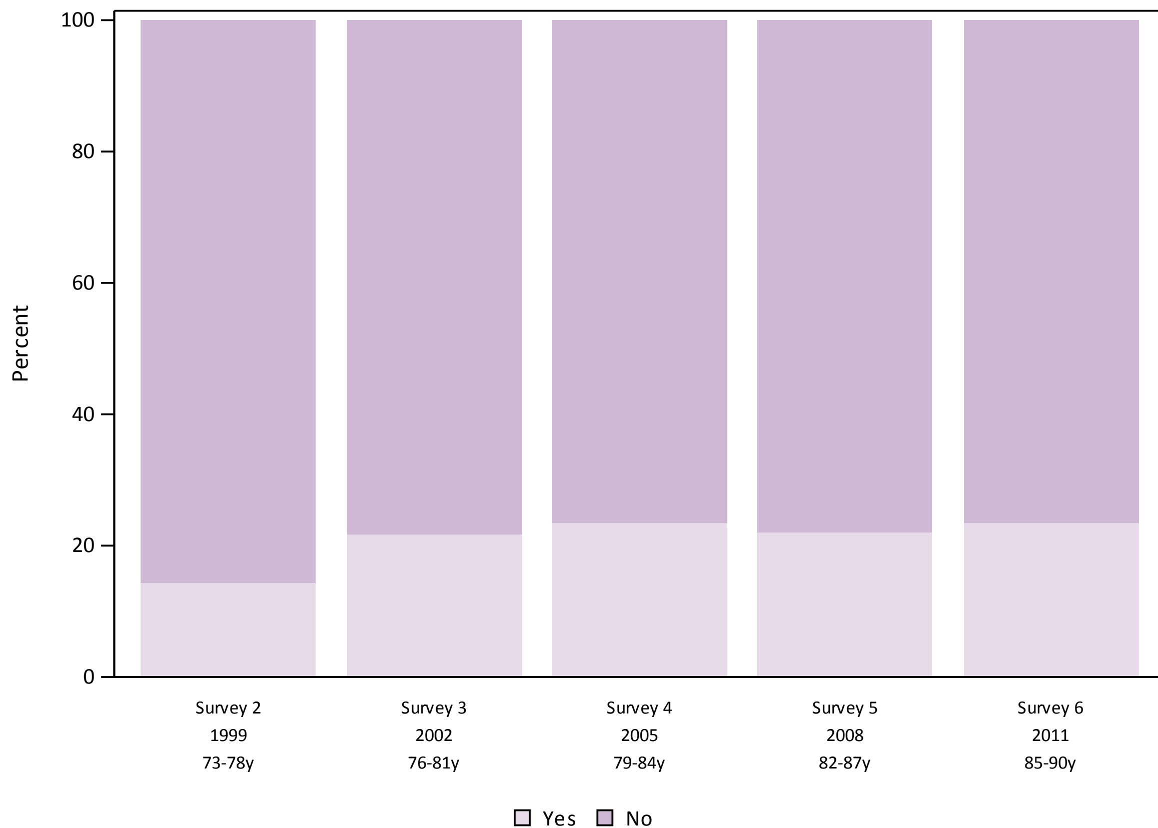

Figure 3-20 Diagnosis or treatment for skin cancer from Survey 2 to Survey 6.

Note: At Survey 1, the women were not asked this question so only responses from Surveys 2 to 6 have been included.

At Survey 2, about 15% of the women reported that they had been diagnosed with skin cancer and this percentage rose to slightly more than 20% by Survey 6.

3.3.4 Sensory limitations, incontinence, sleeping difficulty and falls

QUESTION: Do you have:

- Difficulty seeing newspaper print, even with glasses?
- Difficulty in hearing a conversation, even with a hearing aid?

Seeing

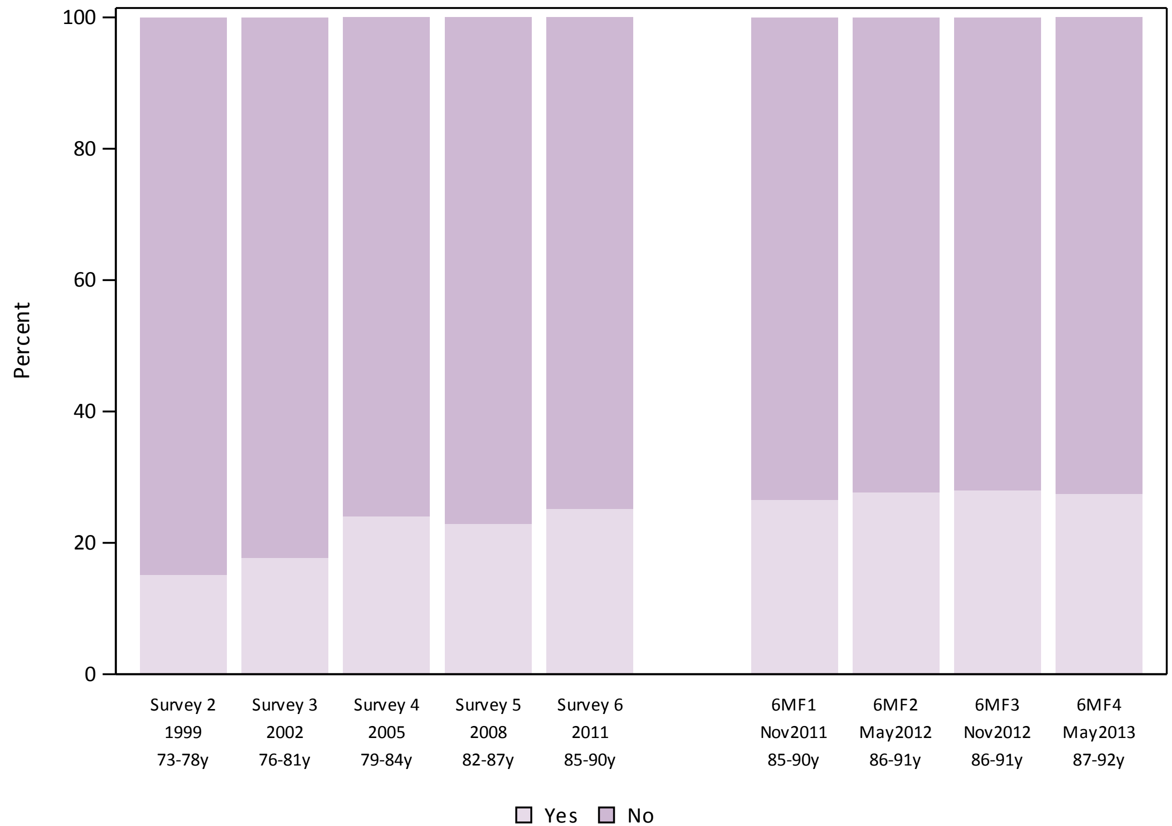

Figure 3-21 Percentage of women reporting difficulty seeing newspaper print, even with glasses from Survey 2 to Six Monthly Follow-Up Survey 4.

Note: This question was not asked in Survey 1.

The percentage of women who reported that they had difficulty seeing newspaper print, even with glasses, increased from 15% at age 73 to 78 years to 28% by 86 to 91 years.

Hearing

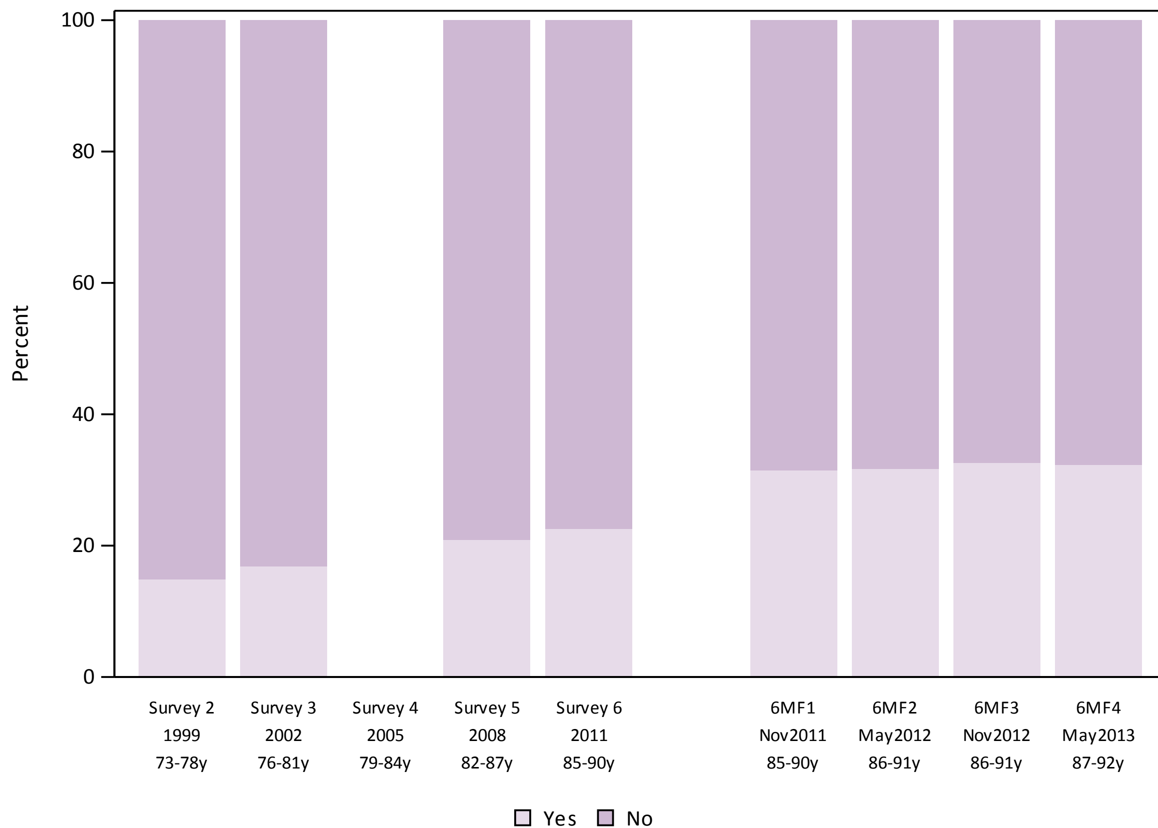

Figure 3-22 Percentage of women reporting difficulty hearing a conversation, even with a hearing aid from Survey 2 to Six Monthly Follow-Up Survey 4.

Note: This question was not asked in Survey 1. Hearing questions asked at Survey 4 are not comparable with those asked at other surveys, so have not been included.

Even when wearing a hearing aid, 15% of the women at Survey 2 reported difficulties hearing a conversation. By the first six-monthly follow-up when the women were aged 85 to 90, this had doubled to 30% and this percentage remained stable across the next three surveys.

QUESTION: Have you had any of the following problems in the LAST 12 MONTHS?

- Leaking urine

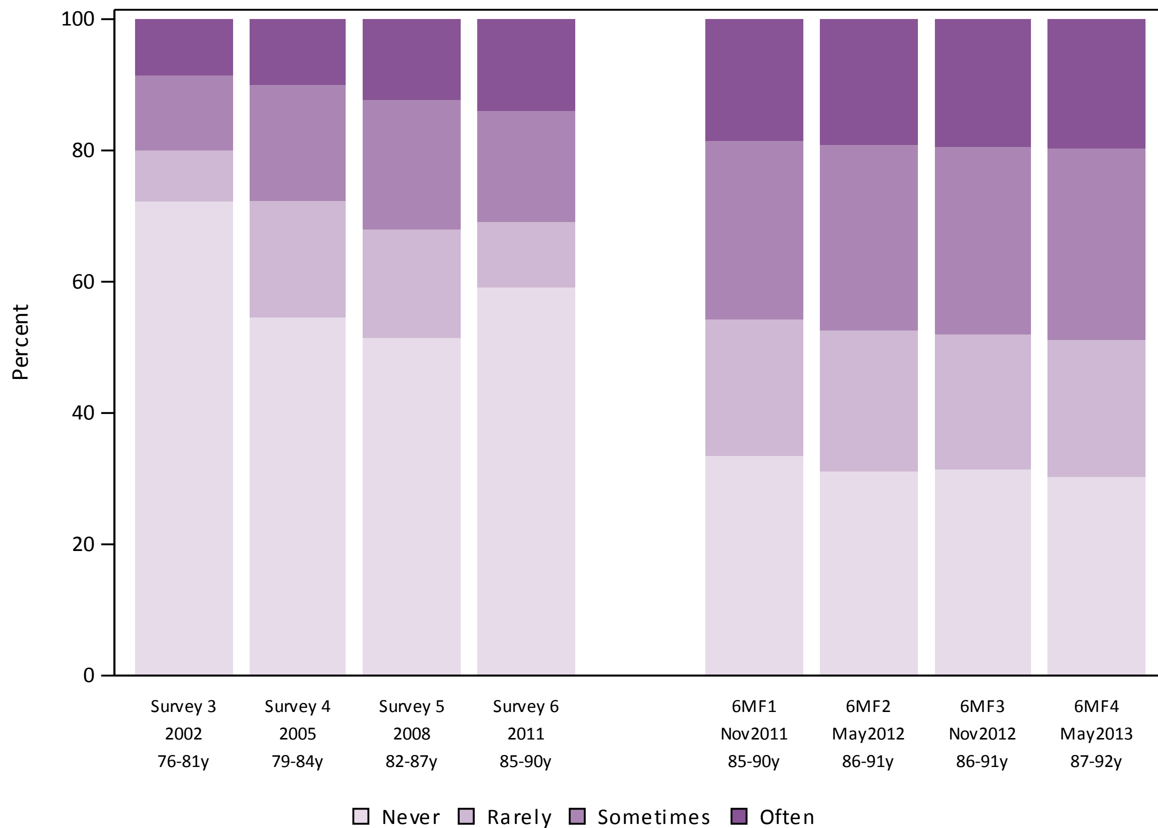

Figure 3-23 Percentage of women reporting leaking urine from Survey 3 to Six Monthly Follow-Up Survey 4.

At Survey 3, most of the women (72%) reported that they had no problems with leaking urine (incontinence), however, by the first six-monthly follow-up survey, only 31% reported no problems and this percentage has remained stable over subsequent surveys. The proportion of women who reported that they experienced incontinence often has doubled between Survey 3 in 2002 to the six-monthly follow-up 4, in 2013.

QUESTION: Do you have any of these sleeping problems?

- Waking up in the early hours of the morning
- Lying awake for most of the night
- Taking a long time to get to sleep
- Worry keeping you awake at night
- Sleeping badly at night
- Taking medications to help you sleep

Sleeping difficulties are calculated from responses to each question and higher mean scores are indicative of greater sleeping difficulty.

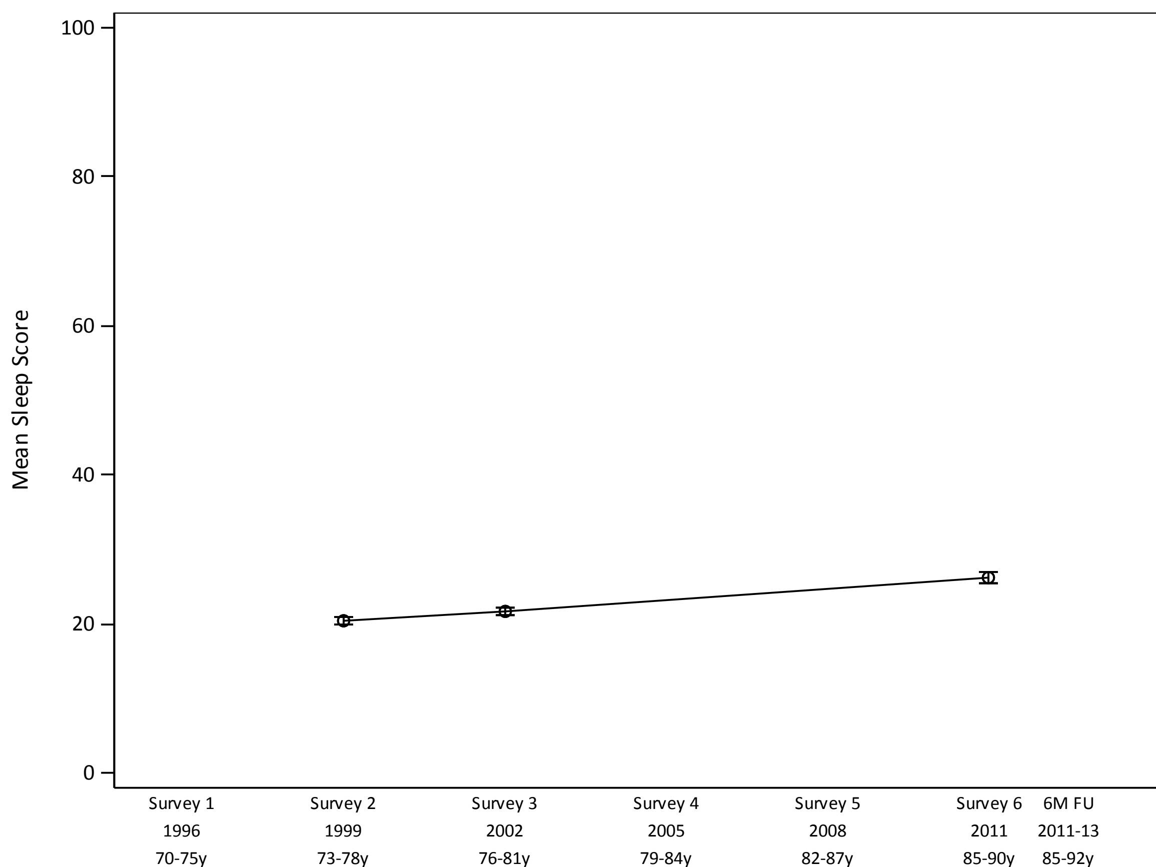

Figure 3-24 Sleeping problems from Survey 2 to Six Monthly Follow-Up Survey 4

Note: Questions on sleeping were not asked at Survey 1 or in the six-monthly follow-up. The complete question was not asked at Surveys 4 or 5.

Reported difficulties with sleeping increased from a mean score of 20 in 1999 to a mean score of 26 in 2011 when the women were aged 85-92.

QUESTION: In the LAST 12 MONTHS, have you:

- Needed to seek medical attention (e.g., doctor, hospital) for an injury from a fall?

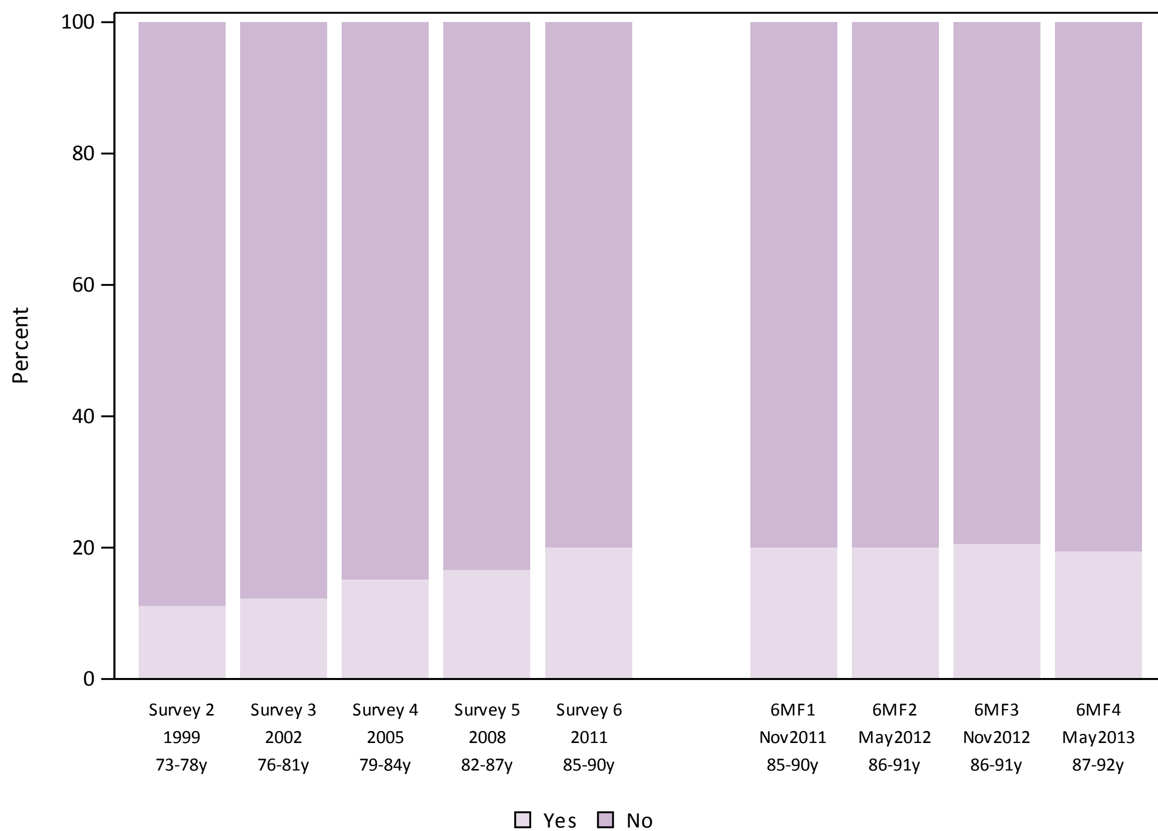

Figure 3-25 Percentage of women who needed to seek medical attention for an injury from a fall from Survey 2 to Six Monthly Follow-Up Survey 4.

Note: This question was not asked at Survey 1.

At Survey 2 when the women were 73-78, about 11% of them reported that they had sought medical attention as the result of an injury sustained in a fall. This percentage gradually increased to 20% by Survey 6 and remained relatively stable across the six-monthly follow-up surveys.

3.4 Health service use

QUESTION: How many times have you consulted a family doctor or another general practitioner in the last 12 months?

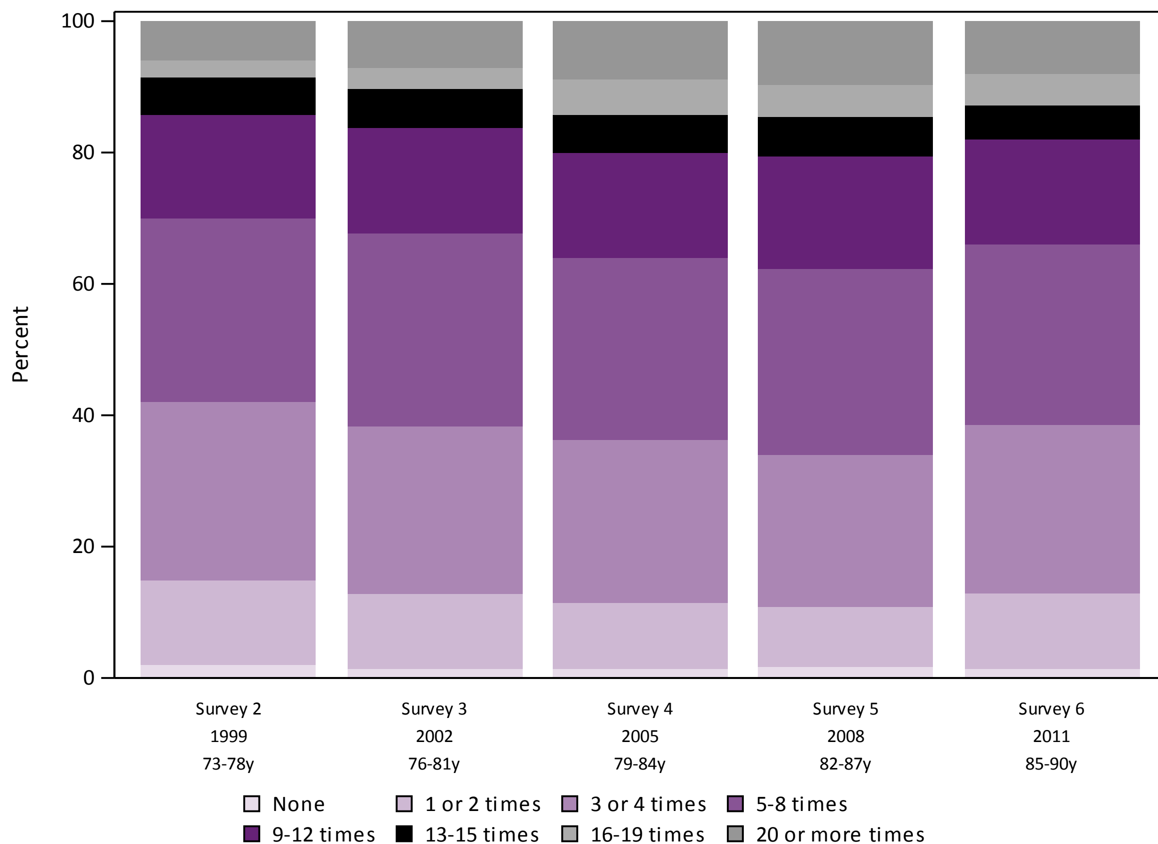

Figure 3-26 Number of visits to a GP in the last 12 months from Survey 2 to Survey 6

At age 73 to 78 years, 42% of the women reported consulting a GP less than five times in the previous 12 months, with this declining to 34% by age 82 to 87 years. Conversely, the percentage of women who consulted their GP more than 12 times increased over the same age range from 14% to 20%. The apparent reduction in the number of GP consultations at Survey 6 may represent better survival among women with lower health care needs, or poorer access to GP services by women who are older and frailer and who have poorer social resources. This trend needs further investigation using more accurate data from the linked survey and Medicare data.

QUESTION: Have you consulted the following people for your own health in the last 12 months:

- A physiotherapist?

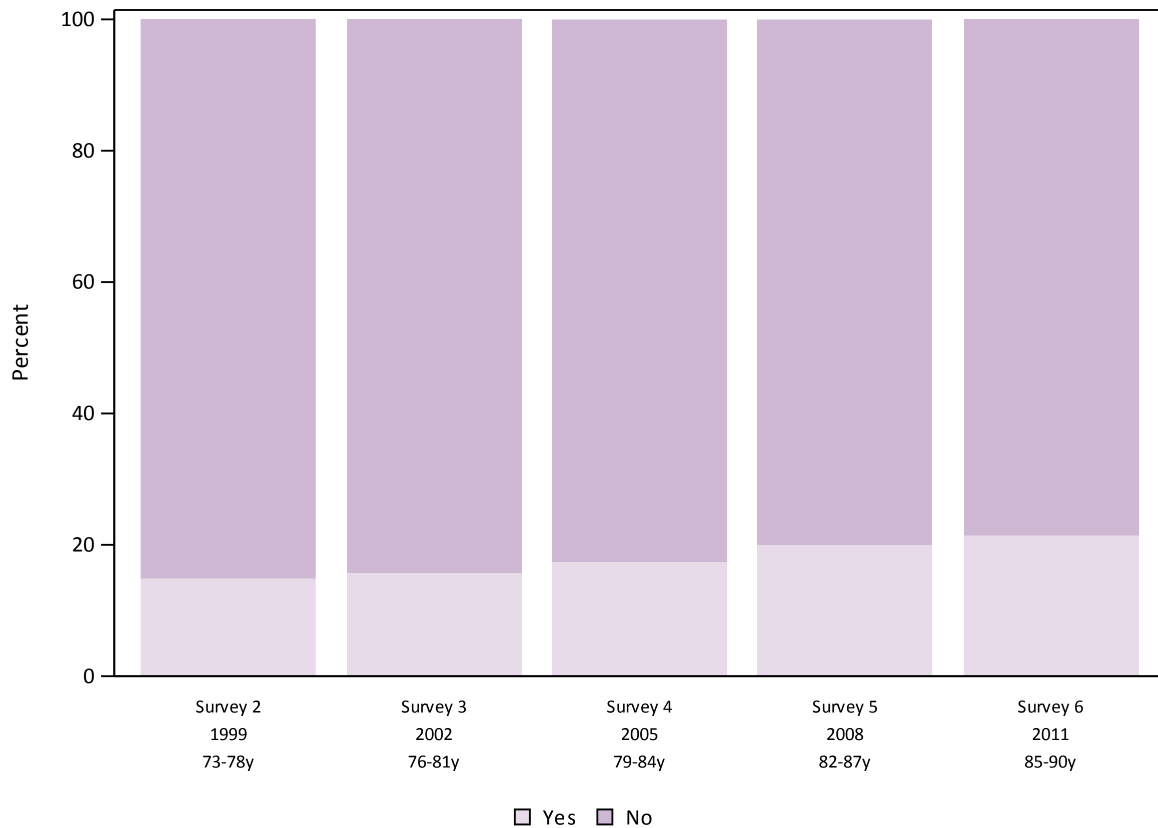

Figure 3-27 Number of visits to a physiotherapist in the last 12 months from Survey 2 to Survey 6.

Note: At Survey 1, the women were not asked this question so only responses from Surveys 2 to 6 have been included.

Between Survey 2 (1999) when the women were aged 73-78 and Survey 6 (2011) when the women were aged 85 to 90, reported use of a physiotherapist increased from 15% to 21%.

QUESTION: Have you consulted the following people for your own health in the last 12 months:

- A podiatrist?

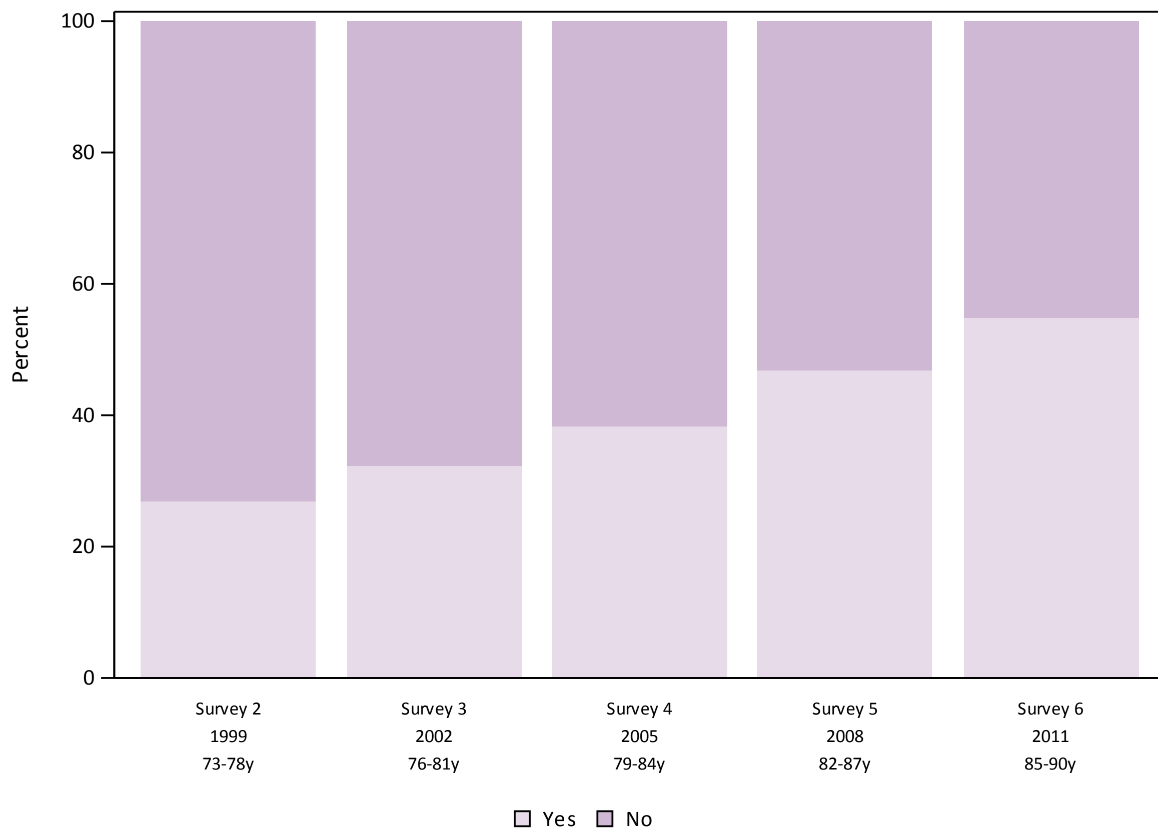

Figure 3-28 Number of visits to a podiatrist in the last 12 months from Survey 2 to Survey 6

Note: At Survey 1, the women were not asked this question so only responses from Surveys 2 to 6 have been included.

At Survey 2, 26% of the women reported that they had used a podiatrist in the past 12 months. The percentage of women using a podiatrist increased to more than 50% at Survey 6.

3.5 Functional abilities

QUESTION: Do you regularly NEED help with daily tasks because of long-term illness, disability or frailty (e.g., personal care, getting around, preparing meals etc.)?

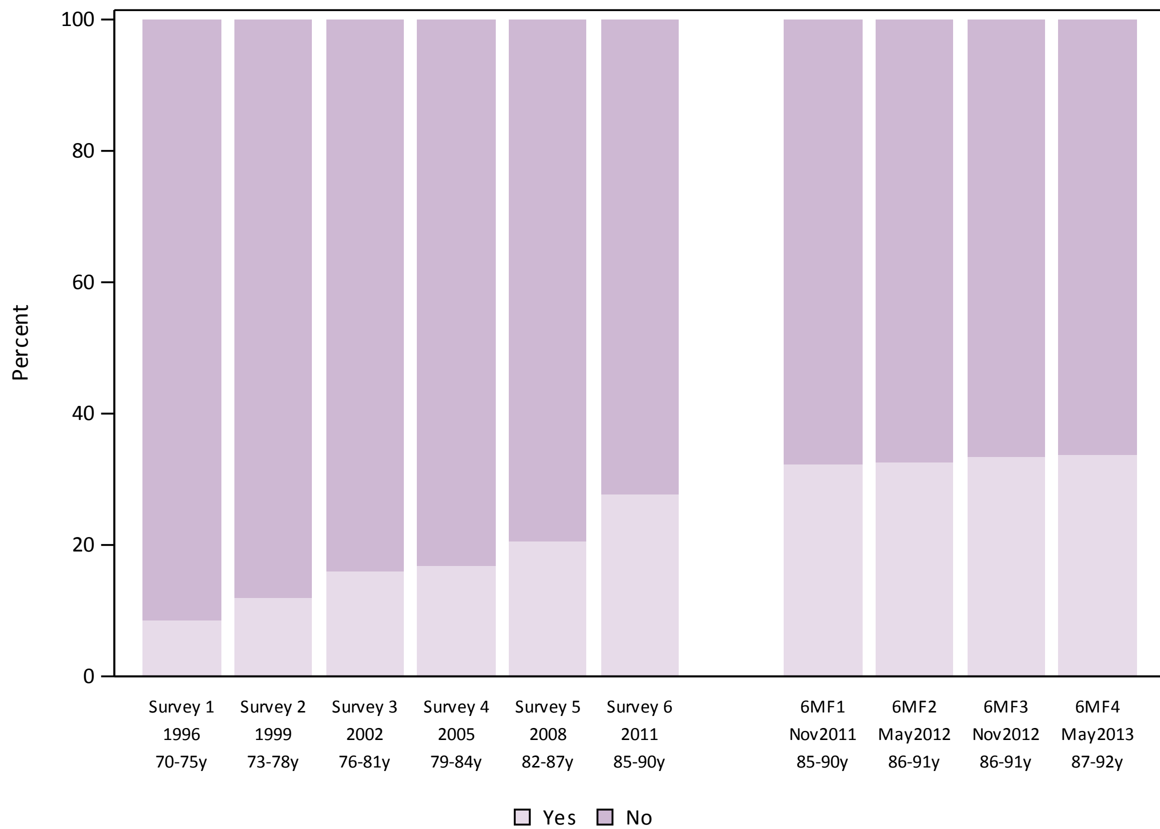

Figure 3-29 Percentage of women requiring help with daily tasks because of long term illness, disability or frailty from Survey 1 to Six Monthly Follow-Up Survey 4.

The percentage of women who reported needing help for daily tasks due to long-term illness, disability or frailty rose fourfold from 9% at age 70 to 75 years to 34% by age 87 to 92 years.

The daily functional tasks of the women were divided into two parts. *Activities of daily living* (ADL) include the tasks related to caring for the body and moving around, and include grooming, eating, bathing or taking a shower, dressing upper body, dressing lower body, getting up from a chair, walking inside the house, and using the toilet. *Instrumental activities of daily living* (IADL) relate to higher level tasks that support an independent lifestyle, such as shopping for personal items or groceries, doing light housework (e.g. washing up), doing heavy housework (e.g. vacuuming), managing money, preparing meals, taking medications, using the telephone, and doing leisure activities or hobbies.

Standard questions were used to measure limitations in ADL and IADL, such as experiencing difficulties or needing help from others to do the tasks, with higher scores indicating more limitations or difficulties.

QUESTION: In the last month HAVE YOU HAD ANY DIFFICULTY (for example, needing to take extra time, changing the activity or using a device to help you) or have you needed HELP FROM ANOTHER PERSON in completing any of these activities?

- Grooming (e.g., brushing hair, applying make-up)
- Eating (e.g., cutting meat, lifting glass or cup, opening milk carton)
- Bathing or taking a shower
- Dressing your upper body
- Dressing your lower body
- Getting up from a chair
- Walking inside the house
- Using the toilet
- Shopping for personal items or groceries
- Doing light housework (e.g., cleaning, washing-up)
- Doing heavy housework (e.g., vacuuming, yard work)
- Managing money (e.g., writing cheques or keeping accounts)
- Preparing meals
- Taking medications
- Using the telephone
- Doing leisure activities or hobbies

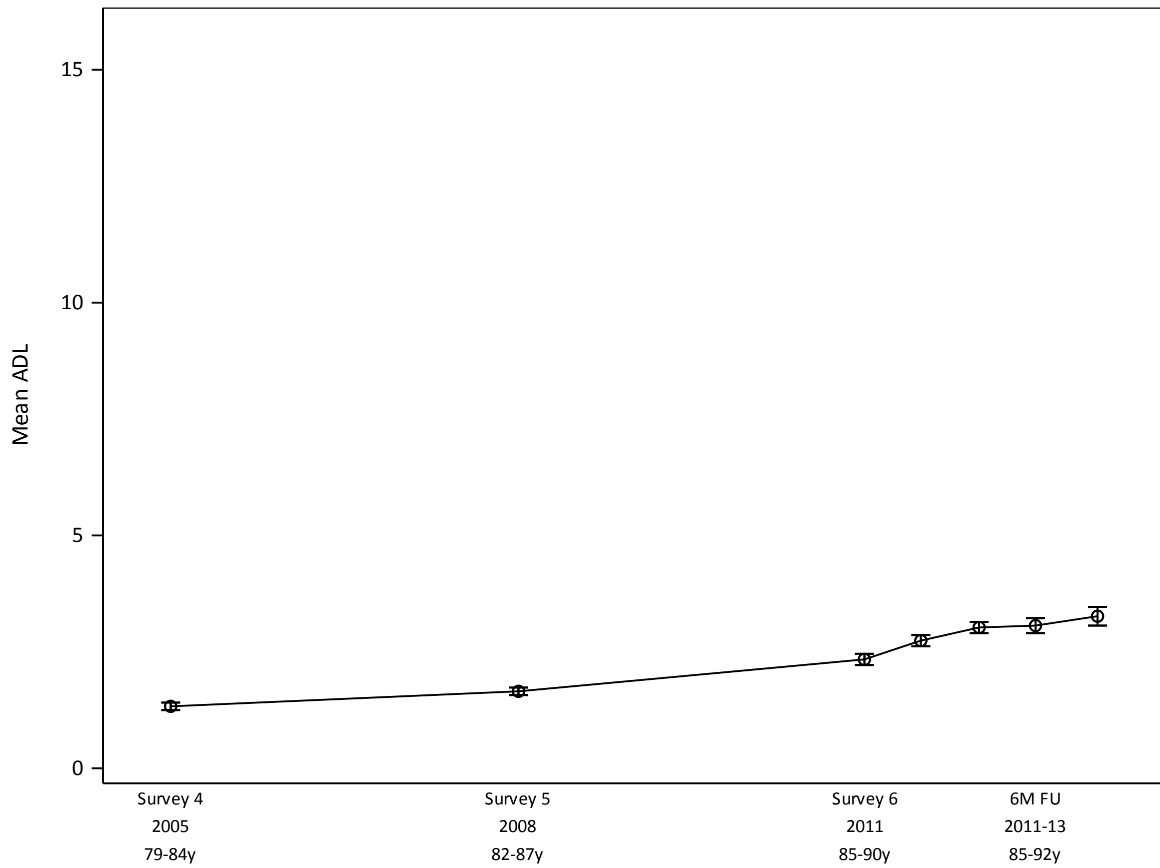

Figure 3-30 Mean ADL scores from Survey 4 to Six Monthly Follow-Up Survey 4.

The mean ADL score, as a measure of the difficulties and limitations with ADLs reported by the women, increased from 1.3 at age 79 to 84 years to 3.3 at 85 to 92 years.

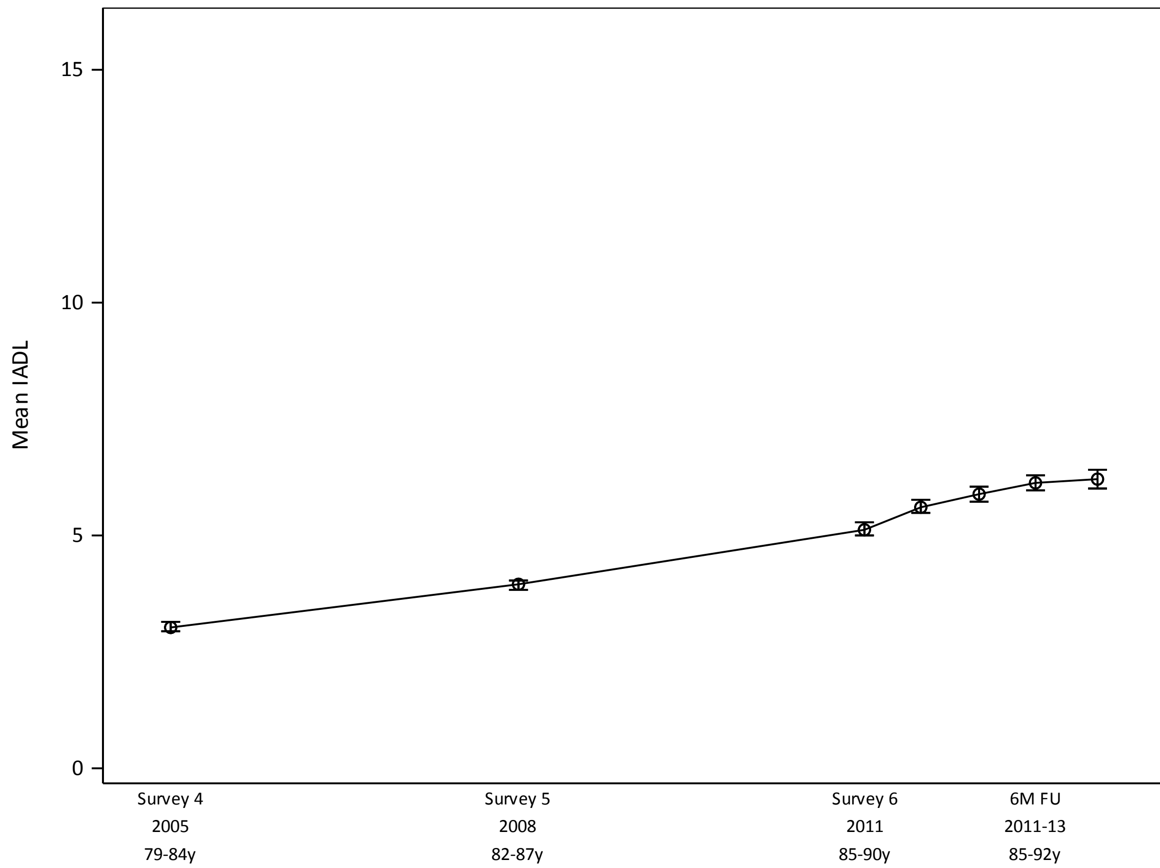

Figure 3-31 Mean IADL scores from Survey 4 to Six Monthly Follow-Up Survey 4.

The mean IADL score, as a measure of the difficulties and limitations with IADLs reported by the women, doubled from 3 at age 79 to 84 years to 6.2 at 85 to 92 years.

3.6 Transport

QUESTION: What is your main (or most common) means of transport?

- Car (you drive)
- Car (someone else drives)
- Taxi
- Bus
- Train or tram
- Other

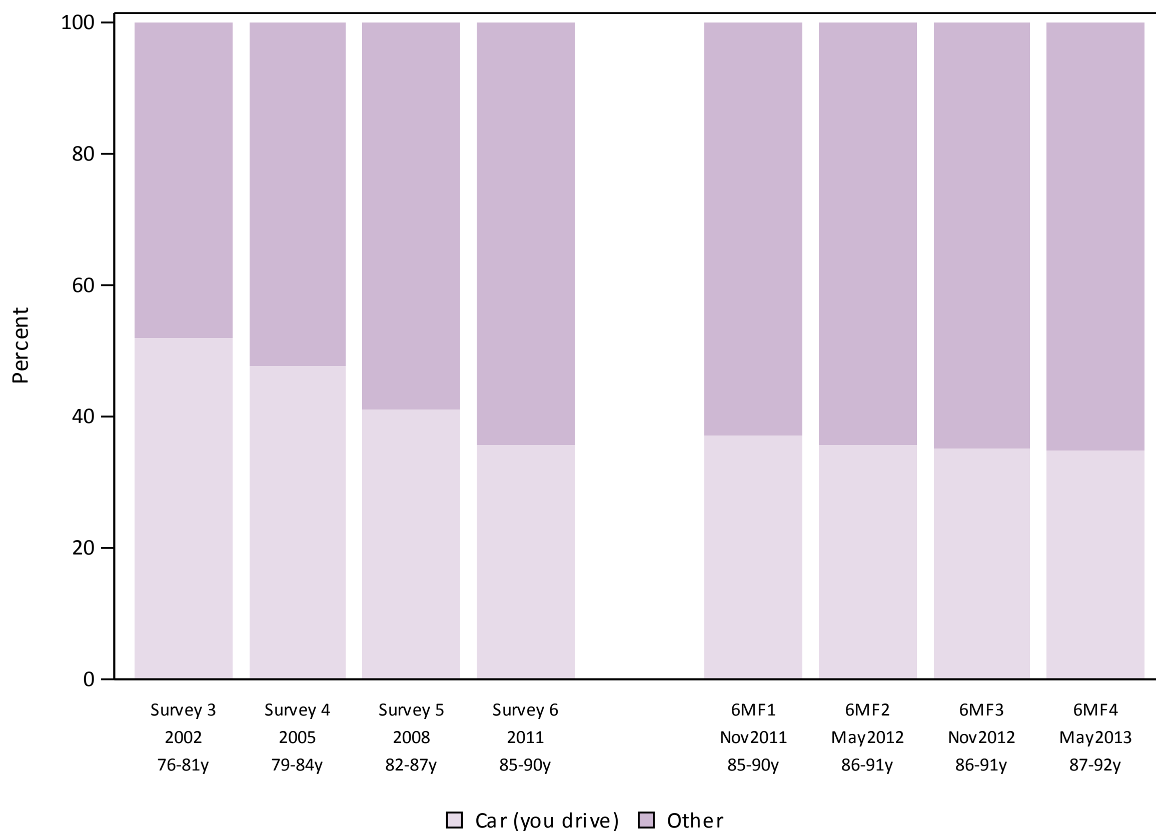

Figure 3-32 Methods of transport used from Survey 3 to Six Monthly Follow-Up Survey 4.

Note: This question was not asked at Survey 1 or Survey 2. Six monthly follow-up surveys have only included 'car (you drive)' and 'other' as response options.

More than half of the women drove their own car at Survey 3 when they were aged 76 to 81. By Survey 6 when the women were 85 to 90, this percentage had decreased to 35% and has remained fairly stable over the first four six-monthly follow-up surveys.

3.7 Community

QUESTION: Which of the following groups have you sought advice or help from in the last six months?

- Nursing or community health services
- Homemaking services (e.g., home care service, heavy laundry service)?
- Home maintenance services (e.g., odd jobs, gardening)

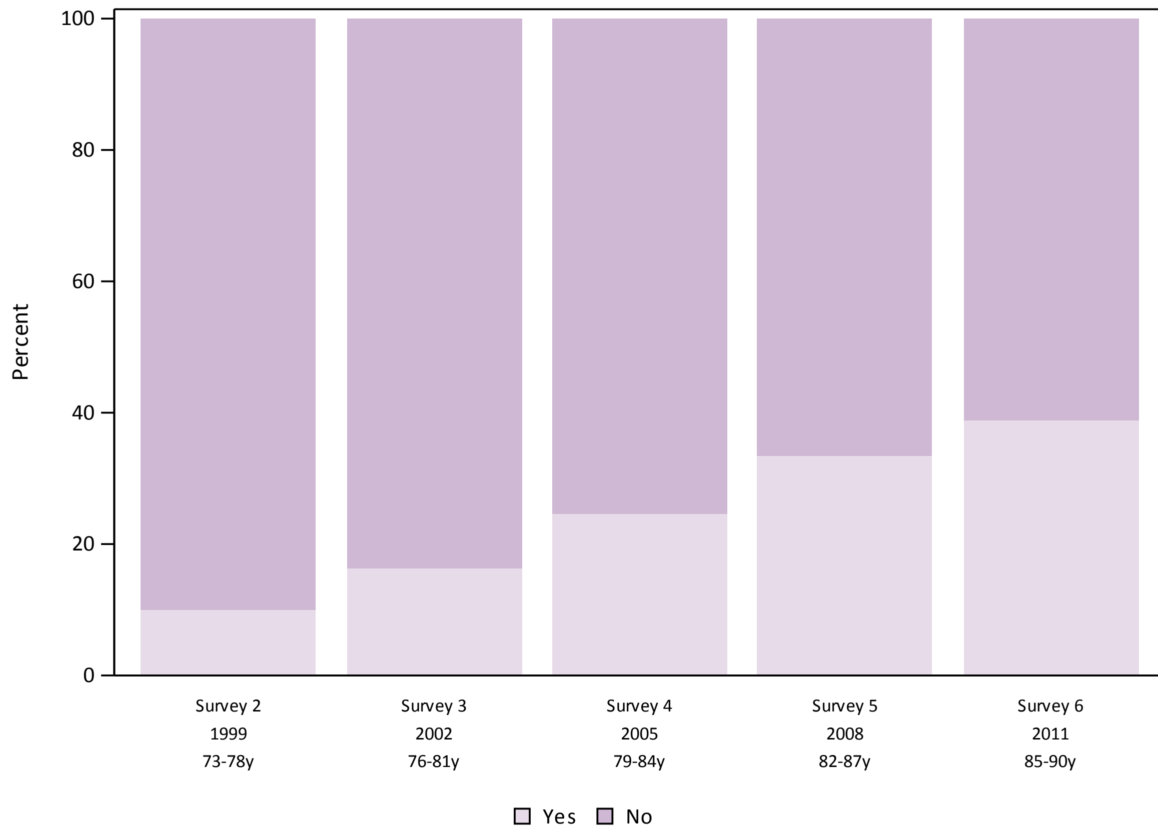

Figure 3-33 Percentage of women reporting use of homemaking services from Survey 2 to Survey 6.

Note: Question was not asked at Survey 1.

The percentage of women who reported needing assistance with homemaking services, such as home care and heavy laundry, increased from about 10% of women at Survey 2, to 39% of women at Survey 6.

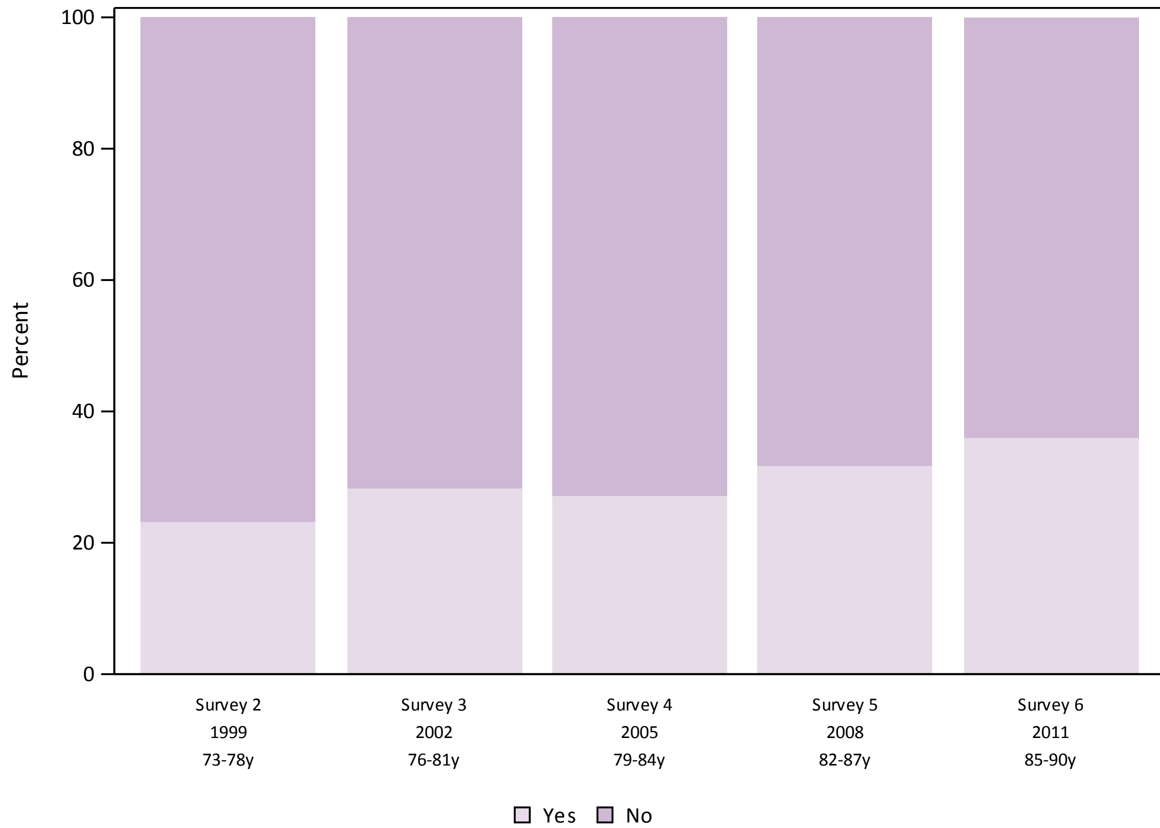

Figure 3-34 Percentage of women reporting use of home maintenance services from Survey 2 to Survey 6.

Note: Question was not asked at Survey 1.

At Survey 2, when the women were aged 73-78, 23% reported that they used assistance for home maintenance tasks, such as odd jobs and gardening, and by Survey 6, this had increased to 36% of the women.

QUESTION: Do you do any volunteer work for any community or social organisations? (e.g., fundraising, community welfare, church activities, organising groups or classes, etc.)

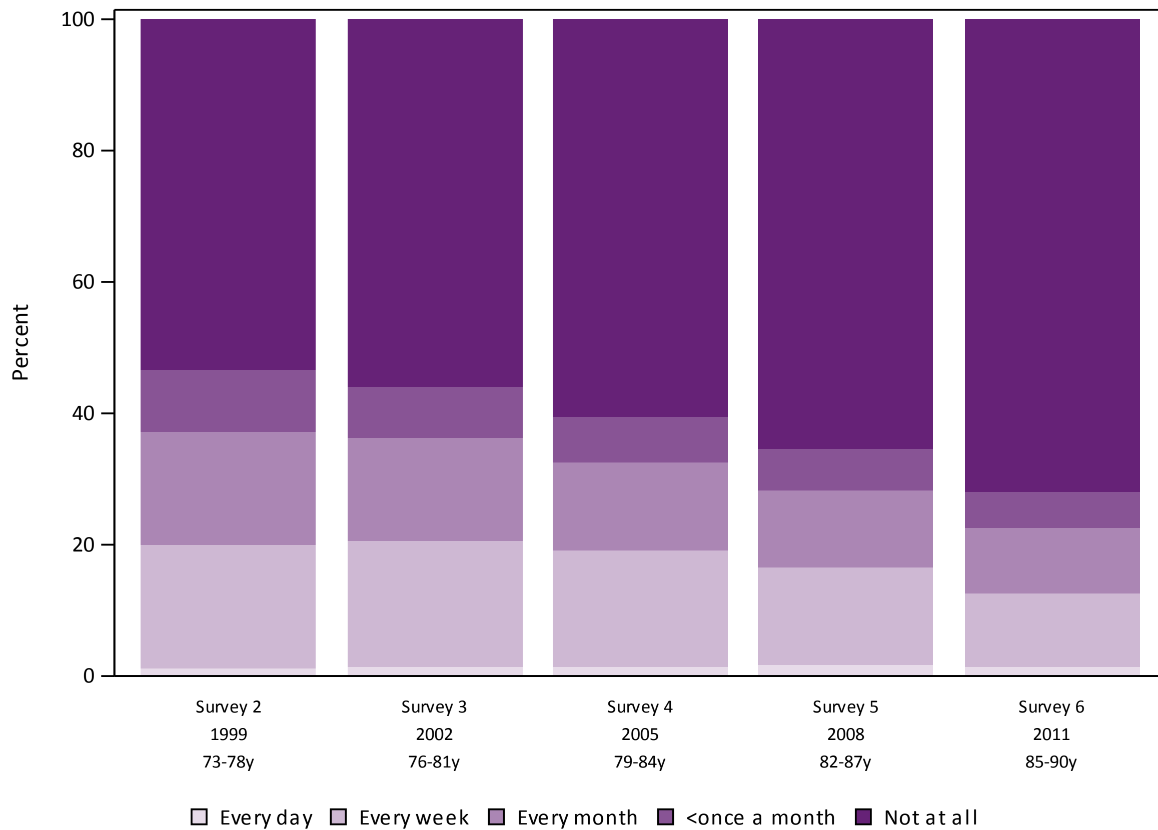

Figure 3-35 Percentage of women who reported doing volunteer work from Survey 2 to Survey 6.

Note: Question was not asked at Survey 1.

At Survey 2, almost half of the women reported that they did some volunteer work, with 37% volunteering every day, every week or every month. By Survey 6 when the women were aged 85 to 90, the percentage volunteering every day, every week or every month had decreased to 23%. Nonetheless, almost 30% of these women continued some form of voluntary activity when aged 85 to 90.

3.8 Family and Friends

3.8.1 Social support

QUESTION: Other than members of your family how many persons in your local area do you feel you can depend on or feel very close to? (Response options: None; 1-2 people; more than 2 people)

QUESTION: How many times during the past week did you spend time with someone who does not live with you, that is, you went to see them or they came to visit you or you went out together? (Response options: None; one; two; three; four; five; six; seven or more)

QUESTION: How many times did you talk to someone, friends, relatives or others on the telephone in the past week (either they called you, or you called them)? (Response options: None; one; two; three; four; five; six; seven or more)

QUESTION: About how often did you go to meetings of clubs, religious meetings, or other groups that you belong to in the past week? (Response options: None; one; two; three; four; five; six; seven or more)

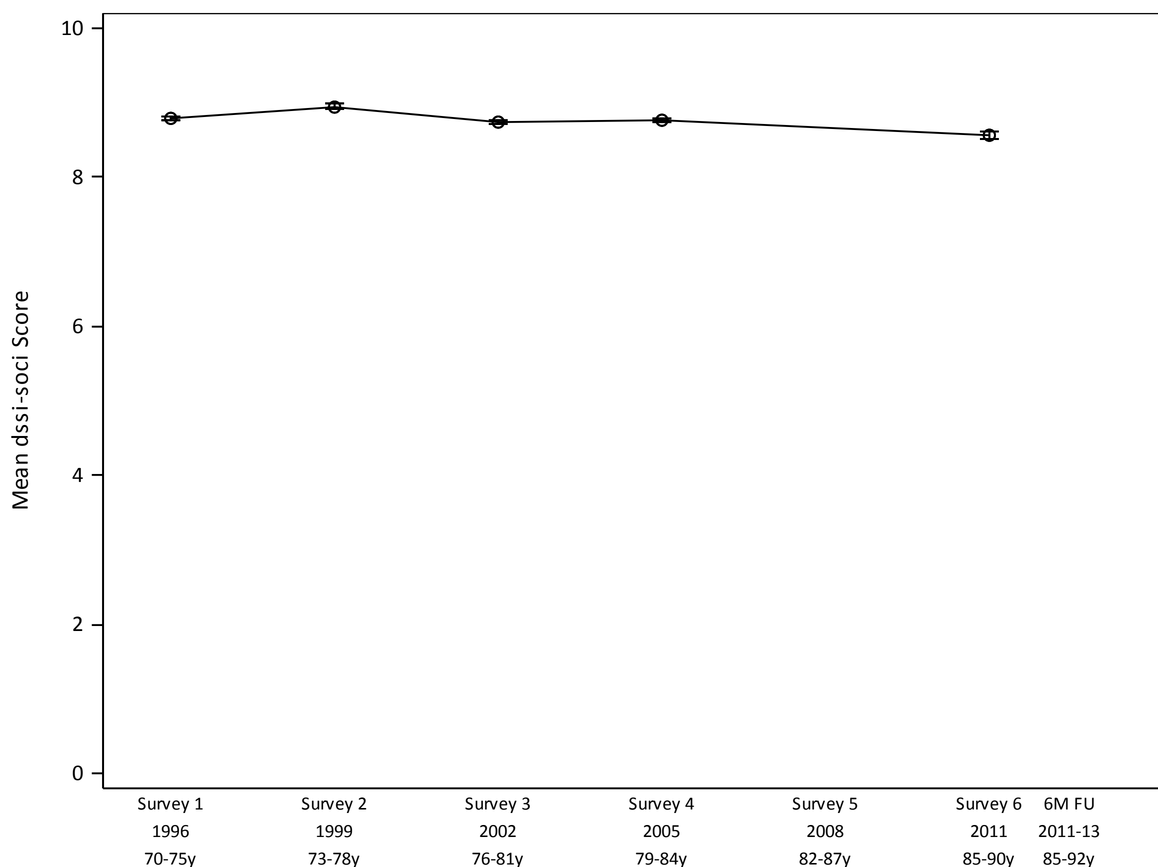

Figure 3-36 Ratings of social support from Survey 1 to Six Monthly Follow-Up Survey 4.

Social support, as measured by the mean number of social interactions with family and friends, remained stable from 1996 when the women were aged 70 to 75, to 2013 when they were aged 85 to 92.

3.8.2 Vulnerability to Elder abuse

Questions exploring vulnerability to elder abuse and responses were combined to form two scales measuring vulnerability and dejection.

Vulnerability (which measures physical and psychological abuse):

QUESTION: These questions are about getting on with other people:

- Has anyone close to you tried to hurt you or harm you recently?
- Has anyone close to you called you names or put you down or made you feel bad recently?
- Are you afraid of anyone in your family?

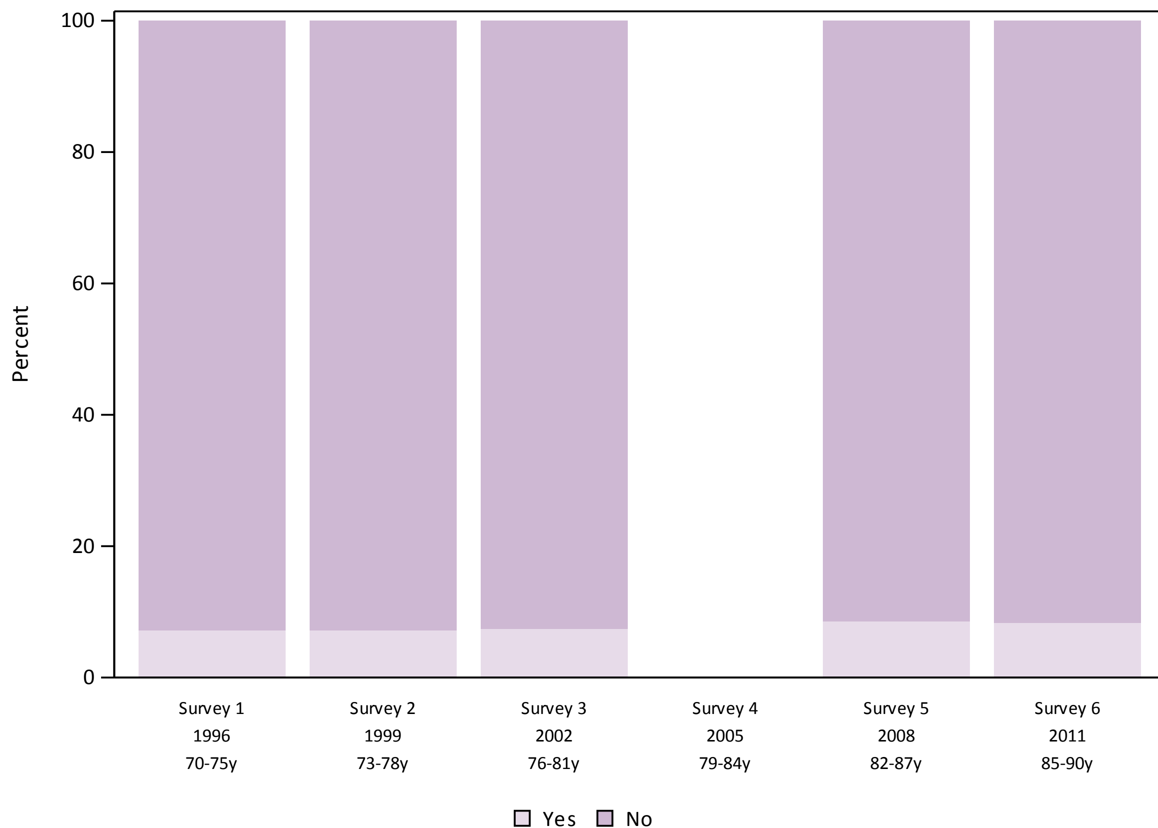

Figure 3-37 Vulnerability (physical and psychological abuse) from Survey 1 to Survey 6.

Note: Questions were not asked at Survey 4.

Across all surveys in which these questions were asked, the majority of women (90%) did not report any physical or psychological abuse.

Dejection (which measures neglect):

QUESTION: These questions are about getting on with other people:

- Are you sad or lonely often?
- Do you feel uncomfortable with anyone in your family?
- Do you feel that nobody wants you around?

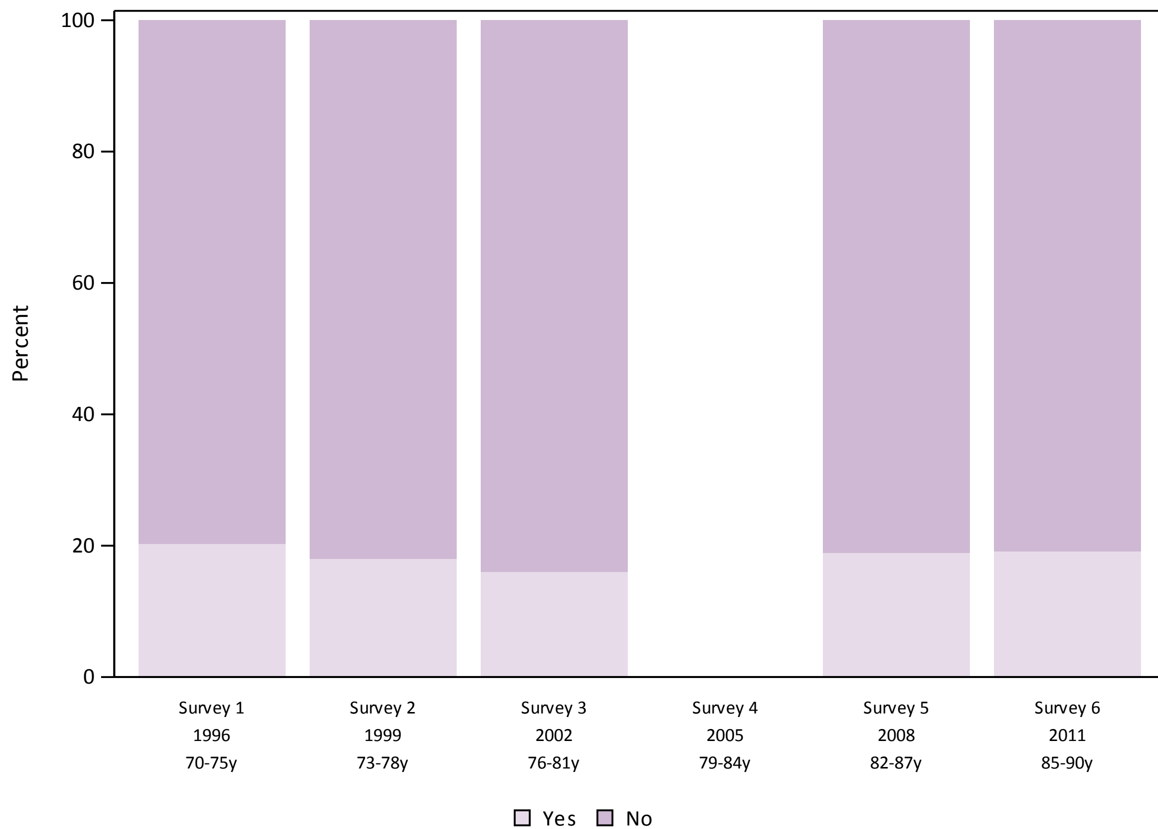

Figure 3-38 Dejection (neglect) from Survey 1 to Survey 6.

Note: Questions were not asked at Survey 4.

Feelings of neglect were more commonly reported, with 20% of the women reporting that they had these feelings. This percentage remained fairly stable over time, although there was a slight dip at Survey 3 (2002).

3.8.3 Caring

QUESTION: Do you regularly PROVIDE care or assistance (e.g., personal care, transport) to any other person because of their long-term illness, disability or frailty?

- Yes, for someone who lives with me
- Yes, for someone who lives elsewhere
- No, I do not provide care

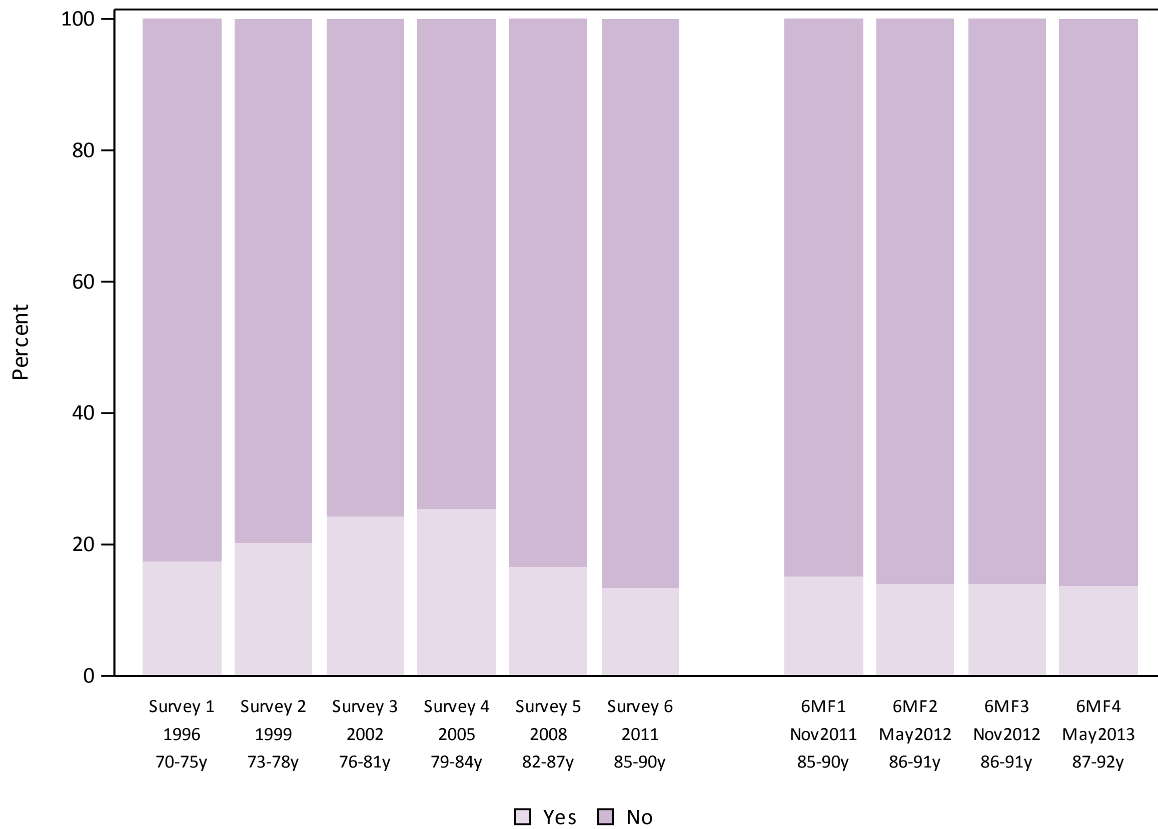

Figure 3-39 Percentage of women who reported caring for another person from Survey 1 to Six Monthly Follow-Up Survey 4.

The percentage of women who reported caring for another person increased from 17% at age 70 to 75 years to 26% at age 79 to 84 years, followed by a decrease to 13% of women by age 85 to 90 years.

QUESTION: Do you regularly provide (unpaid) care for grandchildren or other people's children?

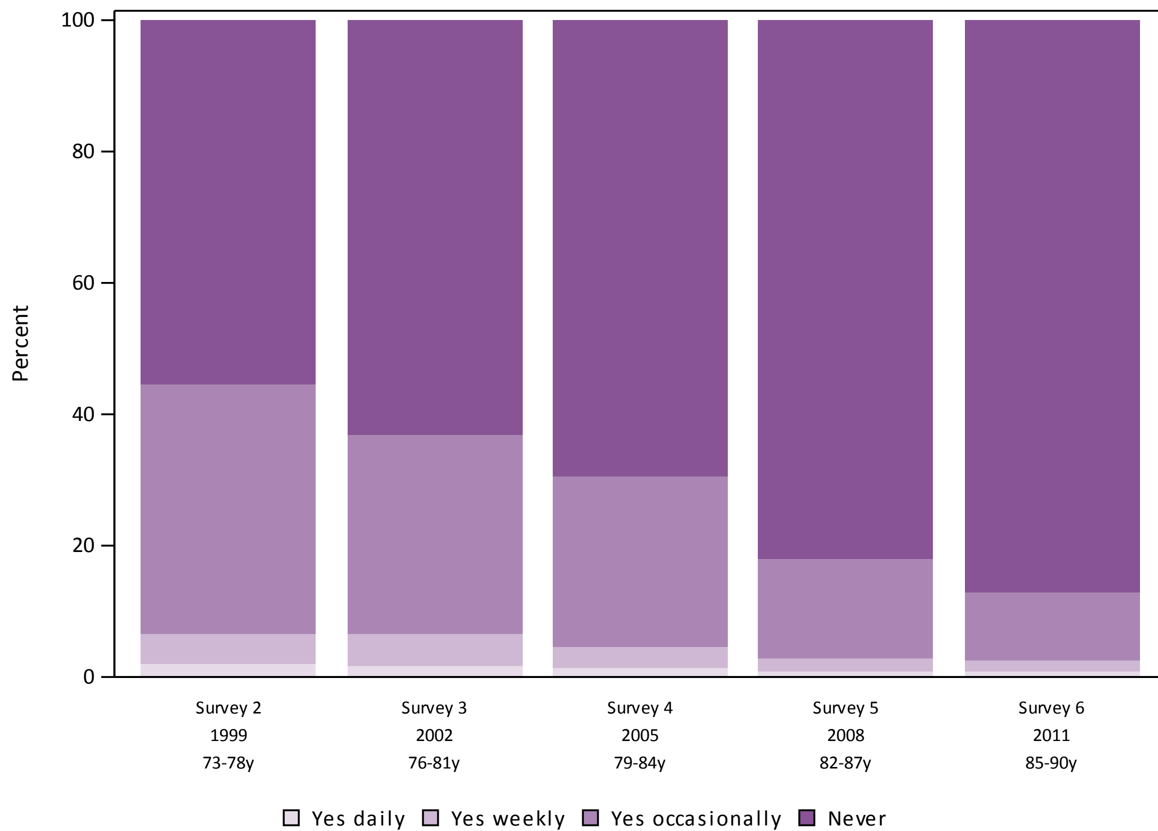

Figure 3-40 Percentage of women providing care for grandchildren or other children from Survey 2 to Survey 6.

The percentage of women who reported providing care for children on at least an occasional basis declined from 44% at age 73 to 78 years to 13% at 85 to 90 years.

3.9 Assistance

QUESTION: Did someone help you fill in this survey?

- No
- Yes, but I told them the answers I wanted
- Yes, but the helper answered for me using his / her own judgement

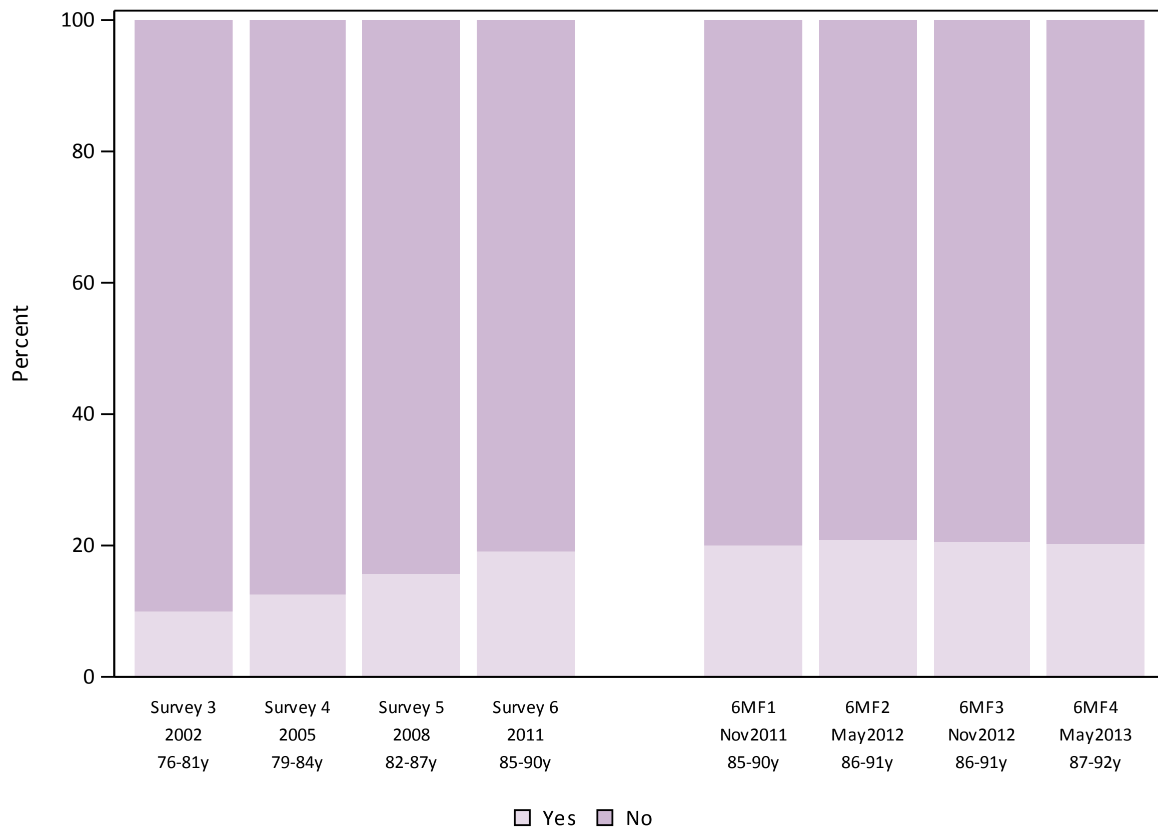

Figure 3-41 Percentage of women requiring assistance to complete the questionnaire from Survey 3 to Six Monthly Follow-Up Survey 4.

Over time, most of the women were able to complete the surveys with no additional assistance. About 10% at Survey 3 reported that they had help and this percentage increased to about 20% by Survey 6 and then remained stable for the first four six-monthly follow-up surveys.

4 KEY RESEARCH ACHIEVEMENTS

4.1 Publications using data from the 1921-26 cohort

Between 1996 and 2013, ALSWH published 164 papers that used data from the 1921-26 cohort. These publications are listed in in Appendix A. The major themes in these publications are:

- Health service use and systems (36 papers)
- Social Factors in health and wellbeing (31 papers)
- Mental health (27 papers)
- Weight, nutrition and physical activity (19 papers)
- Chronic conditions (17 papers)
- Survival, frailty, and physical health (15 papers)
- Health in rural and remote areas (14 papers)
- Medications (14 papers)
- Methodology (14 papers)
- Intergenerational issues (11 papers)
- Tobacco, alcohol and other drugs (9 papers)
- Caring (5 papers)
- Abuse (5 papers)
- Quality of Life (3 papers)

(Note: A publication may reflect more than one major theme).

The themes with four or more papers cited 20 times or more in the international peer reviewed literature were survival, frailty and physical health; chronic disease; mental health; weight, nutrition, and physical activity; health service use and systems; and methodology.

Particularly highly cited papers included:

- Leaking urine in Australian women: Prevalence and associated conditions. 1999. *Neurourology and Urodynamics,* 18(6); 567-577. Citations = 104.

  This paper presented data on the prevalence of urinary incontinence across the original three cohorts of women. The proportion of women with reporting leaking urine was 13% (18-23 years), 36% (45-50 years), 35% (70-75 years). Subsequent papers have looked at the incidence and impact of urinary incontinence.

- Attrition in longitudinal studies: Who do you lose? 2006. *Australian and New Zealand Journal of Public Health, 30*(4); 353-361. Citations = 86.

  This paper examined loss to follow-up in the three original cohorts. The findings were used to target follow-up procedures, and to understand the effect of non-death attrition on the representativeness of the cohort. The analyses have been repeated and updated to provide good characterisation of the cohort over time and to reduce the effects of bias in study findings.

- The profile of women who consult alternative health practitioners in Australia. 2003. *Medical Journal of Australia, 179*(6); 297-300. Citations = 86.

This study identified the high prevalence use of complementary and alternative practitioners by women across Australia. Many subsequent studies have provided more in-depth analyses of how and why women use these services.

- Disorders of breathing and continence have a stronger association with back pain than obesity and physical activity. 2006. *Australian Journal of Physiotherapy, 52*(1); 11-16. Citations = 53.

This paper examined associations between back pain, breathing difficulty and incontinence, with the suggestion of a common pathophysiological link between these three common symptoms.

- Validity of self-report screening scale for elder abuse: Women's Health Australia study. *The Gerontologist,* 2003; *43*(1): 110-120. Citations = 49.

This paper established the methods for assessing vulnerability to elder abuse which are used in ALSWH.

- Assessment of a short scale to measure social support among older people. 1999. *Australian and New Zealand Journal of Public Health, 23*(3); 260. Citations = 43.

This paper established the validity of the Dukes Social Support Index as a brief measure of social support for older Australians. The measure has been used in ALSWH and in other surveys of older Australians.

- Self-rated health and a healthy lifestyle are the most important predictors of survival in elderly women. 2008. *Age & Ageing, 37*(2); 194-200. Citations = 41.

This paper showed that current health and health related behaviours were stronger predictors than social factors of relatively early mortality among older women. The results underscored the importance of adopting a healthier lifestyle, by doing more exercise and not smoking, and showed how these health behaviours can continue to be of benefit even in later life. Subsequent papers further quantified the mortality risks for particular conditions and comorbidities and modifiable health behaviours in later life.

- Economic costs of urinary incontinence in community-dwelling Australian women. 2001. *Medical Journal of Australia, 174*(9); 456-458. Citations = 40.

This study used estimates of the prevalence of incontinence to inform a “bottom-up” approach to estimating costs of urinary incontinence. Further cost estimates studies have been conducted to assess costs for a variety of conditions including diabetes and arthritis. These later studies have included direct health care costs data to allow more precise estimation of the variation in health care costs and cost drivers.

- The problems of sleep for older women: Changes in health outcomes. 2003. *Age and Ageing, 32*(2); 154-163. Citations = 40.

This paper is one in a series which examined the prevalence, incidence and health impacts of sleeping difficulties among older women. The paper underscored the importance of sleeping difficulties for older women and the impact on their health-related quality of life. Further studies of the association between sleeping difficulty and mortality suggest that much of the mortality risk associated with sleeping difficulty can be explained by comorbid conditions.

4.2 Reports prepared using data from the 1921-26 cohort

Since 2001, ALSWH has published 13 reports, including 7 major reports, for the Department of Health that have used data from the 1921-26 cohort. One major report in 2010, focussed on the health of older women in Australia. These reports, listed in full in Appendix B, have included the following research areas:

Women, health and ageing: This report examined changes in women's health as they aged from their 70s to their 80's. Over this time, more than half of the women maintained good physical health. Women whose health started low and continued low had lower socio-economic status, were more likely to be overweight or obese, undertook little physical activity, and were current or ex-smokers. These women also had multiple chronic conditions and were heavy users of health services. A small group of women had clear improvements in their physical health, and many of these women had restorative surgery, or were recovering from acute conditions or events. The report also contrasted the effects of different chronic conditions on physical and mental health, social engagement, and health care use.

Mental health: The prevalence of psychological distress decreased with age, except in later old age when it increased slightly. Most (80%) of the 1921-1926 cohort reported ongoing good mental health. While there had been a steady increase in the use of the Better Access Scheme (BAS) to manage psychological distress among all cohorts, by December 2010, only about 3% of the 1921-1926 cohort had claimed for at least one BAS item. The experience of widowhood was associated with a decline in mental health up to four years prior to bereavement, with the lowest mental health reported in the year immediately after the loss. However, within four years of date of widowhood, the women's mental health had returned to pre-loss levels. Poor mental health in the 1921-1926 cohort was associated with an increased risk of cardiovascular disease and with diabetes and arthritis.

Weight and physical activity: Both weight and physical activity are important contributors to healthy ageing and the prevention and management of chronic conditions. ALSWH has examined these issues for the 1921-1926 cohort in four major reports in 2006, 2007, 2011 and 2012. The main findings of the reports were that over time, BMI of women in this cohort remained stable, although the percentage of those who were underweight increased. A slightly higher BMI was associated with better survival among older women. Physical activity which met guidelines of 30 minutes of moderate activity on most days decreased as the women aged. Both BMI and physical activity were associated with chronic conditions such as hypertension, heart disease, diabetes, asthma, osteoporosis and arthritis in this cohort.

Medications: The prevalence of medication use increased with age and as chronic conditions became more common. The 1921-1926 cohort used more medications than the younger ALSWH cohorts, and were more likely to be using two or more medications in combination. The most common PBS claims were for cardiovascular medications (75% of the 1921-1926 cohort in 2005); alimentary tract medications (57% in 2005); drugs for musculoskeletal conditions (43% in 2005); respiratory system medications (20% in 2005) and antidepressant medications (18% in 2005).

Area of residence: Women in the 1921-1926 cohort living in regional and remote areas of Australia had higher death rates than those living in major cities. These higher death rates were associated

with lung cancer, chronic obstructive pulmonary disease and ischaemic heart disease, which are often associated with smoking. However, very few of the older women were current smokers, so the higher mortality rate ascribed to these conditions may have been the result of past smoking, exposure to passive smoking or greater exposure to other hazards, such as environmental toxins. The health risk factor that was consistently higher with increasing distance from major cities was obesity. Thus, the prevalence and incidence of conditions associated with obesity, such as diabetes and hypertension, were also consistently higher among women living in regional and remote areas. Use of most health services was higher in major cities than in regional and remote areas. Visits to specialist medical practitioners decreased with increasing distance from major cities, however, there were few differences in hospital admissions.

Other reports

ALSWH data from the 1921-1926 cohort have also been used by researchers to produce reports for other agencies. Some examples include five reports on incontinence (2000, 2001, 2002, 2003 and 2004) and three reports on data provision, paid work and retirement and physical activity and health for the Office for Women, Department of Families, Community Services and Indigenous Affairs (2005 and 2007). A full list is available in Appendix B.

4.3 Contributions to Government Policy

Findings from the 1921-26 cohort have directly influenced Federal and State Government Policy in several areas. We briefly feature recent notable contributions:

- **2010 Australian Government National Women's Health Policy** (Australian Government Department of Health and Ageing, (now the Australian Government Department of Health) 2010)

  Published research from the ALSWH 1921-1926 cohort was cited 18 times in the policy. Evidence from the ALSWH contributed to recommendations concerning chronic conditions (such as asthma and arthritis); health behaviours (physical activity, smoking, alcohol and weight); use of mental health services (such as counselling); the experience of widowhood and the availability of services to assist with older bereaved women's health, financial and social needs; the impact of comorbid conditions on physical and psychological health and social function; the ability of older women with chronic conditions to manage on their available income; and physical and psychological abuse of older women.

  The Policy states that evidence from the ALSWH has confirmed the importance of taking a whole of life approach to women's heath, preventing the accumulation of health risk factors. Informed by the ALSWH, the Policy identifies the importance of controlling risk factors to prevent chronic disease, as well as promoting physical activity and healthy in later life and targeting mental health and well-being. Arthritis, a condition highlighted by the study as having a particular impact on women's wellbeing, participation and health care use, is emphasised in the Policy. The Policy also emphasises the social and economic contexts in which women age, with consideration for the experiences of widowed women, women with

lower levels of social support, and women ageing in rural areas, as identified in various publications and reports arising from the study. The Policy recognises the study's role in defining different health needs of older women in rural areas, their poorer access to health care, and their higher mortality rates when compared to urban women. The Policy quotes the study as identifying the importance of homes, social support and active participation in the community as fundamental to older women's well-being. The policy on older women and violence is also informed by ALSWH data on the prevalence, vulnerabilities and impacts of violence for older Australian women. Extensive research into the needs of older women as carers, the care women receive, and the health of those who care for them, has informed Policy in relation to carers. Research into women's healthcare use provided rich data to inform Policy on access to primary care, chronic disease management, and Medicare incentives.

- **Choose Health: Be Active. A physical activity guide for older Australians** (Australian Government Department of Veteran's Affairs and the Department of Health and Ageing (now the Australian Department of Health), 2008).

  This guide was prepared by ALSWH Chief Investigator Professor Wendy Brown to provide an evidence-based guide for optimal physical activity for older adults.

- **2013 New South Wales Government's Health Framework for Women's Health** (NSW Ministry of Health, 2013).

  Published research from the ALSWH 1921-26 cohort contributed to recommendations for healthy ageing, including accessing health services, managing dementia, osteoarthritis and falls. Key strategies included supporting healthy lifestyles, appropriate mental health services, support for women with a disability or those who are caring for a person with a disability.

- **National Continence Management Strategy**

  The study informed the strategy with respect to prevalence, incidence and risk factors for urinary incontinence, the effects of ageing on incontinence, and the impacts of incontinence on the lives of older women. Information from the study informed the preparation of information brochures available on www.bladderbowel.gov.au

  Data from the study also informed the development of **"Best practice in the prevention and treatment of constipation in adults under 65 years".**
  http://www.health.gov.au/internet/main/publishing.nsf/content/continence-ncms-faecalmgmt.htm/$file/pjt23clinical.pdf

Data have also been used in numerous submissions by other agencies, for example:

- Older Women's Network: Older Women's Network NSW notes on a submission to ALRC Grey Areas—Age Barriers to Work in Commonwealth Laws (IP 41) 28 May 2012
- Mental Health Council of Australia Submission to: The Productivity Commission Inquiry into Aged Care July 2010
- Submission to House of Representatives Standing Committee on Health and Ageing, Inquiry into Obesity in Australia

The study was featured in a special edition of the Australasian Journal of Ageing "Ageing well in Australia":

Byles JE, Dobson A; Australian Longitudinal Study on Women's Health. (2011). **The value of time in longitudinal studies of ageing. Lessons from the Australian Longitudinal Study on Women's Health.** *Australasian Journal of Ageing*. S2; p 6-12. doi: 10.1111/j.1741-6612.2011.00531.x.

This special edition was produced by the Australian Association of Gerontology (AAG) to showcase the latest evidence in ageing research, with a particular emphasis on research funded through the Ageing Well Ageing Productively (AWAP) research grants and the Australian Longitudinal Study of Women's Health, and on contributions to policy and practice outcomes benefiting older Australians in their everyday lives.

National physical activity recommendations for older Australians: Discussion document (Australian Government Department of Health and Ageing, 2006)

Published research from the ALSWH 1921-1926 cohort was cited in this discussion document which was commissioned from the National Ageing Research Institute.

4.4 Capacity building activities in women's health research

Between 1996 and 2014, 13 researchers who based their research on the ALSWH 1921-26 cohort have graduated with a masters or PhD degree. Table 4-1 (below) outlines these research topics, and highlights the subsequent careers of a few of the researchers.

Table 4-1 ALSWH RESEARCH HIGHER DEGREE STUDENTS COMPLETED USING 1921-26 COHORT DATA

<table>
<tr><th>Student</th><th>Topic</th><th>Institution</th><th>Degree</th><th>Completion date</th></tr>
<tr><td>Anne Young</td><td>General Practitioner utilisation among women in Australia.</td><td>The University of Newcastle</td><td>PhD</td><td>1999</td></tr>
<tr><td colspan="5">Associate Professor Anne Young is now Director of the Strategy, Planning and Performance Unit, University of Newcastle.</td></tr>
<tr><td>Brendan Goodger</td><td>Social support, health status and health care utilization in women aged 70-76 years.</td><td>The University of Newcastle</td><td>PhD</td><td>2000</td></tr>
<tr><td colspan="5">Dr Goodger is now the Manager (Policy and Research), Community Services and Health Industry Skills Council (Sydney). Brendan's role includes identifying workforce challenges for the community services and health industries and leading the response to industry changes, growth, workforce shortages and workforce development issues on a national basis.</td></tr>
<tr><td>Nadine Smith</td><td>Psychological predictors of successful ageing in a cohort of Australian women</td><td>The University of Newcastle</td><td>Masters</td><td>2001</td></tr>
<tr><td>Esben Strodl</td><td>Psychological factors associated with frequency of angina and the role of mediating variables</td><td>The University of Queensland</td><td>PhD</td><td>2002</td></tr>
<tr><td colspan="5">Dr Esben Strodl is a lecturer in clinical psychology at Queensland University of Technology. Previously Dr Strodl worked for 10 years as a clinical health psychologist at Ipswich Hospital and for Queensland Health, helping children and adults with acute and chronic medical conditions manage their co-morbid psychological problems as well as change their health behaviours.</td></tr>
<tr><td>Emma Harley</td><td>Social support in later life: Cross-sectional and longitudinal analysis of inter-relationships between psychosocial variables in the Women's Health of Australia study.</td><td>Flinders University</td><td>PhD</td><td>2004</td></tr>
<tr><td colspan="5">Dr Emma Harley is now at the Australian Catholic University. She works widely within the public and private sectors with a range of different clients including remote indigenous communities, soldiers, peacekeepers and refugees.</td></tr>
<tr><td>Karen Furlong</td><td>Epidemiology of osteoporosis in Australian women</td><td>The University of Queensland</td><td>Masters</td><td>2006</td></tr>
<tr><td>Dr Sally Price</td><td>Carers and psychosocial correlates over time: A longitudinal analysis.</td><td>The University of Queensland</td><td>Doctor of Psychology</td><td>2006</td></tr>
<tr><td>Leah Collins</td><td>Investigating quality of life and depression in middle aged and older Australian women with cancer</td><td>The University of Melbourne</td><td>Doctor of Psychology</td><td>2008</td></tr>
<tr><td colspan="5">Dr Leah Collins is the Policy Officer Professional Practice with the Australian Psychological Society.</td></tr>
<tr><td>Nadine Smith</td><td>Biopsychosocial correlates of women's mental health: A longitudinal analysis of self-reported mental health across three generations of Australian women</td><td>The University of Queensland</td><td>PhD</td><td>2008</td></tr>
<tr><td colspan="5">Dr Nadine Smith is now a senior researcher with the NSW Bureau of Crime Statistics and Research.</td></tr>
<tr><td>Afsoon Hassani Mehraban</td><td>An application of the International Classification of Functioning Disability and Health for understanding falls risks among older community women</td><td>The University of Newcastle</td><td>PhD</td><td>2008</td></tr>
</table>

Student	Topic	Institution	Degree	Completion date
	in Australia			
Dr Mehraban is now Assistant Professor of Occupational Therapy, School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran.				
Nur Hafidha Hikmayani	Cardiovascular medication use and health related Quality of Life in older women with diabetes	The University of Newcastle	PhD	2009
Emma Poulsen	Complementary and alternative medicine use in the Australian baby boomer and older adult populations	The University of Queensland	Doctorate Clinical Health	2012
Dr Poulsen is now a clinical psychologist at the Acquired Brain Injury Outreach Service (Brisbane)				
Jeannine Liddell	Participation in the arts and its relation to healthy ageing	The University of Newcastle	PhD	2012

* PhD or Masters students

Nine currently enrolled Masters or PhD research students are undertaking projects using data from the ALSWH 1921-26 cohort.

5 APPENDIX A: PUBLICATIONS USING 1921-26 COHORT DATA (from 1998 to 2014)

ABUSE		
Authors	**Details**	**Citations**
Schofield MJ, Reynolds R, Mishra G, Powers J & Dobson AJ.	Screening for vulnerability to abuse among older women: Women's Health Australia study. Journal of Applied Gerontology, 2002; 21(1): 24-39.	26
Schofield MJ & Mishra GD.	Schofield MJ & Mishra GD. Validity of self-report screening scale for elder abuse: Women's Health Australia study. The Gerontologist, 2003; 43(1): 110-120.	49
Schofield MJ & Mishra G.	Three year health outcomes among older women at risk of elder abuse: Women's Health Australia. 2004. *Quality of Life Research, 13*(6); 1043-1052.	20
Adamson L & Parker G.	'There's more to life than just walking': Older women's ways of staying healthy and happy. 2006. *Journal of Aging and Physical Activity, 14*(4); 380-391.	10
Schofield M, Powers J & Loxton L.	Schofield M, Powers J & Loxton L. Mortality and disability outcomes of self-reported elder abuse: A 12-year prospective investigation. Journal of the American Geriatric Society., 2013; 61(5): 679-685.	1
AGEING: SURVIVAL, FRAILTY, PHYSICAL HEALTH		
Authors	**Details**	**Citations**
Warner-Smith P, Bryson L & Byles J.	The big picture: The health and wellbeing of three generations of women in rural and remote areas of Australia. 2004. *Health Sociology Review*, 13(1); 15-26.	7
Mackenzie L, Byles J & Mishra G.	An occupational focus on falls and serious injury among older women in Australia. 2004. *Australian Occupational Therapy Journal, 51*(3): 144-154.	3
Pachana NA, Ford JH, Andrew B & Dobson AJ.	Relations between companion animals and self-reported health in older women: Cause, effect or artifact? 2005. *International Journal of Behavioral Medicine*, 12(2); 103-110.	21
Byles J, Young A, Furuya H & Parkinson L.	A drink to healthy ageing: The association between older women's use of alcohol and their health-related quality of life. 2006. *Journal of the American Geriatric Society*, *54*(9); 1341-1347.	32
Sibbritt D, Byles J & Regan C.	Factors associated with decline in physical functional health in a cohort of older women. 2007. *Age & Ageing, 36(4); 382-388.*	8
Byles JE.	Fit and well at 80: Defying the stereotypes of age and illness. 2007. *Annals of the New York Academy of Sciences, 1114*; 107-120.	4
Brown WJ, Burton N & Rowan P.	Updating the evidence on physical activity and health in women. 2007. *American Journal of Preventive Medicine, 14*(4); 380-391.	67
Furuya H, Young A, Powers J & Byles J.	Alcohol consumption and physical health-related quality of life in older women using the transformation of SF-36 to account for death. 2008. *Japanese Journal of Alcohol & Drug Dependence, 43(2); 97-109.*	2

Ford J, Spallek M & Dobson A.	Self-rated health and a healthy lifestyle are the most important predictors of survival in elderly women. 2008. *Age & Ageing, 37*(2); 194-200.	41
Vagenas D, McLaughlin D & Dobson A.	Regional variation in the survival and health of older Australian women: a prospective cohort study. 2009. *Australian and New Zealand Journal of Public Health, 33*(2): 119-125.	5
Berecki J, Spallek M, Hockey R & Dobson A.	Height loss in elderly women is preceded by osteoporosis and is associated with digestive problems and urinary incontinence. 2010. *Osteoporosis International , 21*(3); 479-485.	8
van Uffelen J, Berecki J, Brown WJ & Dobson AJ.	What is a healthy body mass index for women in their seventies? Results from the Australian Longitudinal Study on Women's Health. 2010. Journals of Gerontology - Series A Biological Sciences and Medical Sciences, 65A (8); 847-853.	10
Pavey T, Peeters G & Brown WJ.	Sitting-time and 9-year all-cause mortality in older women. 2012. *British Journal of Sports Medicine* (in press).	12
Peeters G, Dobson A, Deeg D & Brown WJ.	A life-course perspective on physical functioning in women. 2013. *Bulletin of the World Health Organization*, *91*(9): 661-670.	1
Mehraban A.	Can the International Classification of Functioning, Disability and Health (ICF) be used to understand risk factors for falls in older Australian women*?* 2013. *Health.*	
QUALITY OF LIFE		
Authors	**Details**	**Citations**
Parkinson L.	Volunteering and older women: Psychosocial and health predictors of participation. 2010. *Ageing and Mental Health*, *14* (8); 917-927.	3
Liddle J, Parkinson L & Sibbritt D.	Painting pictures and playing musical instruments: Change in participation and relationship to health in older women*.* 2012. *Australasian Journal on Ageing, 31*(4); 218-221.	
Liddle J, Parkinson L & Sibbritt D.	Health-related factors associated with participation in creative hobbies by Australian women aged in their eighties. 2014. *Arts & Health: An International Journal for Research, Policy and Practice, 6(*2); 132-142.	
CARING		
Authors	**Details**	**Citations**
Lee C.	Experiences of family caregiving among older Australian women. *Journal of Health Psychology*, 2001; 6: 393-404.	14
Tooth L, Russell A, Lucke J, Byrne G, Lee C, Wilson A & Dobson A.	Impact of cognitive and physical impairment on carer burden and quality of life. 2008. *Quality of Life Research*, 17(2); 267-273.	12
McKenzie S, McLaughlin D, Dobson A & Byles J.	Urban–rural comparisons of outcomes for informal carers of elderly people in the community :A systematic review. Maturitas, 2010; 67(2): 139-143	2
Tooth L, Hockey R, Treloar S, McClintock C & Dobson A.	Does Government subsidy for costs of medical and pharmaceutical services result in higher service utilization by older widowed women in Australia*?* 2012. *BMC Health Services Researc*h, 12(1); p179.	1
McKenzie S, Lucke J, Hockey R, Dobson A &	Is use of formal community services by older women related to changes in their informal care	

Tooth L.	arrangements? 2014. *Ageing & Societ*y, 34(2); 310-329.	
GENERAL CHRONIC DISEASE		
Authors	**Details**	**Citations**
Chiarelli P & Brown W.	Leaking urine in Australian women: Prevalence and associated conditions. 1999. *Women and Health, 29*(1); 1-13.	37
Chiarelli P, Brown W & McElduff P.	Leaking urine in Australian women: Prevalence and associated conditions. 1999. *Neurourology and Urodynamics* , 18(6); 567-577.	104
Rutnam R.	Using research to assist women with disabilities in Australia. 2000. *Australian Social Policy, 1*; 91-99.	
Doran CM, Chiarelli P & Cockburn J.	Economic costs of urinary incontinence in community-dwelling Australian women. 2001. *Medical Journal of Australia, 174*(9); 456-458.	40
Smith MD, Russell A & Hodges PW.	How common is back pain in women with gastrointestinal problems*?* 2008. *Clinical Journal of Pain, 24*(3); 199-203.	7
Tooth L, Hockey R, Byles J & Dobson A.	Weighted multi-morbidity indexes predict mortality, health service use and health-related quality of life in older women. 2008. *Journal of Clinical Epidemiology, 6(*12); 151-159.	31
Smith MD, Russell A & Hodges PW.	Do incontinence, breathing difficulties, and gastrointestinal symptoms increase the risk of future back pain? 2009. *The Journal of Pain*, 10(8); 876-886.	16
Byles JE, Millar C, Sibbritt D & Chiarelli P.	Living with urinary incontinence: A longitudinal study of older women. 2009. *Age and Ageing, 38*(3); 333-338.	22
Berecki-Gisolf J, Humphreys-Reid L, Wilson A & Dobson A.	Angina symptoms are associated with mortality in older women with ischemic heart disease. 2009. *Circulation, 120*(23); 2330-2336.	6
Parkinson L, Gibson R, Robinson I & Byles J.	Older women and arthritis: Tracking impact over time. 2010. *Australasian Journal on Ageing*, 29(4); 155-160.	6
Berecki-Gisolf J, Spallek M, Hockey R & Dobson A.	Height loss in elderly women is preceded by osteoporosis and is associated with digestive problems and urinary incontinence. 2010. *Osteoporosis International, 21*(3); 479-485.	8
van Uffelen J, Berecki-Gisolf J, Brown W & Dobson A.	What is a healthy body mass index for women in their seventies? Results from the Australian Longitudinal Study on Women's Health.2010. *Journals of Gerontology- Series A Biological Sciences and Medical Sciences, 65A*(8); 847-853.	10
Jordan S, Wilson A & Dobson A.	The management of heart conditions in older rural and urban Australian women.2011. *Internal Medicine Journal*, 41(10); 722-729.	5
Menz H, Barr E & Brown W.	Predictors and persistence of foot problems in women aged 70 years and over: a prospective study. 2011. *Maturitas, 68*(1); 83-87.	10
Halland M, Koloski N, Jones M, Byles J, Chiarelli P, Forder P, Biostat M & Talley N.	Prevalence correlates and impact of fecal incontinence among older women. 2013. *Diseases of the Colon and Rectum, 56*(9); 1080-1086*.*	4
Koloski N, Jones M, Wai R, Gill R, Byles J & Talley N.	Impact of persistent constipation on health related quality of life and mortality in older community dwelling women. 2013. *American Journal of Gastroenterology, 108*(7); 1152-1158.	5
Peeters G, Lips P & Brown W.	Changes in physical functioning over 6 years in older women: Effects of sitting time and physical activity.	

	European Journal of Ageing. (in press)	
SOCIAL DETERMINANTS		
Authors	**Details**	**Citations**
Lawlor DA, Tooth L, Lee C & Dobson A.	A comparison of the association between socioeconomic position and cardiovascular disease risk factors in three age cohorts of Australian women: Findings from the Australian Longitudinal Study of Women's Health. 2005. *Journal of Public Health, 27*(4); 378-387.	5
Cooper R, Lucke J, Lawlor DA, Mishra G, Chang J-H, Ebrahim S, Kuh D & Dobson A.	Socioeconomic position and hysterectomy: A cross-cohort comparison of women in Australian and Great Britain. 2008. *Journal of Epidemiology and Community Health, 62*(12); 1057-1063.	8
HEALTH RURAL		
Authors	**Details**	**Citations**
Young AF & Dobson AJ.	The decline in bulk billing and increase in out-of-pocket costs for general practice consultations in rural areas of Australia, 1995-2001. Medical Journal of Australia, 2003; 178: 122-126	27
Warner-Smith P, Bryson L & Byles J.	The big picture: The health and wellbeing of three generations of women in rural and remote areas of Australia. 2004. *Health Sociology Review*, 13(1); 15-26.	7
Byles J, Powers J, Chojenta C & Warner-Smith P.	Older women in Australia: Aging in urban, rural and remote environments. 2006. *Australasian Journal on Ageing, 25*(3); 151-157.	11
Sibbritt D, Byles J & Cockrell D.	Prevalence and characteristics of older Australian women who consult dentists. Australian Journal of Rural Health, 2007; 15(6): 387-388.	1
Byles JE.	Fit and well at 80: Defying the stereotypes of age and illness.2007. *Annals of the New York Academy of Sciences,* 1114; 107-120.	4
Lucke J, Russell A, Tooth L, Lee C, Watson M, Byrne G, Wilson A & Dobson A.	Few urban-rural differences in older carers' access to community services. Australian Health Review, 2008; 32(4): 684-690.	5
Vagenas D, McLaughlin D & Dobson A.	Regional variation in the survival and health of older Australian women: a prospective cohort study. Australian and New Zealand Journal of Public Health, 2009; 33(2): 119-125.	5
Dobson A, McLaughlin D, Vagenas D & Wong K.	Why are death rates higher in rural areas? Evidence from the Australian Longitudinal Study on Women’s Health. ANZJPH, 2010; 34(6): 624-628.	0
McKenzie S, McLaughlin D, Dobson A & Byles J.	Urban–rural comparisons of outcomes for informal carers of elderly people in the community :A systematic review. Maturitas, 2010; 67(2): 139-143	2
Jordan S, Wilson A, Dobson A.	The management of heart conditions in older rural and urban Australian women. Internal Medicine Journal, 2011; 41(10): 722-729.	5
Dolja-Gore X, Byles J, Loxton D, Hockey R & Dobson A.	Increased bulk-billing for general practice consultations in regional and remote areas, 2002-2008. 2011. *Medical Journal of Australia, 195*(4); 203-204.	1
Powers J, Loxton D, Baker J,Rich J & Dobson A.	Empirical evidence suggests adverse climate events have not affected Australian women's health and well-being. The Australian and New Zealand Journal of Public Health, 2012; 36(5): 452-457.	0
Poulsen E, Sibbritt D, McLaughlin D, Adams	Predictors of Complementary and Alternative Medicine (CAM) use in two cohorts of Australian women	

J & Pachana N.	International Psychogeriatrics, 2012; 25(1): 168-170.	
Byles JE & Galliene L.	Driving in older age: a longitudinal study of women in urban, regional and remote areas and the impact of caregiving. 2012. *Journal of Women and Aging, 24*(2); 112-125.	1
HEALTH SERVICES SYSTEMS		
Authors	**Details**	**Citations**
Young A, Byles J & Dobson A.	Women's satisfaction with general practice consultations. 1998. *Medical Journal of Australia*, 168(8); 386-389.	18
Young A, Dobson A & Byles J.	Access and equity in the provision of general practitioner services in Australia. 2000. *Australian and New Zealand Journal of Public Health*, 24(5); 474-480.	27
Young A.	Determinants of general practitioner use among women in Australia. 2001. *Social Science and Medicine*, 53(12); 1641-1651.	27
Young A, Dobson A & Byles J.	Health services research using linked records: Who consents and what is the gain? 2001. *Australian and New Zealand Journal of Public Health, 25*(5); 417-420.	34
Doran CM, Chiarelli P & Cockburn J.	Economic costs of urinary incontinence in community-dwelling Australian women. 2001. *Medical Journal of Australia, 174*(9); 456-458.	40
Byles J, Mishra G, Harris M & Nair K.	The problems of sleep for older women: Changes in health outcomes. 2003. *Age and Ageing, 32(2); 154-163.*	40
Young AF & Dobson A.	The decline in bulk billing and increase in out-of-pocket costs for general practice consultations in rural areas of Australia, 1995-2001. 2003. *Medical Journal of Australia, 178*(3); 122-126.	27
Adams J, Sibbritt D, Easthope G & Young A.	The profile of women who consult alternative health practitioners in Australia. 2003. *Medical Journal of Australia, 179(6); 297-300.*	86
Miller YD, Brown WJ, Smith N & Chiarelli P.	Managing urinary incontinence across the lifespan.2003. *International Journal of Behavioral Medicine* , 10(2); 143-161.	16
Miller YD, Brown WJ, Russell A & Chiarelli P.	Urinary incontinence across the lifespan. 2003. *Neurourology and Urodynamics, 22*(6); 550-557.	21
Byles J, Mishra G & Harris M.	The experience of insomnia among older women. 2005. *Sleep*, 28(8); 972-979.	24
Young A, Lowe J, Byles J & Patterson A.	Trends in health service use for women in Australia with diabetes. 2005*. Australian and New Zealand Journal of Public Health, 29*(5); 422-428.	2
Cwikel J, Gramotnev H & Lee C.	Never-married childless women: Health and social circumstances in older age. 2006. *Social Science and Medicine, 62*(8); 1991-2001.	14
Byles JE, Young A & Wheway V.	Annual health assessments for older Australian women: Uptake and equity.2007. *Australian and New Zealand Journal of Public Health*, 31(2) 170-173.	4
Sibbritt D, Byles J & Cockrell D.	Prevalence and characteristics of older Australian women who consult dentists. 2007. *Australian Journal of Rural Health*, *15*(6); 387-388.	1
Lowe J, Young A, Dolja-Gore X & Byles J.	Costs of medications for older women. 2008. *Australian and New Zealand Journal of Public Health, 32*(1); 89.	1

Tooth L, Russell A, Lucke J, Byrne G, Lee C, Wilson A & Dobson A.	Impact of cognitive and physical impairment on carer burden and quality of life. 2008. *Quality of Life Research*, 17(2); 267-273.	12
Lucke J, Russell, Tooth L, Lee C, Watson M, Byrne G, Wilson A & Dobson A.	Few urban-rural differences in older carers' access to community services. 2008. *Australian Health Review, 32*(4); 684-690.	5
Berecki-Gisolf J, Humphreys-Reid L, Wilson A & Dobson A.	Angina symptoms are associated with mortality in older women with ischemic heart disease. 2009. *Circulation, 120*(23); 2330-2336.	6
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Peeters G, Lips P & Brown WJ.	Changes in physical functioning over 6 years in older women: Effects of sitting time and physical activity. *European Journal of Ageing* (in press).	

6 APPENDIX B: REPORTS PREPARED USING 1921-26 COHORT DATA

6.1 Major Reports (2006 – 2013)

- **Mental Health: Findings from the Australian Longitudinal Study on Women's Health**. (2013). Holden L, Dobson A, Byles J, Loxton D, Dolja-Gore X, Hockey R, Lee C, Chojenta C, Reilly N, Mishra G, McLaughlin D, Pachana N, Tooth L & Harris M. Major report prepared for the Australian Government Department of Health and Ageing. http://www.alswh.org.au/images/content/pdf/major_reports/2013_major%20report%20H.pdf

- **Adherence to health guidelines: Findings from the Australian Longitudinal Study on Women's Health.** (2012). Dobson A, Byles J, Brown W, Mishra G, Loxton D, Hockey R, Powers J, C Chojenta, Hure A, Leigh L, Anderson A. http://www.alswh.org.au/images/content/pdf/major_reports/2012ALSWHMajorReportG.pdf

- **Rural, remote and regional differences in women's health: Findings from the Australian Longitudinal Study on Women's Health.** (2011). Dobson A, Byles J, Dolja-Gore X, Fitzgerald D, Hockey R, Loxton D, McLaughlin D, Pachana N, Powers J, Rich J, Sibbritt D and Leigh Tooth. Major report prepared for the Australian Government Department of Health and Ageing.

  http://www.alswh.org.au/images/content/pdf/major_reports/2011_rural_remote_and_regional_differences_r163.pdf

- **Women, health and ageing: Findings from the Australian Longitudinal Study on Women's Health.** (2010). Byles J, Pachana N, Tooth L, Loxton D, Berecki J, Hockey R, McLaughlin D & Powers J. Major Report prepared for the Australian Government Department of Health and Ageing.

  http://www.alswh.org.au/images/content/pdf/major_reports/2010_women_health_and_ageing_r161.pdf

- **Use and costs of medications and other health care resources: Findings from the Australian Longitudinal Study on Women's Health.** (2008). Byles J, Loxton D, Berecki J, Dolja-Gore X, Gibson R, Hockey R, Robinson I, Parkinson L, Adamson L, Lucke J, Powers J, Young A & Dobson A. Major report prepared for the Australian Government Department of Health and Ageing. http://www.alswh.org.au/images/content/pdf/major_reports/2008_major_report_c_r144.pdf

- **Women's weight: Findings from the Australian Longitudinal Study on Women's Health**. (2007). Adamson L, Brown W, Byles J, Chojenta C, Dobson A, Fitzgerald D, Hockey R, Loxton D, Powers J, Spallek M, Waters B & Watson M. http://www.alswh.org.au/images/content/pdf/major_reports/2007_major_report_b.pdf

- **Trends in Women's Health: Results from the ALSWH – Priority conditions, risk factors and health behaviours**. (2006). Brown W, Byles J, Carrigan G, Dobson A, Dolja-Gore X, Gibson R, Hockey R, Powers J, Russell A, Spallek M & Young A. Major report prepared for the Australian Government Department of Health and Ageing. http://www.alswh.org.au/images/content/pdf/major_reports/2006_major_report_a.pdf

6.2 OTHER REPORTS

Ad hoc analyses for the Office for Older Australians: Australian Longitudinal Study on Women's Health. Report prepared for the Office for Older Australians. September 2000.

Changes in physical and mental health associated with urinary incontinence in older Australian women. Smith N. November 2000.

Report on incontinence in Australian women: Following up participants in the Australian Longitudinal Study on Women's Health who reported 'leaking urine'. Brown W, Miller Y, Smith N, Chiarelli P, Russell A & Dobson A.2001

Screening participant rates on non-English speaking backgrounds: Results from the Australian Longitudinal Study on Women's Health. Report prepared for Breastscreen Queensland and Queensland Health. 2001

Women's waterworks: Managing early stress incontinence through women's health clinics. Lee C, Johnson C & Chiarelli P. Report prepared for Family Planning Australia Health. March 2003.

Incontinence substudy of The Australian Longitudinal Study on Women's Health: Willingness to pay for treatment. Miller Y. November 2002.

Characteristics of Australian women with incontinence according to incontinence severity and treatment-seeking behaviour: Results from the Australian Longitudinal Study on Women's Health. Miller Y. Report prepared for Eli Lily. 2004

Report on selected variables from survey 2 of the younger, mid aged & older cohorts of the Australian Longitudinal Study on Women's Health. Powers J & Howlett M. Report prepared for Women's Health in the North.

Australian women and alcohol consumption 1996-2003. Young A & Powers J. Report prepared for the Australian Government Department of Health & Ageing. November 2004.

Changes report: Transition in selected variables, surveys 1, 2 & 3. Bell S, Ford J, Lee C, Russell A & Svensson A. Report prepared for the Australian Government Department of Health & Ageing.

Changes report 2: Examples from the Australian Longitudinal Study on Women's Health for analysing longitudinal data. Ford J, Dobson A, Young A, Wheway V & Powers J. Report prepared for the Australian Government Department of Health & Ageing.

Report on the provision of data to the Office for Women. Loxton D, Powers J, Young A & Wood A. Report prepared for the Office for Women, Department of Family and Community Services. 2005

Women's experiences of paid work and planning for retirement. Warner-Smith P, Powers J & Hampson A. Report prepared for the Office for Women, Department of Families, Community Services and Indigenous Affairs. 2007

Depression among women in the Australian Longitudinal Study on Women's Health. Byles J, Robinson I, Gibson R, Parkinson L, Loxton D & Young A. Report prepared for the Hunter Medical Research Institute.

Women and arthritis: The burden of suffering for older Australian women. Parkinson L, Byles J, Gibson R & Robinson I. Report prepared for the Hunter Medical Research Institute. March 2007.

Physical activity and health in mid age and older Australian women. Brown WJ, Burton N & Heesch K. Report prepared for the Office for Women, Department of Families, Housing, Communities and Indigenous Affairs. July 2007. ISBN: 978-1-921380-77-8.

Caring for carers: Caring and use of services in women carers born between 1921 and 1926. McKenzie S, Tooth L, Lucke J, Mendis S & Dobson A. Report prepared for the Australian Government Department of Health & Ageing. May 2009.

Transitions into and out of caring and their effects on health and use of community services in women born between 1921 and 1926. McKenzie S, Tooth L, Lucke J, Hockey R & Dobson A. Report prepared for the Australian Government Department of Health & Ageing. September 2009.

Carrying the load: Transitions, needs, and service use of Australian women carers. McKenzie S, Tooth L, Lucke J & Dobson A. Report prepared for the Australian Government Department of Health & Ageing. October 2009.

Needs of spouse carers of World War II veterans before and after widowhood. Tooth L, Hockey R, Dobson A, Treloar S & McClintock C. Report prepared for the Department of Veterans Affairs. May 2011.

7 APPENDIX C: 1921-26 cohort participation details, Survey 1 (1996) to Six Monthly Follow-Up Survey 4 (2013).

Table 7-1 Number of 1921-26 cohort participants completing each survey, and the number still alive at each survey, from Survey 1 to Survey 6 and the first four 6 Month Follow-up Surveys (6MF).

Survey	Number of participants	Number still alive[1]
Survey 1	12, 432	12, 432
Survey 2	10, 434	11, 774
Survey 3	8647	11, 127
Survey 4	7158	10 157
Survey 5	5561	8927
Survey 6	4055	7398
6MF 1	3839	7069
6MF 2	3353	6745
6MF 3	2894	6284
6MF 4	2402	5570

[1] Determined by linkage to National Death Index (NDI).