CMVH
CENTRE FOR MILITARY & VETERANS' HEALTH

Needs of Spouse Carers of World War II Veterans Before and After Widowhood

Project Report 4, June 2011

Prepared for the Australian Department of Veterans' Affairs

Dr Leigh Tooth, Richard Hockey, Professor Annette Dobson, Associate Professor Susan Treloar and Dr Christine McClintock

Australian Government
Department of Defence
Department of Veterans' Affairs

The University Of Queensland
AUSTRALIA

Charles Darwin
UNIVERSITY
Innovation in Education

The University of Adelaide
AUSTRALIA

Table of Contents

List of Tables

List of Figures

Abbreviations

ALSWH	Australian Longitudinal Study on Women's Health
CL	Confidence limit
DVA	Department of Veterans' Affairs
GADS	Goldberg Anxiety and Depression Scale
GP	General Practitioner
SF-36	Medical Outcomes Study Short Form 36 Health Survey
TPI	Totally and Permanently Incapacitated (Pension)
DP	Other Disability Pension
MBS	Medical Benefits Scheme
PBS	Pharmaceutical Benefits Scheme

Executive summary

The overall aim of this project was to compare the health and use of health services of women in their 70's and 80's who are DVA Gold Card holders, or wives of DVA Gold Card holders, with similarly aged women in the general community who have no connections with DVA. The data are from the Australian Longitudinal Study on Women's Health (ALSWH) which includes a random sample of over 10,000 women born in 1921-26. They were recruited in 1996 and have been followed up every three years since then. The survey data were used to describe the women's physical and mental health, and their use of health and aged care services over time in relation to if or when they were widowed, and their social and economic circumstances.

The specific questions of interest to the Department of Veterans' Affairs were:

1. Does having a Gold Card affect women's health?
2. Does widowhood (including transitioning into widowhood) have an effect on health that might be impacted by DVA support?

Project report 4 focuses particularly on the second of these two questions.

Only ALSWH participants who were married at the baseline survey in 1996 and were widowed by Survey 4 in 2005 were included in these analyses (i.e., women who were already widowed, had never married, or were separated or divorced at baseline, or who were not widowed by 2005 were excluded).

The health outcomes were physical functioning, mental health, social interaction and anxiety and depression. The health service use outcomes were high use of general practitioners (i.e., ≥ 9 visits per year) and whether they had visited a medical specialist. In addition, for ALSWH participants who consented to linkage with 2005 data from the Medical Benefit Scheme (MBS) and Pharmaceutical Benefit Scheme (PBS), health service use outcomes also included total costs of medical services, number of MBS claims, the MBS gap payment by the women, total costs of pharmaceuticals, number of PBS claims, number of PBS scripts presented and the contribution of the women to the costs of their pharmaceuticals.

For each of the outcomes listed above, the analyses compared ALSWH participants who received assistance from DVA as a war widow (Gold Card holders) to ALSWH participants who had no such relationship with DVA. Time since widowhood, i.e., whether they had been widowed within the last three years or for more than three years, was an important explanatory variable. Age at Survey 1, self-rated health as measured at Survey 1 and how well the women reported being able to manage on their available income were included as

covariates in each analysis to control for the potential effects these variables may have had on the outcomes.

The main findings were that

- Recently widowed women (within the first three years of widowhood) were at increased risk for poorer mental health.
- Recently widowed women also experienced higher levels of social interactions.
- Both these effects decreased for widowhood longer than three years.
- There was little evidence that support from DVA impacted these shorter-term psychological and social impacts of widowhood.
- There was no evidence of differences in physical functioning between Gold Card holders and other widows who had no relationship with DVA; however at baseline (i.e. before they were widowed) women with spouses receiving TPI/other disabilities pension had reported worse health (mean SF-36 physical function score approximately 2-3 points lower than the mean scores for other women), so it is possible that DVA support may have helped them to recover and reach similar levels of physical health after widowhood.
- Gold Card holders presented more scripts and had more pharmaceuticals dispensed (based on PBS data) than women with no relationship with DVA. Gold Card holders were also more likely to be high users of GP services (based on self-report), although the odds ratios (effect sizes) were small.
- Number of MBS claims, total costs of medical services and pharmaceuticals (calculated as costs to DVA/Medicare plus gap payments) were, however, similar for Gold Card holders and other widows.
- Some Gold Card holders who have private health insurance have Medicare claims outside the DVA system; around half of these are for eye surgery.

The results presented here are the culmination of a research project conducted over three years funded by DVA. The analyses for this project have comprised detailed investigations of the ALSWH data on the multiple repeated outcomes; for example, self-reported use of health services (detailed in project reports 1, 3, 4), self-reported physical health, mental health and social integration (detailed in project reports 1, 3, 4), and administrative data from Medicare Australia (detailed in project reports 2, 3, 4). In each phase of analysis presented in three previous reports and this report, the findings have been consistent. This consistency, together with the large sample size, and the representativeness of the ALSWH cohort (Lee et al., 2005; Brilleman et al., 2010; Hockey et al., 2011) give us considerable

confidence that the findings reflect the true situation for women in Australia who do, or do not, receive support from the DVA.

In summary, while the mix of health services may differ between Gold Card holders and other widows, the levels of health attained are similar even though the women who received DVA support had reported poorer health at the beginning of the study (i.e., before widowhood).

Background and overall project summary

This research project, titled "Needs of spouse carers of World War II veterans before and after widowhood", was funded by the DVA in October 2008 and received ethical clearance in April 2009.

The overall aim of the research project was to compare the health and use of health services of women in their 70's and 80's who are DVA Gold Card holders, or wives of veterans (who had a total or permanent disability pension (TPI) / disability pension and Gold Card), with similarly aged women in the general community who had no such existing or potential relationship with DVA. The data are from the Australian Longitudinal Study on Women's Health (ALSWH) which includes a random sample of over 10,000 women born in 1921-26. They were recruited in 1996 and have been followed up every three years since then. The data were used to describe the women's physical and mental health, and their use of health and aged care services over time in relation to their roles as carers, if or when they were widowed, and their social and economic circumstances.

The purpose of the project was to provide evidence to inform policy options for DVA.

The first three phases of the research were delivered to DVA as separate reports in November 2009, May 2010 and December 2010. The aims and summaries of the findings of phases 1 to 3 are briefly described below.

2.1. Phase 1

Phase 1 consisted of exploratory comparisons between ALSWH participants who were DVA Gold Card holders, spouse carers of veterans, and those with no such relationship with DVA. The groups were compared on sociodemographic characteristics (e.g., country of birth, area of residence, education), health status indicators (e.g., weight, exercise, ability to perform activities of daily living), medical conditions (e.g., high blood pressure, arthritis, cancer), medical procedures (for e.g., cataract surgery, hip surgery), health service usage (e.g., visits to a GP, specialist, dentist) and health insurance status (i.e., private hospital and ancillary cover).

Summary of findings from phase 1: Little difference was found between women who were DVA Gold Card holders and those who were unconnected to DVA on a wide range of sociodemographic, health status, health service use and health insurance measures. Where differences were found they were expected, for example, that DVA Gold Card holders were more likely to be born in Australia, and to have much lower rates of private hospital or ancillary insurance cover. Women who were DVA Gold Card holders were less likely to have difficulty managing on their income, and were more likely to report visits to a physiotherapist, podiatrist or chiropodist.

There was some evidence that women who were spouses/partnered but did not classify themselves as being a carer for someone may have had slightly poorer health in terms of having a higher prevalence of high blood pressure and more difficulty performing instrumental activities of daily living, but differences on other assessments such as overall health status, physical functioning and prevalence of other medical conditions were not apparent.

2.2. Phase 2

In phase 2, we compared administrative data from Medicare, including the Medical Benefits Scheme (MBS), Pharmaceutical Benefits Scheme (PBS), Repatriation Medical Benefits Scheme (RMBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS) for DVA Gold Card holders, spouses of veterans and women unconnected to DVA. For these analyses, linked data between ALSWH participants who consented to linkage and MBS/PBS were used for the 2005 calendar year. The MBS services compared were total costs of medical care (including gap payment), number of MBS claims, and the total amount of gap payment made by ALSWH participants for medical services. The total cost to the DVA and total number of claims made to DVA were also analysed. The PBS services compared were total costs of pharmaceuticals, total number of PBS claims, total number of scripts presented to the PBS and the total amount of co-payment made by ALSWH participants for pharmaceuticals.

Summary of findings from phase 2: For all the comparable data analysed, we found that the numbers of services or prescriptions used were the same for women in the same demographic groups (i.e., with partners, without partners, whether or not they were caring for their spouses), regardless of the nature of their connection to DVA. While women who were DVA Gold Card holders in their own right did not have out-of-pocket costs for medical and allied health services, this did not appear to increase their use of those services compared with the other study groups who can be charged gap payments.

These results provided some evidence that DVA support for health care services and pharmaceuticals does not increase use among women now in their 80s, but being a DVA Gold Card holder does reduce the personal financial cost of ill health.

2.3. Phase 3

In phase 3 we focussed on changes in health and use of health services associated with becoming a widow. The analyses only involved ALSWH participants who were married at the baseline survey in 1996 and were widowed by survey 4 in 2005 (i.e., women who were already widowed, had never married, or were separated or divorced at baseline, or who were not widowed by 2005 were excluded). The analysis compared ALSWH participants who were DVA Gold Card holders, spouses of DVA Gold Card holders (i.e., the woman would go on to either become Gold Card holders themselves or be eligible for a service pension from DVA when their husband died) and women with no such relationship with DVA.

The main comparisons were between women who received a Gold Card from DVA and those who had no such relationship with DVA, and between women who had experienced widowhood in the last three years (recent widows) and those who were widowed more than three years from the time of the measurements.

Summary of findings from phase 3: The main findings were that recent widowhood was associated with increased risk of poor mental health but better levels of social interaction – regardless of whether or not the women had any relationship with DVA. Women who cared for a husband receiving a TPI pension or other disability pension (DP), and who became Gold Card holders when their husbands died, reported poorer physical health at the beginning of the study (i.e., before they were widowed) than other women. Nevertheless they fared as well through the widowhood transition as women not associated with DVA although, like other gold cardholders, they were higher users of GP services. Clearly the stress of widowhood impacts greatly on women and it is possibly unrealistic to expect that DVA support could alleviate the effects over a three-year period. The data used for this analysis are not suitable for assessing shorter-term impacts, e.g., over 12 months because women are only surveyed every 3 years. However there was evidence that women who cared for a husband receiving a TPI pension / other disability pension, despite poorer initial health, were able to cope as well with widowhood as other women and it is possible that without DVA support they might not have managed as well.

2.4. Phase 4

In phase 4 we focused only on ALSWH participants who would become Gold Card holders when they were widowed. The specific questions of interest to the DVA were:

1. Does having a Gold Card affect women's health?
2. Does widowhood (including transitioning into widowhood) have an effect on health that might be impacted by DVA support?

This report describes the findings of the fourth and final phase of the research project.

Introduction to Project Report 4

The aim was to examine changes over time in self-reported health and use of health care services from 1996 to 2005, and actual use of medical and pharmaceutical services in 2005, for women who are DVA Gold Card holders before and after widowhood. The analyses only involved ALSWH participants who were married at the baseline survey in 1996 and were widowed by Survey 4 in 2005 (i.e., women who were already widowed, had never married, or were separated or divorced at baseline, or who were not widowed by 2005 were excluded).

Two analytical approaches were used, longitudinal and cross-sectional.

Longitudinal analyses

Longitudinal analyses (capturing change over time) were used to measure health and health service use outcomes in relation to becoming widowed and whether widows received support from DVA.

The explanatory or predictor variables in the analyses were:

1. Whether the women were married to a veteran and would go on to become a war widow with a Gold Card when their husband died, or had no such relationship with DVA.

2. Time of widowhood, i.e., whether they had been widowed ≤ 3 years or > 3 years.

The self-reported health outcome variables were change over time in:

1. Physical functioning
2. Mental health
3. Social interaction
4. Anxiety and depression

The health service use outcomes were the proportion of women who had:

1. High use of general practitioners (GPs) (i.e., ≥ 9 visits per year)
2. Visited a medical specialist

Cross-sectional analyses

For ALSWH participants who consented to linkage with the Medical Benefit Scheme (MBS) and Pharmaceutical Benefit Scheme (PBS) data in 2005, a set of cross-sectional analyses were conducted. These cross-sectional analyses used data from one survey only, Survey 4 in 2005. The MBS and PBS health service use outcomes were:

1. Total costs of medical services in the 2005 calendar year
2. Number of MBS claims in the 2005 calendar year
3. MBS gap payment by the women in the 2005 calendar year
4. Total costs of pharmaceuticals in the 2005 calendar year
5. Number of PBS claims in the 2005 calendar year
6. Number of PBS scripts presented by women in the 2005 calendar year
7. Costs to the women (i.e., their co-contribution) of pharmaceuticals in the 2005 calendar year.

Data used and sample size

4.1. Definitions used

As the focus of Project Report 4 was on the health effects of becoming widowed, only ALSWH participants who were married at Survey 1 and had become widowed by Survey 4 were included in the analyses.

The project team, in consultation with DVA, agreed on the following definitions to be used to define DVA support.

Table 0-1 Definitions used for analyses of married women at Survey 1 who became widowed by Survey 4 and numbers available for analyses.

DVA status	Definition	ALSWH women total N
Spouse TPI/DP	Woman's husband received TPI pension or other disability pension and had a Gold Card	541
Not DVA	ALSWH participants with no connection to DVA, either themselves or through their husbands (including no service pension)	914
Total		**1455**

TPI - Total and permanently incapacitated; DP – other disability pension

4.2. Classification of the ALSWH participants

Table 0-1 shows the transitions of women into widowhood across the surveys which are conducted at 3-yearly intervals. The women are grouped by whether or not they had a relationship with (i.e., would receive support from) DVA.

At Survey 1, all the women were married. Of these women, 541 had a relationship with DVA through their husbands (see Table 0-1) and 914 had no such relationship with DVA. At Survey 2, the women were either married or had become widowed. By Survey 3, the women could either be married, been widowed for more than three years (i.e., between Surveys 1 and 2) or had recently become widowed (i.e., in the three years since Survey 2). By Survey 4, the women could have been widowed for more than three years (i.e., between Surveys 1 and 3) or had recently become widowed (i.e., in the three years since Survey 3). By Survey 4 all of the women were widowed. The numbers of women in each of these categories are shown in Figure 4-1. There was uncertainty about the marital status of some of the women at some surveys: to be included in the analyses their marital status had to be known at two (or more) consecutive surveys.

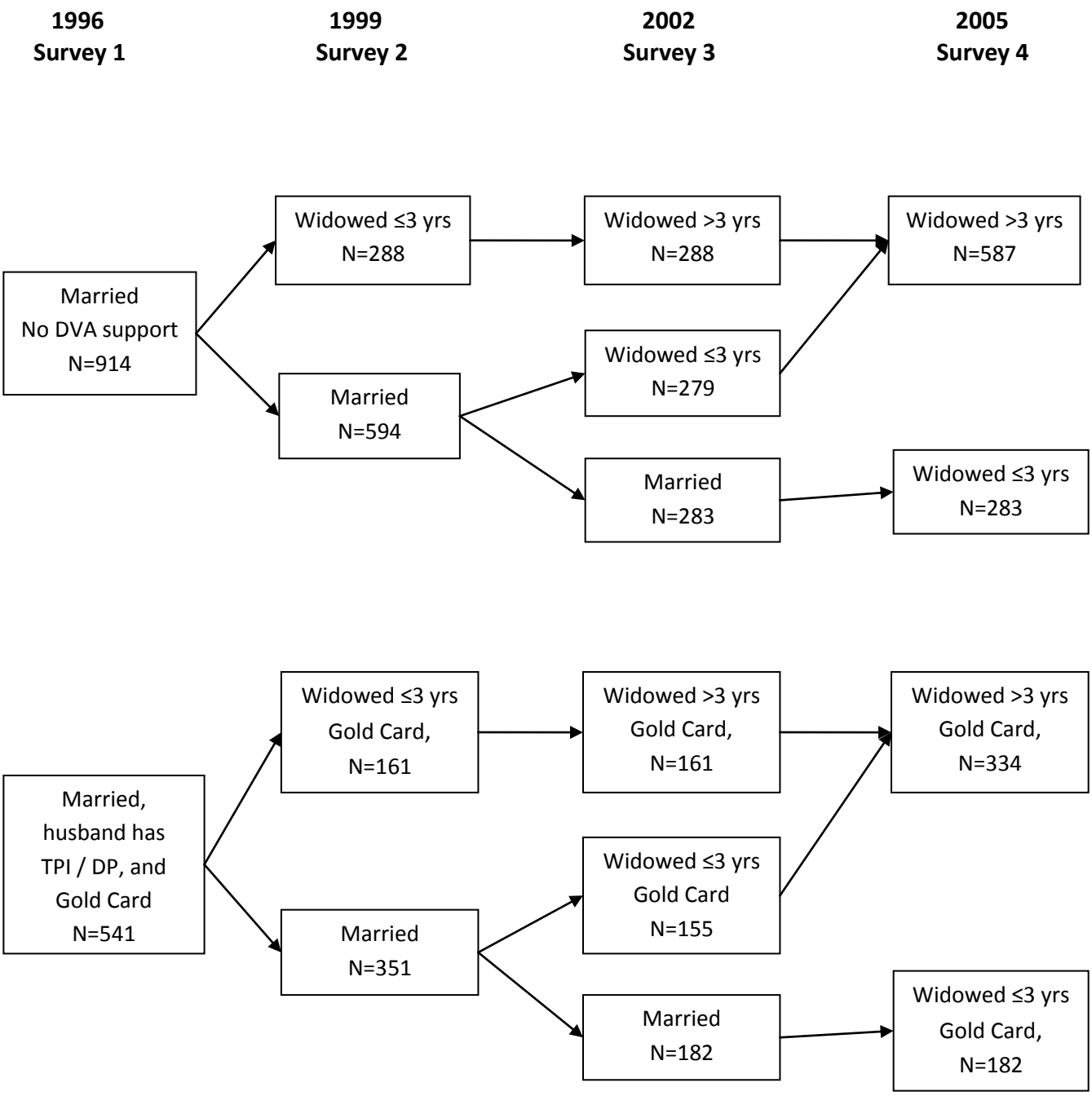

Figure 0-1Transition of ALSWH participants into widowhood from Survey 1 to Survey 4: women grouped by whether they had DVA support and length of widowhood (≤3 or >3 years).

Note 1: The numbers shown here are those used in the analyses – they may not add up across surveys. This is because there was uncertainty about the marital status of some women at some surveys: to be included in the analyses their marital status had to be known at two (or more) consecutive surveys.

Note 2: Data from Survey 4 in 2005 were used to confirm that the women did (or did not) have a Gold Card.

4.3. Overview of outcome and explanatory variables included in analyses

Table 0-2 contains a brief summary of the outcome variables used in these analyses. For more detailed information on the sources of these variables and explanation on their measurement see Appendix 1.

Table 0-2 Outcome variables used

Outcome variable	How measured	Interpretation of variable and scores
Mental health (from SF-36)	Categorical variable	Score <53, indicates poorer mental health Score ≥53, better mental health
Physical functioning (from SF-36)	Continuous scale, range 1-100	Higher score reflects better physical functioning
Social interaction (from DSSI)	Continuous scale, range 4-12	Higher score reflects more social interaction
Anxiety and depression (from GADS)	Continuous scale, range 0-18	Higher score reflects worse anxiety and depression
Self-reported high number of visits to general practitioners in past 12 months	Categorical variable	<9 low users ≥9 high users
Self-reported visits to medical specialists in past 12 months	Categorical variable	Yes No
Total costs of medical services	Continuous variable	Total cost of medical services for 2005 calendar year (includes MBS gap payment) (AU$)
Number of MBS claims	Count	Total number of claims for medical services for 2005 calendar year
MBS gap payment by the women	Continuous variable	Total amount paid by women for medical services for 2005 calendar year (AU$)
Total costs of pharmaceuticals	Continuous variable	Total cost of pharmaceuticals for 2005 calendar year (includes women's contribution) (AU$)
Number of PBS claims	Count	Total number of scripts dispensed in 2005 calendar year
Number of PBS scripts presented	Count	Total number of scripts presented in 2005 calendar year
Women's contribution to cost of pharmaceuticals	Continuous variable	Total amount paid by women in 2005 calendar year (AU$)

Table 0-3 lists potential explanatory variables used in the analyses to control for factors that might affect (or confound) the outcomes. These variables have been identified through extensive analysis of the ALSWH dataset over 14 years to influence health and mortality outcomes. They include factors such as how ALSWH participants rate their own health (from poor to excellent) and ability to manage on their income (from impossible to easy).

Table 0-3 Potential explanatory variables used as covariates in analyses

Variable	Reason for choice
Age in years at survey 1	Age is closely correlated with health
Survey number	To account for changes over time
Self-rated health	5 point ordinal scale from 'poor' to 'excellent'
Ability to manage on available income	5 point ordinal scale from 'impossible' to 'easy'

In this project we identified that DVA Gold Card holders were less likely than women with no such relationship with DVA to find it impossible/ always difficult /sometimes difficult to manage on their income (12.7% versus 24.4%, respectively). Because 'manage on income' was associated both with the health and health service use outcomes and with being a DVA Gold Card holder, all analyses were run with and without adjusting for 'manage on income'.

Methods for the analyses

For all analyses, whether the women had DVA support and duration of widowhood (≤ 3 years or > 3 years) were the comparisons of interest. The combinations of these four groups of widows were:

1. Gold Card holder, widowed >3 years *versus* Gold Card holder, widowed ≤3 years
2. Not DVA, widowed >3 years *versus* not DVA, widowed ≤3 years
3. Gold Card holder, widowed >3 years *versus* not DVA, widowed >3 years
4. Gold Card holder, widowed ≤3 years *versus* not DVA, widowed ≤3 years

5.1. Methods for the longitudinal analyses

The longitudinal modelling involved simultaneously analysing data from different surveys but the same groups. For example, to compare recently widowed Gold Card holders with recent widows not connected to DVA the data from successive surveys were used: Gold Card holder, widowed ≤3 years (numbers are 161 + 155 + 182) versus not DVA, widowed ≤3 years (numbers are 288 + 279 + 283) – see Figure 4-1.

Change scores in the continuous outcomes (physical functioning and social interaction), were created by computing difference scores between surveys, e.g. Surveys 2 and 3, or Surveys 3 and 4. For anxiety and depression (GADS), only one change score could be computed as this scale was only used at Surveys 3 and 4.

For the categorical outcomes, the proportion of women who had the outcome of interest (i.e., poorer mental health (SF-36 score <53), ≥9 GP visits, medical specialist visit) at each survey was analysed.

Analyses included adjustment for some or all of the explanatory variables listed in Table 0-3.

For continuous outcomes (physical functioning, social interaction, anxiety and depression (GADS)), change scores (and confidence limits) are reported. For categorical outcomes (mental health (SF-36), GP and medical specialist visits) odds ratios (and confidence limits) are reported.

Detailed results of the longitudinal analyses are given in Appendix 2. Statistically significant results are presented in section 6.

5.2. Methods for the cross-sectional analyses

Only the data for the 929 ALSWH women who consented to data linkage with MBS and PBS, and who were married at Survey 1 and widowed by Survey 4, were included in these analyses. Of these 929 women, 567 (61%) had no relationship to DVA and 362 (39%) had a relationship. Of note, the consent rates for data linkage for the two groups of women were similar: 62% of women with no relationship to DVA consented, and 67% of women with a relationship to DVA consented.

For the MBS and PBS health service use outcomes in 2005, the mean number (and confidence limits) of MBS claims, PBS claims and scripts presented, and the mean total (and confidence limits) costs for medical services, costs for pharmaceuticals and amount of the women's contribution to pharmaceuticals are reported. For the MBS gap payment, the data were extremely skewed because the majority of Gold Card holders did not have any gap payment. Thus, for this analysis, the outcome was dichotomised into whether a gap payment was made or not, and odds ratios (and confidence limits) are reported. All these analyses were adjusted for the women's age at survey 1, the women's ability to manage on their available income at Survey 4, and their self-rated health at Survey 1.

Detailed results of the cross-sectional analyses are given in Appendix 2. Statistically significant results are presented in section 7.

5.3. Further analysis of Gold Card holders receiving Medicare benefits

During the study it was noticed that there were a small number of medical claims where the benefits were paid by Medicare rather than DVA. Therefore, an additional descriptive analysis of these cases was conducted. The results are presented at the end of section 7.

Results for the longitudinal analyses

6.1. Longitudinal analyses of change in physical functioning.

This analysis showed no statistically significant differences between the DVA/widowhood groups for change in physical functioning scores after adjustment for several factors including level of physical functioning at baseline (p = 0.485). Table A1 and Table A2 in Appendix 2 show the summary statistics of this analysis. The results were the same whether or not the potentially confounding variable 'manage on income' was included.

6.2. Longitudinal analyses of mental health (SF-36) scores

The longitudinal analysis showed that the four groups had statistically significant odds ratios of having a mental health score <53 (p < 0.0001). Table 0-1 shows the odds ratios (95% CLs) for having a mental health score <53 (poor mental health) for the comparisons between the four groups of widows. Table A**3** in Appendix 2 shows the summary statistics of this analysis.

Table 0-1 Odds ratios for poor mental health for comparisons between the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Odds Ratio	Lower 95% CL	Upper 95% CL	P
1. Gold Card holder, widowed > 3 years *versus* Gold Card holder, widowed ≤ 3 years	0.27	0.15	0.51	<0.0001
2. Not DVA, widowed > 3 years *versus* not DVA, widowed ≤ 3 years	0.51	0.33	0.78	0.002
3. Gold Card holder, widowed ≤ 3 years *versus* not DVA, widowed ≤ 3 years	1.33	0.89	1.99	0.168
4. Gold Card holder, widowed > 3 years *versus* not DVA, widowed > 3 years	0.72	0.38	1.36	0.308

Adjusted for baseline value, survey, manage on income, self-rated health and age

Two of the main comparisons were statistically significant. Gold Card holders who had been widowed for longer (>3 years) had only 0.27 the odds of having poor mental health compared to Gold Card holders who had been widowed more recently (within the last 3 years). Secondly, women with no relationship to DVA who had been widowed for longer (>3 years) had only half the odds of having poor mental health compared to women with no relationship to DVA who had been widowed more recently (within the last three years). The results were the same whether or not the potentially confounding variable 'manage on income' was included.

This suggests that recent widowhood, not relationship with DVA, is more likely to be linked to poor mental health, with recent widows having greater risk than longer term widows.

6.3. Longitudinal analyses of change in social interaction

The longitudinal analysis showed differences between the four groups in change in social interaction scores over time ($p < 0.0001$). Table 0-2 shows the estimated change scores. As outlined in Table 0-2, a higher score on the social interaction dimension of the DSSI indicates better social interaction. Therefore, a positive change score indicates increasing levels of social interaction. Table A4 in Appendix 2 shows the summary statistics of this analysis.

Table 0-2 Change in social interaction scores between consecutive surveys for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Average change	Difference	Lower 95% CL	Upper 95% CL	P
1. Gold Card holder, widowed > 3 years *versus* Gold Card holder, widowed ≤ 3 years	-0.13 0.32	0.45	0.26	0.64	<0.0001
2. Not DVA, widowed > 3 years *versus* not DVA, widowed ≤ 3 years	-0.14 0.48	0.62	0.47	0.77	<0.0001
3. Gold Card holder, widowed ≤ 3 years *versus* not DVA, widowed ≤ 3 years	0.32 0.48	0.16	0.00	0. 33	0.048
4. Gold Card holder, widowed > 3 years *versus* not DVA, widowed > 3 years	-0.13 -0.14	0.01	-0.16	0.17	0.942

Adjusted for survey, manage on income, self-rated health and age

Both groups of women who recently became widows showed increased change scores indicating more social interaction than longer term widows (>3 years, $p<0.0001$). However, the increase was slightly less for women who became Gold Card holders ($p=0.048$).

For women who had been widowed longer there was no difference in change scores between women who had become Gold Card holders and women without a relationship to DVA ($p=0.942$). The results were the same whether or not the potentially confounding variable 'manage on income' was included.

These results suggest that recency of widowhood, rather than relationship with DVA, is also linked to increased social interaction.

6.4. Analysis of change in anxiety and depression (GADs)

The longitudinal analysis showed differences between the groups in GADS scores between surveys 3 and 4 ($p < 0.0001$) (see Table 0-3). As outlined in Table 0-2, a higher score on the GADS indicates worse anxiety and depression. Therefore, a positive change score indicates worsening levels of anxiety and depression. Table A5 in Appendix 2 shows the summary statistics of this analysis.

Table 0-3 Change in GADS scores for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Average change	Difference	Lower 95% CL	Upper 95% CL	P
1. Gold Card holder, widowed > 3 years *versus* Gold Card holder, widowed ≤ 3 years	0.10 0.32	0.22	-0.33	0.77	0.426
2. Not DVA, widowed > 3 years *versus* not DVA, widowed ≤ 3 years	0.18 0.82	0.64	0.21	1.074	0.004
3. Gold Card holder, widowed ≤ 3 years *versus* not DVA, widowed ≤ 3 years	0.32 0.82	0.50	-0.06	1.067	0.080
4. Gold Card holder, widowed > 3 years *versus* not DVA, widowed > 3 years	0.10 0.18	0.08	-0.34	0.50	0.693

Adjusted for survey, manage on income, self-rated health and age

The main finding was that for women with no relationship with DVA, those who were recently widowed had higher GADS scores, indicating higher levels of anxiety and depression compared to those who had been widowed longer ($p = 0.004$). For Gold Card holders changes in GADS scores were smaller and there was little difference between recent and longer term widows. The results were the same whether or not the potentially confounding variable 'manage on income' was included.

6.5. Longitudinal analyses of self-reported numbers of visits to GPs

The longitudinal analysis showed significantly different odds of reporting ≥ 9 visits (representing a 'high user') to a GP (p = 0.0115), see Table 0-4. Table A6in Appendix 2 shows the summary statistics of this analysis.

Table 0-4 Odds ratios of reporting ≥ 9 visits to a GP for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Odds Ratio	Lower 95% CL	Upper 95% CL	P
1. Gold Card holder, widowed > 3 years *versus* Gold Card holder, widowed ≤ 3 years	1.22	0.93	1.61	0.152
2. Not DVA, widowed > 3 years *versus* not DVA, widowed ≤ 3 years	1.16	0.92	1.47	0.217
3. Gold Card holder, widowed ≤ 3 years *versus* not DVA, widowed ≤ 3 years	1.34	1.03	1.74	0.027
4. Gold Card holder, widowed > 3 years *versus* not DVA, widowed > 3 years	1.41	1.08	1.85	0.012

Adjusted for survey, manage on income, self-rated health and age

These analyses showed significantly higher odds of being a high user of GP services for Gold Card holders compared to women with no relationship with DVA for both recent widows and those who had been widowed longer. While these odd ratios were significant, they were not strong (i.e., the effect size was not large). The results were the same whether or not the potentially confounding variable 'manage on income' was included.

6.6. Longitudinal analyses of self-reported visits to medical specialists

This analysis showed no statistically significant differences between the groups in odds of reporting visiting a medical specialist (p = 0.074). Table A7and Table A8 in Appendix 2 show the summary statistics of this longitudinal analysis. The results were the same whether or not the potentially confounding variable 'manage on income' was included.

Results for the cross-sectional analyses

7.1. Cross-sectional analysis of total costs of medical services in 2005 calendar year

This analysis showed no statistically significant differences between the groups for total costs of medical services ($p = 0.641$); total costs include the cost to the government and any gap payment paid by the ALSWH participants. For all women, regardless of whether they were Gold Card holders or had no relationship with DVA or how long they had been widowed, the average cost of medical services among the four groups ranged from $1070 to $1265 in the 2005 calendar year. Table A9 and Table A10 in Appendix 2 show the summary statistics of this analysis. The results were the same whether or not the potentially confounding variable 'manage on income' was included.

7.2. Cross-sectional analysis of total number of MBS claims in 2005 calendar year

This analysis showed no statistically significant differences between the groups for total number of MBS claims ($p = 0.076$). For all women, the mean number of claims among the groups ranged from 21 to 27. Table A11 and Table A12 in Appendix 2 show the summary statistics of this analysis. The results were the same whether or not the potentially confounding variable 'manage on income' was included.

7.3. Cross-sectional analysis of whether women paid a MBS gap in 2005 calendar year

Table 0-1 shows there were very large and statistically significant odds ratios for having no gap payments for MBS items ($p<0.0001$). This result is as expected, because Gold Card holders are much less likely to have to make gap payments – in principle all their expenses should be covered by DVA. Table A13 in Appendix 2 shows the summary statistics of this analysis. Further analysis of why Gold Card holders had any gap payments is provided in section 7.8.

Table 0-1 Odds ratios for no MBS gap payment in 2005 calendar year for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Odds ratio	Lower 95% CI	Upper 95% CI	P
1. Gold Card holder, widowed > 3 years *versus* Gold Card holder, widowed ≤ 3 years	2.09	0.85	5.10	0.108
2. Not DVA, widowed > 3 years *versus* not DVA, widowed ≤ 3 years	1.28	0.75	2.20	0.362
3. Gold Card holder, widowed ≤ 3 years *versus* not DVA, widowed ≤ 3 years	46.5	21.3	101.9	<0.0001
4. Gold Card holder, widowed > 3 years *versus* not DVA, widowed > 3 years	75.5	36.6	155.9	<0.0001

Adjusted for self-rated health, age, and manage on income

The results were the same whether or not the potentially confounding variable 'manage on income' was included.

7.4. Cross-sectional analysis of total costs of pharmaceuticals in 2005 calendar year

This analysis showed no statistically significant differences between groups for total costs of pharmaceuticals (p = 0.329); total costs include the cost to the government and any co-contribution paid by the ALSWH participants. The average cost of pharmaceuticals among the groups ranged from $868 to $1024 in the 2005 calendar year. Table A14 and Table A15 in Appendix 2 show the summary statistics of this analysis. The results were the same whether or not the potentially confounding variable 'manage on income' was included.

7.5. Cross-sectional analysis of total number of PBS claims (pharmaceuticals dispensed) in 2005 calendar year

While this analysis overall was not statistically significant (p=0.098), a small significance difference was found for numbers of PBS claims between the groups for one of the comparisons (see Table 0-2). The difference was that Gold Card holders who had been widowed for more than three years had more claims than women without a relationship to DVA who had also been widowed for more than three years (38.7 versus 32.9 claims for 2005; p=0.034). Table A16 in Appendix 2 shows the summary statistics of this analysis.

Table 0-2 Mean number of PBS claims in 2005 for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Claims	Lower 95% CI	Upper 95% CI	P
1. Gold Card holder, widowed > 3 years	38.8	33.5	45.0	0.974
versus Gold Card holder, widowed ≤ 3 years	38.7	34.6	43.3	
2. Not DVA, widowed > 3 years *versus*	38.1	33.2	43.8	0.090
not DVA, widowed ≤ 3 years	32.9	29.9	36.3	
3. Gold Card holder, widowed ≤ 3 years	38.8	33.5	45.0	0.856
versus not DVA, widowed ≤ 3 years	38.1	33.2	43.8	
4. Gold Card holder, widowed > 3 years	38.7	34.6	43.3	0.034
versus not DVA, widowed > 3 years	32.9	29.9	36.3	

Adjusted for self-rated health, age, and manage on income

The results were the same whether or not the potentially confounding variable 'manage on income' was included.

7.6. Number of PBS scripts presented by women in 2005 calendar year

This analysis also showed that the groups presented a significantly different mean number of PBS scripts in 2005 (p=0.003) (see Table 0-3). The main difference was that women with no relationship with DVA and widowed more than three years presented 2-3 fewer claims than the other three groups. More recent widows (≤ 3 years) with no relationship with DVA also presented slightly fewer PBS claims. Table A17 in Appendix 2 shows the summary statistics of this analysis.

Table 0-3 Mean number of PBS scripts in 2005 for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Scripts	Lower 95% CI	Upper 95% CI	P
1. Gold Card holder, widowed > 3 years	15.3	13.4	17.4	0.919
versus Gold Card holder, widowed ≤ 3 years	15.2	13.7	16.7	
2. Not DVA, widowed > 3 years *versus*	14.5	12.8	16.4	0.024
not DVA, widowed ≤ 3 years	12.2	11.2	13.3	
3. Gold Card holder, widowed ≤ 3 years	15.3	13.4	17.4	0.558
versus not DVA, widowed ≤ 3 years	14.5	12.8	16.4	
4. Gold Card holder, widowed > 3 years	15.2	13.7	16.7	0.001
versus not DVA, widowed > 3 years	12.2	11.2	13.3	

Adjusted for self-rated health, age, and manage on income

The results were the same whether or not the potentially confounding variable 'manage on income' was included.

7.7. Costs to the women (their co-contribution) of pharmaceuticals in 2005 calendar year.

This analysis showed no statistically significant differences between the groups for the amount of their contribution to the costs of their pharmaceuticals in the 2005 calendar year ($p = 0.595$). The average cost of pharmaceuticals among the groups ranged from $149 to $168 in 2005. Table A18 and Table A19 in Appendix 2 show the summary statistics of this analysis. The results were the same whether or not the potentially confounding variable 'manage on income' was included.

7.8. Further analysis of Gold Card holders receiving Medicare benefits

Amongst Gold Card holders there were small numbers of medical claims where the benefits were paid by Medicare rather than DVA and the women made gap payments.

Among all ALSWH participants born in 1921-26 there were 848 women who consented to linkage with Medicare Australia data and who were identified as holding a DVA Gold Card; some of them may already have been widowed at Survey 1. For these women, around 5% of their claims during 2005 were paid by Medicare. While this proportion was small the actual number of women involved was not, with 316 women or 37% of this cohort having at least one claim paid by Medicare.

A possible explanation is that they had been recently widowed and only recently qualified for a Gold Card, however this is not the case as almost all these women were widowed before 2005.

Another explanation could be that they were not in fact Gold Card holders, but examination of their claims showed that almost all (96%) also had claims paid by DVA, so they were in fact DVA Gold Card holders.

The most likely explanation is that women were choosing to have services outside the DVA system, probably due to being able to choose the provider or to avoid waiting times. If the women had private health insurance they would have such choices. An examination of women's private health insurance status tends to confirm this hypothesis. Of the 848 Gold Card holders, 57 (3%) had private insurance. Amongst Gold Card holders with private health insurance 15% of their claims and 24% of the total costs were paid by Medicare. Also, among Gold Card holders with private health insurance the average Medicare cost and gap payments were much higher, $759 and $254 (respectively) compared to $253 and $5 for uninsured Gold Card holders.

Examination of the most common Medicare items involved indicate that these claims tended to be for high cost in-hospital procedures with almost half of the gap payments and half the total cost being for eye surgery.

Discussion and Conclusions

Phase 4 of this research project focussed on changes in health and use of health services associated with becoming a widow. The comparisons were between women who received a Gold Card from DVA and those who had no relationship with DVA, and between women who had experienced widowhood in the last three years (recent widows) and those who were widowed during the study period but more than three years from the time of the measurements.

The longitudinal data from the ALSWH showed that participants had poorer mental health, but better levels of social interaction within the first three years of being widowed than later in widowhood. Gold Card holders had similar levels of physical functioning, mental health, social interaction and anxiety and depression as widows who had no relationship with DVA at similar stages of widowhood. These findings replicate those in the previous phases of this research project (project reports 1 and 3). The important finding from the current report is that having a Gold Card did not appear to affect women's mental health, social interaction or anxiety and depression. Rather, these outcomes were more influenced by recency of widowhood.

In phase 3 (project report 3) we showed that women who cared for a husband receiving a TPI/other disability pension, and who became Gold Card holders when their husband died, reported poorer physical health at the beginning of the study (i.e., before they were widowed) than other women. Nevertheless they fared as well through the widowhood transition as women not associated with DVA. Clearly the stress of widowhood impacts greatly on women and it is possibly unrealistic to expect that DVA support could alleviate the effects over a three-year period. The data used for this analysis are not suitable for assessing shorter-term impacts, e.g., over 12 months because ALSWH surveys are conducted every three years. However there was evidence that women who cared for a husband receiving a TPI/other disability pension, despite poorer initial health, were able to cope as well with widowhood as other women and it is possible that without DVA support they might not have managed as well.

In phase 2 (project report 2) we showed the use of health services (medical and pharmaceutical) to be the same for ALSWH participants regardless of their relationship with DVA. For project report 2 however, the ALSWH participants were split into seven groupings, depending upon their own and their husband's, relationship to DVA and by marital status. In the current report we only included women who became widowed, and among those associated with DVA only those who became Gold Card Holders. In the current analysis, widows with a Gold Card were more likely to report being high users of GP services, although the odds ratios (effect sizes) were small. This is possibly unsurprising as Gold Card holders do not pay a MBS gap.

Gold Card holders, in particular those who had been widowed for longer, presented more PBS scripts and had higher PBS claims than women who were not Gold Card holders. Despite this, the total costs of pharmaceuticals for the women in 2005 were similar, possibly suggesting that the type of pharmaceuticals prescribed for Gold Card holders are less expensive.

The results presented here are the culmination of a research project conducted over three years funded by DVA. The analyses for this project have comprised detailed investigations of the ALSWH data on the multiple repeated outcomes, for example, self-reported use of health services, detailed in project reports 1-3, and administrative data from Medicare Australia. In each phase of analysis presented in three previous reports and this report, the findings have been consistent. This consistency, together with the large sample size, and the representativeness of the ALSWH cohort (Lee et al., 2005; Brilleman et al., 2010; Hockey et al., 2011) give us considerable confidence that the findings reflect the true situation for women in Australia who do, or do not, receive support from the DVA.

References

Brilleman SL, Pachana NA, & Dobson AJ. The impact of attrition on the representativeness of cohort studies of older people. *BMC Medical Research Methodology*, 2010; 10:71 doi:10.1186/1471-2288-10-71

Goldberg D, Bridges K, Duncan-Jones P, & Grayson D. Detecting anxiety and depression in general medical settings. *Br Med J,* 1988; 297:897-899.

Haywood K & Garratt A. Quality of life in older people: A structured review of generic self-assessed health instruments*. Qual Life Res,* 2005;14:1651-68.

Hockey R, Tooth L, & Dobson A. Relative survival as a means to assess generalizability in longitudinal studies of health in older persons. *Emerging Themes in Epidemiology*, 2011, 8:3 doi:10.1186/1742-7622-8-3

Koenig HG, Weslund RE, George LK, Hughes DC, Blazer DG, & Hybels C. Abbreviating the Duke Social Support Index for use in chronically ill elderly individuals. *Psychosomatics,* 1993; 34:61-69.

Lee C, Dobson AJ, Brown WJ, Bryson L, Byles J, Warner-Smith P, & Young AF. Cohort Profile: The Australian Longitudinal Study on Women's Health. *International Journal of Epidemiology,* 2005; 34: 987-991

McCallum J. The SF 36 in an Australian sample: Validating a new, generic health status measure*. Aust J Public Health,* 1995;19:160-6.

Powers J, Goodger B, & Byles J. Assessment of the abbreviated Duke Social Support Index in a cohort of older Australian women. *Australas J Ageing*, 2004;23:71-76.

Ware JE, et al., *SF-36 Health Survey: Manual and interpretation guide*. 1993. The Health Institute, New England Medical Center: Boston, MA.

Young A, Dobson A, & Byles J. Health services research using liked records: who consents and what is the gain. *Aust NZ J Public Health*, 2001; 25(5):417-420.

Appendix 1 Measurement of outcome variables

Mental health

To gain a more complete picture of the women's mental health, this was assessed using two instruments as described below.

Mental health (SF-36)

Mental health was assessed using the mental health subscale of the Medical Outcomes Study 36-item Short Form Health Survey Version 1 (SF-36 Australian Version) (McCallum 1995). The SF-36 is a widely used and well validated generic profile measure which examines self-reported health-related quality of life that has been extensively reviewed for use with older populations. A recent structured review of generic self-assessed instruments for community dwelling older people identified the SF-36 as one of three instruments with extensive evidence of internal consistency, test-retest reliability, construct validity, concurrent validity and responsiveness (Haywood et al, 2005). The mental health subscale has a score range of 0 to 100. A mental health value ≤ 53 has been found to be an indicator of poorer mental health (Ware et al, 1993). Therefore, for this study, the mental health scale was dichotomised into < 53 and ≥53.

Anxiety and Depression

Mental health was further assessed using the 18 item Goldberg anxiety and depression symptom inventory (GADS) (Goldberg et al, 1988), an 18 item self-report symptom inventory with "yes" and "no" response options. The GADS is a brief list of items to detect anxiety and depression. The scores range from 0-18 with higher scores indicating more anxiety and depression. Psychometric analysis of ALSWH data has found that the 18-item GADS summed score is a valid and acceptable method of detecting elevated levels of depression and anxiety in the ALSWH cohort born in 1921-26.

Physical health

Physical health was assessed using the physical functioning (PF) subscale of the Medical Outcomes Study 36-item Short Form Health Survey Version 1 (SF-36 Australian Version) (McCallum 1995). The SF-36 is described above. The PF subscale has a score range of 0 to 100. A high score on the PF subscale reflects the ability to walk various distances, climb stairs, dress/bathe, carry groceries and engage in moderate and vigorous levels of activity (Ware et al, 1993).

Social interaction

The abbreviated 10-item version of the Duke Social Support Index (DSSI) (Koenig et al, 1993) was used to measure social support. The scale consists of two dimensions: satisfaction with social support (score range 6-18) and social interaction (score range 4-12), with higher scores indicating more social interaction. Only the social interaction dimension was used in this study. The abbreviated scale has been shown to be an acceptable, reliable and valid brief instrument to include in mailed surveys to community-dwelling older women (Powers et al 2004).

Self-reported number of visits to general practitioners

Self-reported number of general practitioner (GP) visits in the last 12 months was asked at surveys 2 to 4. The participants had the option of answering: none, once or twice, 3 - 4 times, 5 -8 times, 9 – 12 times, 13 – 15 times, 16 – 19 times or 20 or more times. Because the responses were extremely skewed, this was then dichotomised to high users (≥ 9 visits) or low users for use in the analyses. Concordance of this self-report measure with Medicare Australia data was shown to be 83% in the 1921-26 cohort of ALSWH participants (Young et al, 2001).

Self-reported number of visits to medical specialists

Self-reported number of visits to a medical specialist is asked at each survey. The participants have the option of answering: none, once or twice, 3 or 4 times, 5 or 6 times, 7 – 12 times, 13 – 24 times or 25 or more times. Because the responses were extremely skewed, this was then dichotomised to whether the women visited a medical specialist at least once (yes, no) for use in the analyses.

Use of medical and pharmaceutical services

The seven medical and pharmaceutical services outcomes are previously described in Table 0-2. The data for these outcomes was provided by Medicare Australia.

Appendix 2 Results of longitudinal and cross-sectional analyses

This appendix contains the statistical results of the longitudinal analyses of the outcome variables discussed in section 6 and the cross-sectional analyses discussed in section 7.

Longitudinal analyses

Physical functioning

Table A1 Overall results of multiple regression model for physical functioning score

Variable	F (df)	p
DVA/marital status	0.82 (3)	0.485
Survey 1 PF score	74.64 (1)	<0.0001
Age	6.94 (1)	0.008
Survey	17.83 (1)	0.001
Manage on income	2.41 (4)	0.047
Self-rated health	31.06 (4)	<0.0001

Table A2 Multiple regression results for physical functioning for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Average change	Difference	Lower 95% CL	Upper 95% CL	P
1. Gold Card holder, widowed > 3 years *versus* Gold Card holder, widowed ≤ 3 years	-4.55 -6.27	1.72	-0.93	4.38	0.203
2. Not DVA, widowed > 3 years *versus* not DVA, widowed ≤ 3 years	-4.95 -6.08	1.13	-0.98	3.24	0.296
3. Gold Card holder, widowed ≤ 3 years *versus* not DVA, widowed ≤ 3 years	-6.27 -6.08	-0.19	-2.45	2.07	0.868
4. Gold Card holder, widowed > 3 years *versus* not DVA, widowed > 3 years	-4.55 -4.95	0.41	-1.89	2.71	0.730

Adjusted for survey, manage on income, self-rated health and age

Mental health (SF-36) score of <53

Table A3 Overall results of logistic regression model for mental health scores

Variable	X^2 (df)	p
DVA/marital status	24.05 (3)	<0.0001
Age	1.55 (1)	0.212
Survey	3.87 (1)	0.144
Manage on income	15.60 (4)	0.004

Social interaction

Table A4 Overall results of multiple regression model for social interaction scores

Variable	F (df)	p
DVA/marital status	26.09 (3)	<0.0001
Survey 1 DSSI score	49.59 (1)	<0.0001
Age	0.42 (1)	0.519
Survey	13.67 (1)	0.0002
Manage on income	1.19 (4)	0.315
Self-rated health	4.77 (4)	0.0008

Anxiety and Depression (GADS)

Table A5 Overall results of multiple regression model for GADS

Variable	F (df)	p
DVA/marital status	3.59 (3)	0.013
Survey 3 GAD score	393.46 (1)	<0.0001
Age	0.03 (1)	0.858
Manage on income	3.09 (4)	0.015
Self-rated health	36.17 (4)	<0.0001

Visits to GPs (≥9)

Table A6 Overall results of logistic regression model for GP visits

Variable	X^2 (df)	p
DVA/marital status	11.04 (3)	0.0115
Age	0.02 (1)	0.878
Survey	2.36 (1)	0.307
Manage on income	16.41 (4)	0.0025
Self-rated health	162.33 (4)	<0.0001

Visits to medical specialist

Table A7 Overall results of logistic regression model for specialist visits

Variable	X^2 (df)	p
DVA/marital status	6.92 (3)	0.074
Age	0.80 (1)	0.370
Survey	6.27 (1)	0.044
Manage on income	2.32 (4)	0.676
Self-rated health	103.40 (4)	<0.0001

Table A8 Logistic regression model results of visits to a medical specialist for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Odds Ratio	Lower 95% CL	Upper 95% CL	P
1. Gold Card holder, widowed > 3 years *versus* Gold Card holder, widowed ≤ 3 years	0.84	0.64	1.09	0.189
2. Not DVA, widowed > 3 years *versus* not DVA, widowed ≤ 3 years	0.83	0.67	1.03	0.094
3. Gold Card holder, widowed ≤ 3 years *versus* not DVA, widowed ≤ 3 years	1.17	0.92	1.48	0.188
4. Gold Card holder, widowed > 3 years *versus* not DVA, widowed > 3 years	1.18	0.92	1.49	0.189

Adjusted for survey, manage on income, self-rated health and age

Cross-sectional analyses

Total costs for medical services for 2005 calendar year

Table A9 Overall results of multiple regression analysis of total costs for medical services in the 2005 calendar year

Variable	F (df)	p
DVA/marital status	0.56 (3)	0.641
Age	0.34 (1)	0.562
Manage on income	0.36 (4)	0.837
Self-rated health	12.20 (4)	<0.0001

Table A10 Mean total cost of medical services in the 2005 calendar year for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Charge($)	Lower 95% CL	Upper 95% CL	P
1. Gold Card holder, widowed > 3 years *versus* Gold Card holder, widowed ≤ 3 years	1213 1070	968 904	1521 1268	0.384
2. Not DVA, widowed > 3 years *versus* not DVA, widowed ≤ 3 years	1265 1166	1027 1006	1556 1352	0.535
3. Gold Card holder, widowed ≤ 3 years *versus* not DVA, widowed ≤ 3 years	1213 1265	968 1027	1521 1556	0.793
4. Gold Card holder, widowed > 3 years *versus* not DVA, widowed > 3 years	1070 1166	904 1006	1268 1352	0.460

Adjusted for self-rated health, age, and manage on income

Number of MBS claims in the 2005 calendar year

Table A11 Overall results of multiple regression analysis of number of MBS claims

Variable	F (df)	p
DVA/marital status	2.30 (3)	0.076
Age	0.00 (1)	0.957
Manage on income	0.52 (4)	0.521
Self-rated health	19.79 (4)	<0.0001

Table A12 Mean number of MBS claims in the 2005 calendar year for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Claims	Lower 95% CL	Upper 95% CL	P Diff
1. Gold Card holder, widowed > 3 years	25.4	21.7	29.6	0.078
versus Gold Card holder, widowed ≤ 3 years	21.3	19.0	24.0	
2. Not DVA, widowed > 3 years *versus*	26.9	23.3	31.0	0.210
not DVA, widowed ≤ 3 years	24.0	21.7	26.6	
3. Gold Card holder, widowed ≤ 3 years	25.4	21.7	29.6	0.596
versus not DVA, widowed ≤ 3 years	26.9	23.3	31.0	
4. Gold Card holder, widowed > 3 years	21.3	19.0	24.0	0.133
versus not DVA, widowed > 3 years	24.0	21.7	26.6	

Adjusted for self-rated health, age, and manage on income

Whether women paid a gap for medical services in 2005 calendar year

Table A13 Overall results of logistic regression model for MBS gap payment in 2005 calendar year

Variable	F (df)	p
DVA/marital status	220.36 (3)	<0.0001
Age	0.25 (1)	0.619
Manage on income	6.74 (4)	0.150
Self-rated health	6.36 (4)	0.179

Total costs for pharmaceutical services for 2005 calendar year

Table A14 Overall results of multiple regression analysis of total costs for pharmaceutical services in 2005 calendar year

Variable	F (df)	p
DVA/marital status	1.15 (3)	0.329
Age	1.79 (1)	0.533
Manage on income	0.79 (4)	0.837
Self-rated health	15.74 (4)	<0.0001

Table A15 Overall results of multiple regression analysis of total cost of pharmaceuticals in 2005 calendar year for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Cost($)	Lower 95% CL	Upper 95% CL	P
1. Gold Card holder, widowed > 3 years *versus* Gold Card holder, widowed ≤ 3 years	998 1024	816 879	1220 1192	0.844
2. Not DVA, widowed > 3 years *versus* not DVA, widowed ≤ 3 years	1020 868	845 761	1231 989	0.166
3. Gold Card holder, widowed ≤ 3 years *versus* not DVA, widowed ≤ 3 years	998 1020	816 845	1220 1231	0.876
4. Gold Card holder, widowed > 3 years *versus* not DVA, widowed > 3 years	1024 868	879 761	1192 989	0.111

Adjusted for self-rated health, age, and manage on income

Number of PBS claims for 2005 calendar year

Table A16 Overall results of multiple regression analysis of number of PBS claims in 2005 calendar year

Variable	F (df)	p
DVA/marital status	2.83 (3)	0.038
Age	0.37 (1)	0.541
Manage on income	2.06 (4)	0.084
Self-rated health	21.94 (4)	<0.0001

Number of PBS scripts for 2005 calendar year

Table A17 Overall results of multiple regression analysis of number of PBS scripts in 2005 calendar year

Variable	F (df)	p
DVA/marital status	5.43 (3)	0.001
Age	0.22 (1)	0.637
Manage on income	4.04 (4)	0.003
Self-rated health	31.53 (4)	<0.0001

Amount of contribution by the women to the cost of pharmaceuticals for 2005 calendar year

Table A18 Overall results of multiple regression analysis of women's contribution to costs for pharmaceuticals in 2005 calendar year

Variable	F (df)	p
DVA/marital status	0.73 (3)	0.536
Age	1.36 (1)	0.243
Manage on income	0.68 (4)	0.608
Self-rated health	10.84 (4)	<0.0001

Table A19 Overall results of multiple regression analysis of women's contribution to costs for pharmaceuticals in 2005 calendar year for the groups defined by relationship with DVA and recency of widowhood

Comparison Groups	Cost($)	Lower 95% CL	Upper 95% CL	P
1. Gold Card holder, widowed > 3 years	149	129	172	0.843
versus Gold Card holder, widowed ≤ 3 years	151	136	169	
2. Not DVA, widowed > 3 years *versus*	168	146	192	0.247
not DVA, widowed ≤ 3 years	152	138	167	
3. Gold Card holder, widowed ≤ 3 years	149	129	172	0.237
versus not DVA, widowed ≤ 3 years	168	146	192	
4. Gold Card holder, widowed > 3 years	151	136	169	0.958
versus not DVA, widowed > 3 years	152	138	167	

Adjusted for self-rated health, age, and manage on income