

# Chronic Disease and Quality of Life

in Western Australia June 2007



Health Outcomes Assessment Unit,  
Epidemiology Branch Analysis and Performance Reporting



Delivering a Healthy WA

## Acknowledgements

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# Summary of Findings

The SF8,<sup>1</sup> derived from the Medical Outcomes Study Short Form 36 (SF36), is a measure of the effect of physical and mental conditions on functioning in everyday life used to indicate quality of life. The SF8 has the following eight dimensions:

1. Physical Functioning
2. Role Physical
3. Bodily Pain
4. General Health
5. Vitality
6. Social Functioning
7. Role Emotional
8. Mental Health



## Major findings of the report:

People aged 45 years and older without any chronic conditions had higher mean scores for Vitality, Social Functioning, Mental Health and Role Emotional compared with the people aged 16 to 44 years, while mean scores for other factors mainly associated with physical functioning were almost identical.

Having a current mental health condition showed the greatest impact of all the conditions over all the dimensions of the SF8.

Being physically inactive had the greatest impact on SF8 scores independent of the presence of chronic conditions.

## Other findings are:

- Men reported higher levels of Vitality and Mental Health compared with women. This finding was independent of whether or not chronic health conditions were present.
- Older people with chronic conditions showed the greatest decrease in Physical Functioning, while younger people with chronic conditions showed more effect in the Mental Health functioning.
- People who have a respiratory condition other than asthma reported significantly lower scores on the General Health dimensions compared with people who had any other health condition.
- Smoking, physical activity, obesity and having high blood pressure or cholesterol had significant negative impacts on SF8 profiles for people aged 45 years and older.
- Living in areas classified as most socio economically disadvantaged (SEIFA Quintile 1), was associated with lower levels of overall mental and physical functioning. While differences were relatively minor for people without any chronic health conditions, differentials in scores by level of socioeconomic disadvantage increased as the number of chronic conditions increased.

The SF8 is used to describe and compare levels of health and wellbeing within the population.



## 1 Introduction

The purpose of this report is to describe and compare results of the SF8 for the WA population. The SF8, derived from the Medical Outcomes Study Short Form 36 (SF36), is a measure of the effect of physical and mental conditions on functioning in everyday life used to indicate quality of life. The SF8<sup>2</sup> consists of eight questions, each of which measures a different dimension of health. Higher scores indicate better health or level of functioning.

The eight SF8 dimensions and their descriptions are summarised below:

1. **Physical functioning:** how much physical health limits everyday physical activities such as walking or climbing stairs
2. **Role physical:** how much difficulty is experienced doing daily work in the home and away from home because of physical health
3. **Bodily pain:** the amount of bodily pain experienced
4. **General health:** an assessment of overall health
5. **Vitality:** the amount of energy and fatigue experienced
6. **Social functioning:** how much physical health or emotional problems limit usual social activities
7. **Role emotional:** how much personal or emotional problems impact on usual daily work in the home and away from home
8. **Mental health:** the degree to which the respondent is affected by emotional problems (such as feeling anxious, depressed or irritable)

Each of the eight dimensions measured by the SF8 are comparable to the eight scales derived from the SF-36, which prior to the development of the SF8, was a recognised measure of quality of life. The SF36 has been mainly used in clinical settings with individuals to measure effects of treatment on health status and quality of life. The shorter SF8, developed for use with larger groups, allows the inclusion of a valid and reliable self assessed measure of physical and mental wellbeing in large population based surveys. Norms for the SF8 have been developed and are available on the Department of Health (DOH) Internet at the following web address:

[http://www.health.wa.gov.au/publications/pop\\_surveys.cfm](http://www.health.wa.gov.au/publications/pop_surveys.cfm)

The SF8 is used to describe and compare levels of health and wellbeing within the population and is valuable for showing patterns of Mental and Physical Functioning. These taken together allow an assessment of the quality of life in the general population and how this quality of life is affected by demographic characteristics, health conditions and risk factors.

The data from the HWSS have been weighted to correct for the over-sampling in rural and remote areas and adjusted to the age and sex distribution of the 2005 WA Estimated Resident Population (ERP).<sup>3</sup>

Significant differences between groups were assessed using 95% confidence intervals and t-tests. Only statistically significant results are reported. As confidence intervals around estimates for large groups can be quite narrow, relatively small differences in scores may be statistically significant. As a result, not all differences that are statistically significantly different may be of clinical significance.

## 1.1 What this report contains

This report is a descriptive report that explores how demographic characteristics, the presence or absence of chronic health conditions and risk factors affect the eight dimensions of the SF8. There are many confounding variables, which may influence how we function. Tables 1 and 2 present the results of linear regression using summary measures of the SF8. The first is for physical functioning<sup>4</sup> (PCS) and the second is for mental functioning (MCS). These are used as outcome measures and the variables discussed in this report as predictors in the model.

**TABLE 1**

**Linear regression<sup>5</sup> results for PCS using demographic, risk factor and total number of chronic health conditions as predictors**

Model	Unstandardised Coefficients		Standardised Coefficients	t	p	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	52.81	0.29		183.95	0.00	52.25	53.37
Sex	-0.34	0.14	-0.02	-2.50	0.01	-0.61	-0.07
Age	-0.01	0.00	-0.02	-2.46	0.01	-0.02	0.00
Area Health Services	0.05	0.02	-0.02	2.13	0.03	0.00	0.10
<b>Total number of chronic health conditions</b>	<b>-2.91</b>	<b>0.07</b>	<b>-0.31</b>	<b>-39.38</b>	<b>0.00</b>	<b>-3.05</b>	<b>-2.76</b>
Currently smoking	-0.68	0.18	-0.03	-3.75	0.00	-1.04	-0.32
Is obese	-1.15	0.18	-0.05	-6.44	0.00	-1.50	-0.80
Does 150 moderate minutes weekly over 5 or more sessions	1.80	0.14	0.09	13.09	0.00	1.53	2.06
Currently has high blood pressure or on medication	-0.64	0.19	-0.03	-3.30	0.00	-1.01	-0.26
Currently has high cholesterol or on medication	-0.43	0.20	-0.02	-2.19	0.03	-0.82	-0.05
SEIFA1	-0.69	0.23	-0.03	-2.95	0.00	-1.14	-0.23
SEIFA2	-0.50	0.22	-0.02	-2.23	0.03	-0.93	-0.06
SEIFA3	-0.34	0.23	-0.01	-1.51	0.13	-0.79	0.10
SEIFA4	-0.06	0.22	0.00	-0.25	0.80	-0.49	0.38

Dependent Variable: Physical Component Score On SF8

SEIFA is a measure of social disadvantage with SEIFA1 being the most disadvantaged.



TABLE 2

Linear regression results for MCS using demographic, risk factor and total number of chronic health conditions as predictors

Model	Unstandardised Coefficients		Standardised Coefficients	t	p	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	48.01	0.28		169.65	0.00	47.46	48.57
Sex	0.77	0.13	0.04	5.71	0.00	0.50	1.03
Age	0.08	0.00	0.15	17.82	0.00	0.07	0.09
Area Health Services	0.04	0.02	0.01	1.66	0.10	-0.01	0.09
<b>Total number of chronic health conditions</b>	<b>-1.94</b>	<b>0.07</b>	<b>-0.22</b>	<b>-26.67</b>	<b>0.00</b>	<b>-2.08</b>	<b>-1.80</b>
Currently smoking	-1.42	0.18	-0.06	-7.94	0.00	-1.77	-1.07
Is obese	-0.28	0.18	-0.01	-1.56	0.12	-0.62	0.07
Does 150 moderate minutes weekly over 5 or more sessions	1.26	0.14	0.07	9.32	0.00	1.00	1.53
Currently has high blood pressure or on medication	-0.24	0.19	-0.01	-1.24	0.21	-0.61	0.14
Currently has high cholesterol or on medication	-0.14	0.20	-0.01	-0.74	0.46	-0.53	0.24
SEIFA1	-0.30	0.23	-0.01	-1.29	0.20	-0.74	0.15
SEIFA2	0.23	0.22	0.01	1.06	0.29	-0.20	0.66
SEIFA3	-0.07	0.22	0.00	-0.31	0.76	-0.51	0.37
SEIFA4	0.09	0.22	0.00	0.41	0.68	-0.34	0.52

Dependent Variable: Metal Component Score On SF8

Based on the Beta value, which shows the relative importance of a variable in predicting the variance, the tables clearly show that the number of chronic conditions is the most important factor in predicting both the PCS and MCS on the SF8. More complex analyses, adjusting for the simultaneous effects of multiple factors, have been conducted and can be found at the following website address:

[http://www.health.wa.gov.au/publications/pop\\_surveys.cfm](http://www.health.wa.gov.au/publications/pop_surveys.cfm)

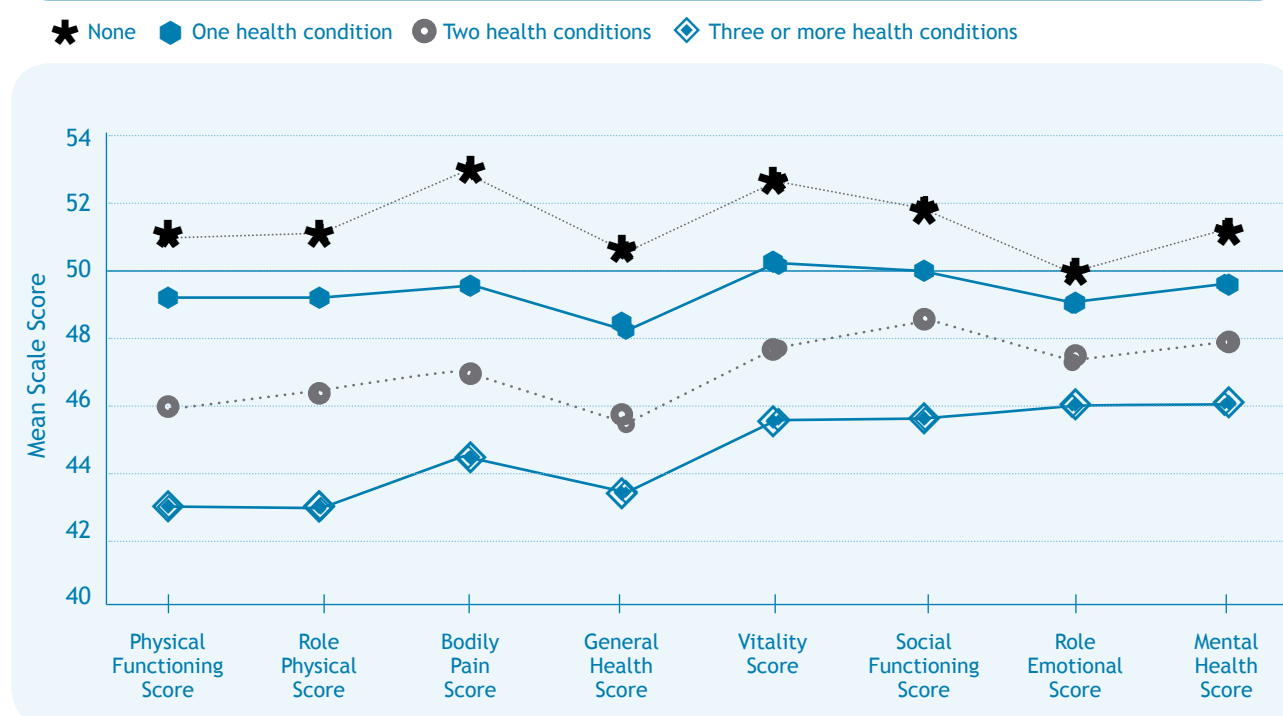
## 2 RESULTS

### 2.1 SF8 profiles by number of chronic health conditions

This section demonstrates the effect of number of chronic health conditions reported on SF8 score profiles.

The SF8 profiles for people with no, one and two chronic health conditions are very similar. The differences are between mean scores rather than the pattern of scores. For people with three or more chronic health conditions, the profile for the physical dimensions changed with an increasing differential between this group and those with fewer chronic conditions (Figure 1).

**Figure 1** Mean SF score profiles for people with no, one, two and three or more chronic health conditions HWSS, 2002-06



For people without any reported chronic health conditions, seven of the eight dimension scores are significantly above the population mean of 50. The exception being the Role Emotional dimension, which is equal to the population mean.

People with only one chronic health condition showed an average drop of between one and three points on each mean score compared with those who did not have any chronic health conditions. The biggest difference was associated with the Bodily Pain dimension and the smallest difference was related to the Role Emotional dimension. Except for Vitality and Social Functioning, the scores were significantly below the population mean of 50.

People with two chronic health conditions show a similar profile to those with one chronic health condition but with decreasing scores on all dimensions.

People with three or more chronic health conditions show significant decreases on their Physical Functioning, Role Physical, Vitality and Social Functioning dimension scores. All SF8 dimension scores are significantly less than the scores for people with less than three chronic conditions.

## 2.2 SF8 patterns within demographic groups

The second section of the report presents the profiles of the SF8 dimensions as they appear within demographic groups associated with chronic conditions. A fuller description of the SF8 profiles by age group and sex is provided in the WA SF8 norms report.

### 2.2.1 SF8 score profiles by sex

The first four figures present the SF8 profiles for men and women without any chronic health conditions (Figure 2), with one chronic health condition (Figure 3), with two chronic health conditions (Figure 4), and with three or more chronic conditions (Figure 5).

**Figure 2** Mean SF8 score profiles by sex, persons aged 16 years and older, who reported not having any chronic health condition, WA, 2002-06

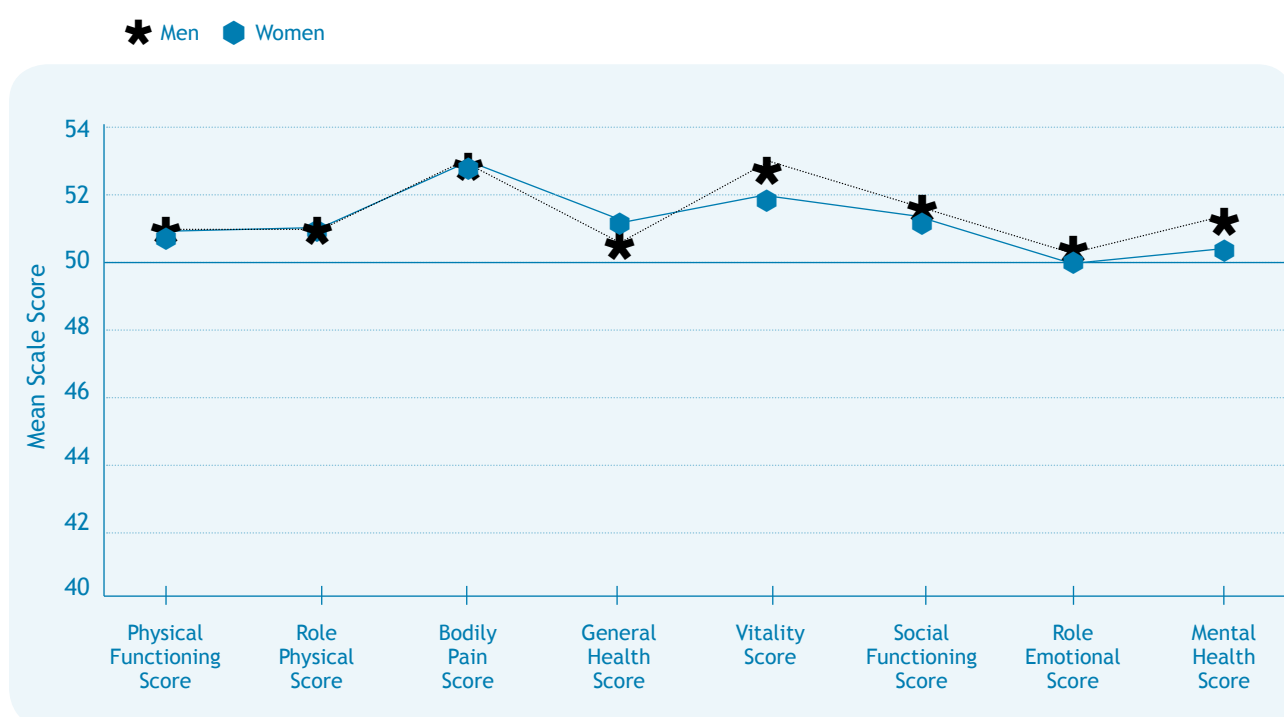


Figure 2 shows mean SF8 score profiles for men and women who did not report having any chronic health conditions. The profiles show that for both men and women the scores are on or above the population mean of 50. With the exception of two dimensions, Vitality and Mental Health where men had statistically significantly higher scores compared with women, the profiles were very similar.

**Figure 3** Mean SF8 score profiles by sex, persons aged 16 years and older, who reported having only one chronic condition, WA, 2002-06

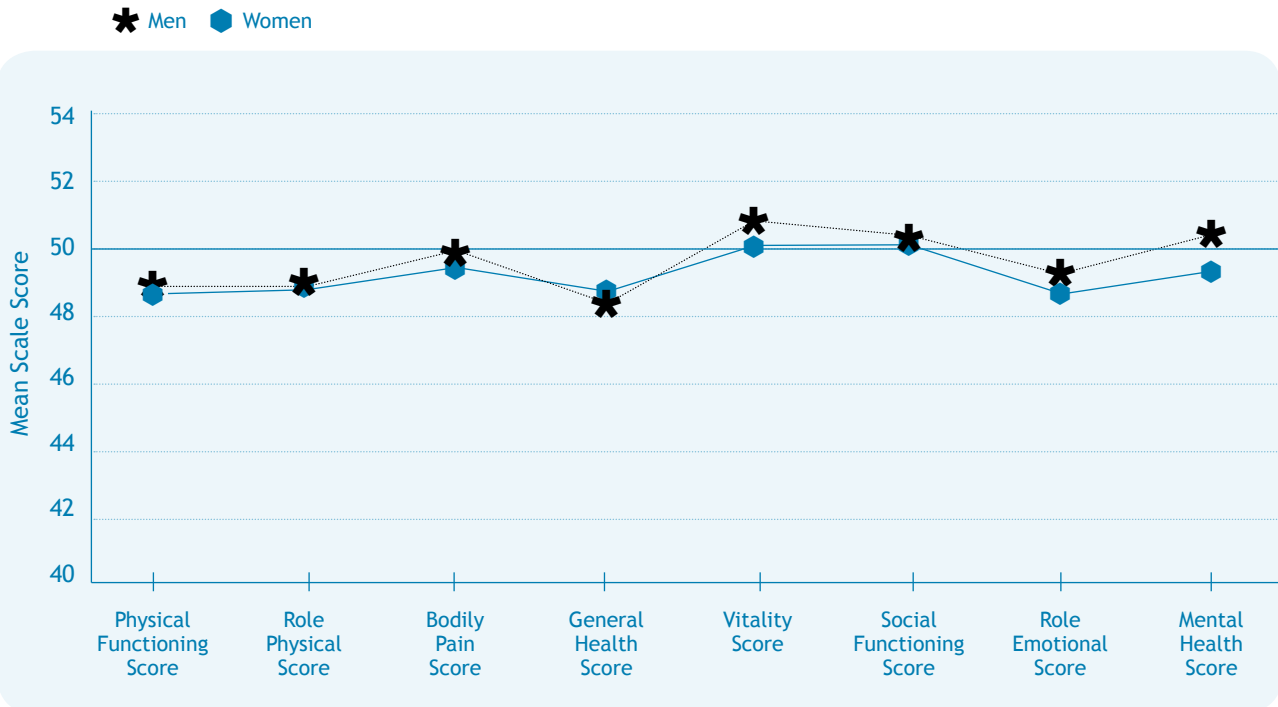


Figure 3 shows mean SF8 score profiles for men and women who reported having one chronic health condition. The profiles show that the scores are mostly below the population mean of 50. As with the profile for having no chronic health conditions, men still had statistically significantly higher scores for the dimensions of Vitality and Mental Health.

**Figure 4** Mean SF8 score profiles by sex, persons aged 16 years and older, who reported having two chronic conditions, WA, 2002-06

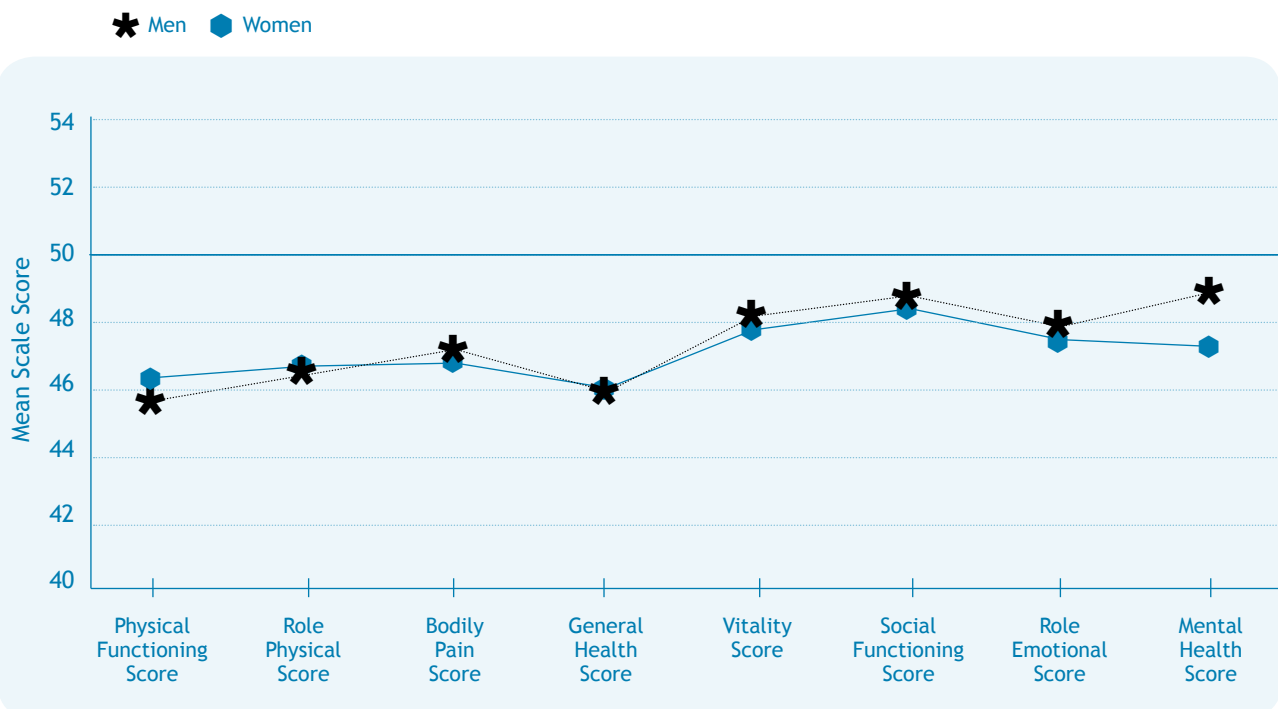
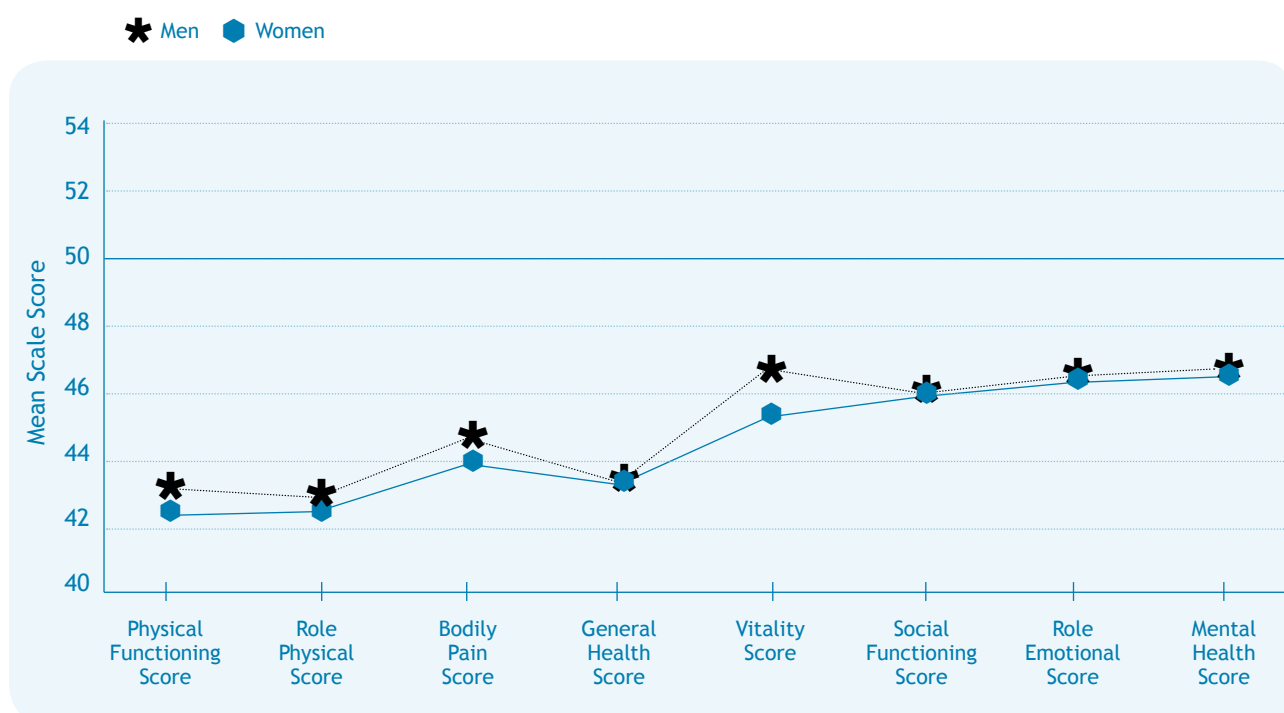


Figure 4 shows mean SF8 score profiles for men and women who reported having two chronic health conditions. The profiles show that the scores are now well below the population means of 50. The only statistically significant difference between men and women was on the dimension of Mental Health where men still scored higher.

Figure 5 shows mean SF8 score profiles for men and women who reported having three or more chronic health conditions. The poor score profiles for people with three or more conditions were particularly related to factors associated with Physical Functioning, although there is also a significant impact on the Mental Health dimensions.

**Figure 5** Mean SF8 score profiles by sex, persons aged 16 years and older, who reported having three or more chronic conditions, WA, 2002-06



There are no statistically significant differences between men and women but this is probably due to the relatively small number of people surveyed who reported having three or more conditions.

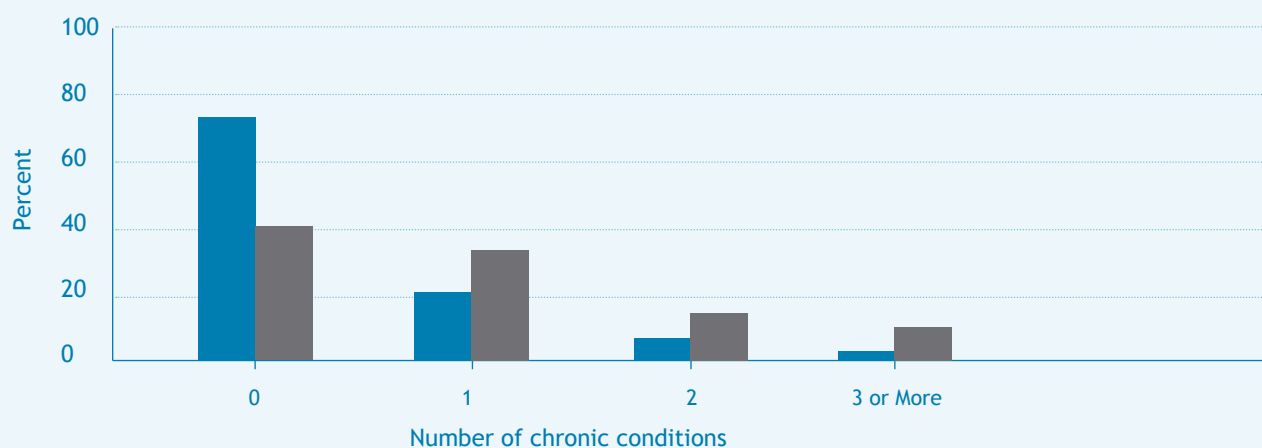


### 2.2.2 SF8 score profiles by age group

This section presents the SF8 profiles for two age groups, 16-44 years and 45 years and over. Figure 6 shows the proportion of people within each age group by the number of chronic health conditions. As expected, as age increased the proportion reporting any chronic health condition increases.

**Figure 6** Proportion of the population by number of chronic health conditions and age group, HWSS, 2002-06

■ 16-44 yrs ■ 45 yrs and older



The next figures show some of the most important findings in this report. The effect of age on self-reported mental and physical health functioning is associated with the presence of one or more chronic health conditions.



**Figure 7** Mean SF8 score profiles for people with no chronic health conditions by age group, HWSS, 2002-06

16-44 \* 45 plus

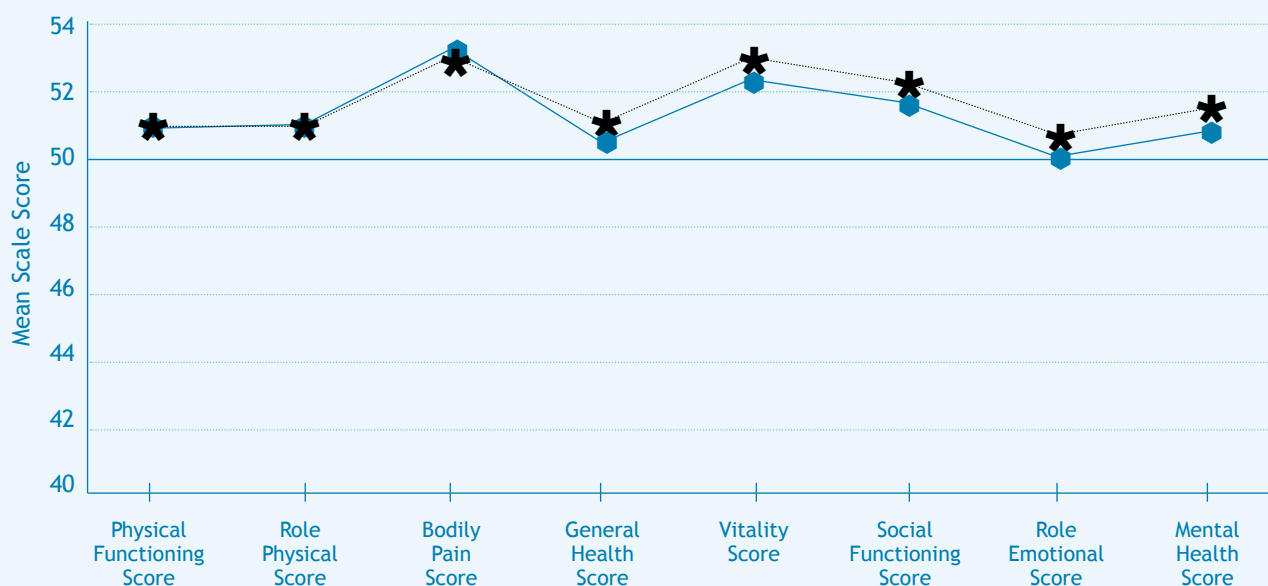


Figure 7 shows that for people without any chronic health conditions, the difference in the SF8 profiles between age groups was minimal and where differences exist they were in favour of the older age group. On the dimensions Vitality, Social Functioning, Role Emotional and Mental Health people aged 45 years and over had statistically significantly higher scores compared with those aged 16 to 44 years.

**Figure 8** Mean SF8 score profiles for people with only one chronic health condition by age group, HWSS, 2002-06

16-44 \* 45 plus



Figure 8 shows that, compared with Figure 7, there is a decrease on the scores of all scales relative to people who do not have any chronic health conditions. The scores for Physical Functioning, Role Physical and General Health are statistically significantly below the population mean for both age groups and the scores for Vitality, Social Functioning, Role Emotional and Mental Health are all significantly lower than the scores for people with no chronic health conditions.

Figure 8 also shows that with the presence of one chronic health condition, the effect is greatest in the Role Physical, Bodily Pain and General Health dimensions for people aged 45 years and over compared with those aged 16 to 44 years but that for Vitality, Social Functioning, Role Emotional and Mental Health dimensions, the effect is greater on those aged 16 to 44 years compared with those aged 45 and over. These differences are statistically significant.

**Figure 9** Mean SF8 score profiles for people with two chronic health conditions by two age groups, HWSS, 2002-06

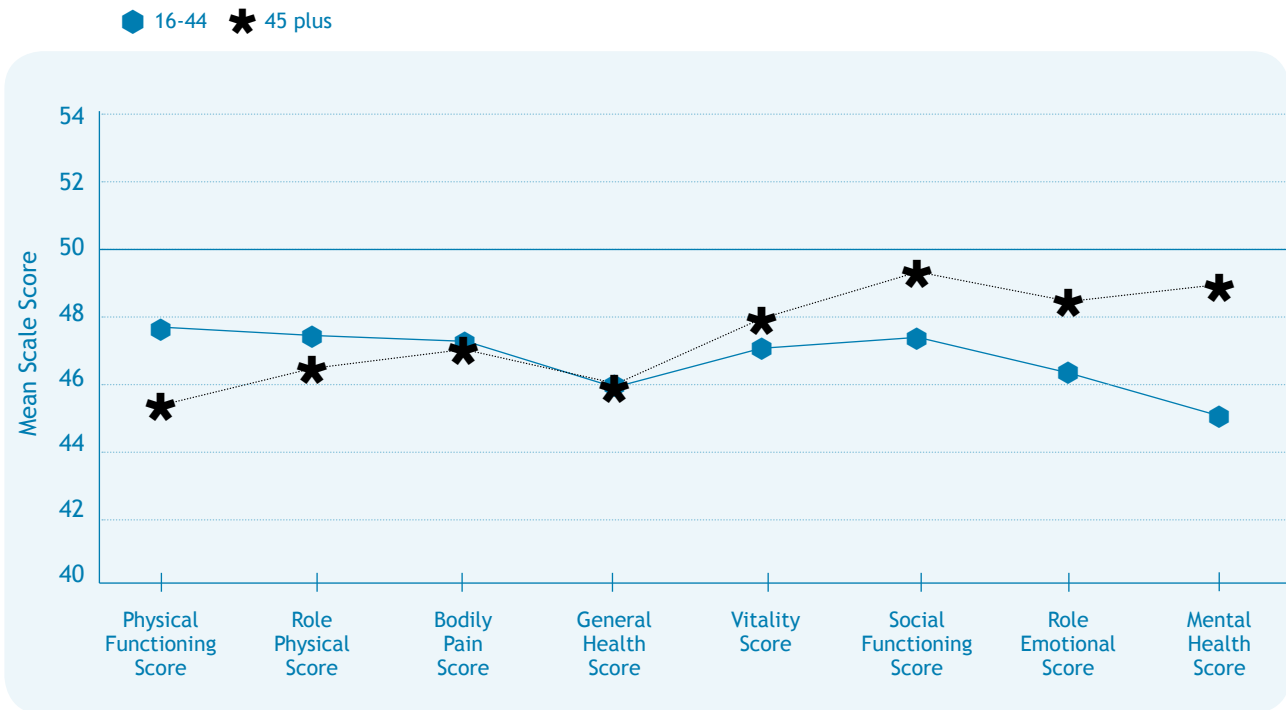


Figure 9 shows the gap between the age groups widening in the physical and mental dimensions with all scores being statistically significantly lower than the scores for people with no or only one chronic health condition. The biggest differences are for the dimensions of Role Physical and Bodily Pain for those aged 45 and over and for the dimensions of Role Emotional and Mental Health for those age 16 to 44 years.

**Figure 10** Mean SF8 score profiles for people with three or more chronic health conditions by two age groups, HWSS, 2002-06

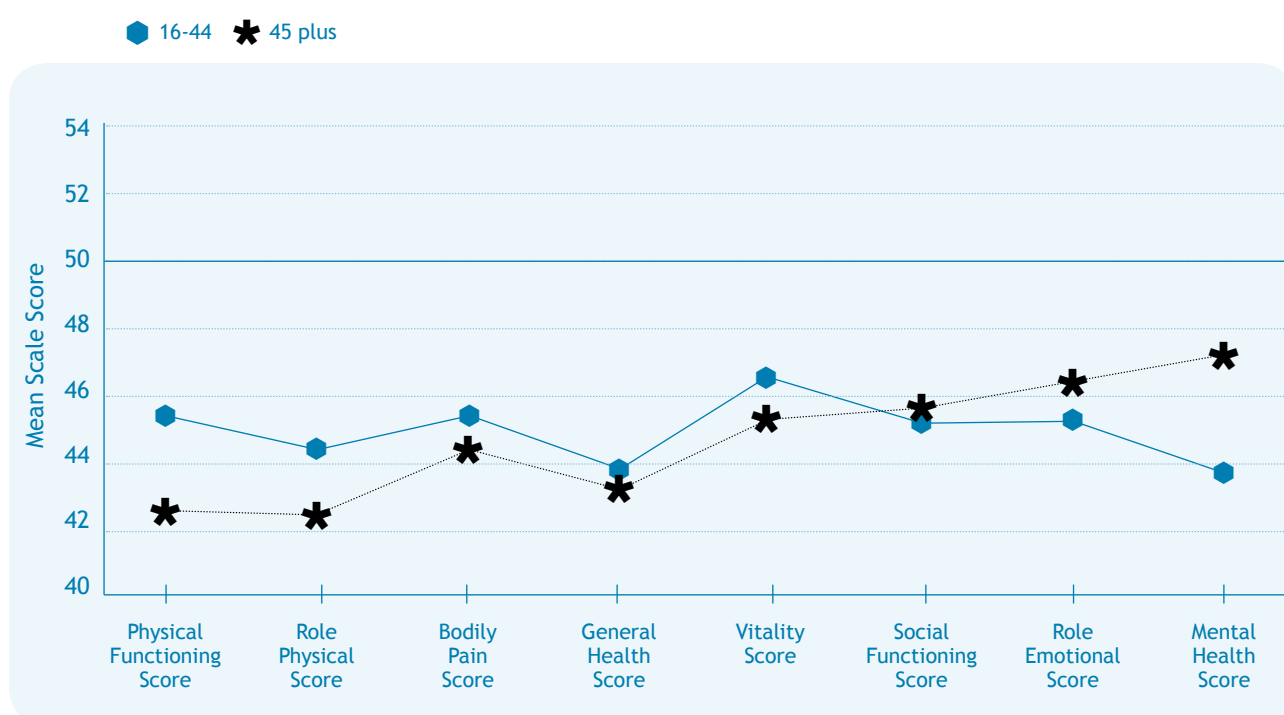


Figure 10 shows that the pattern seen for people with three or more chronic health conditions is very similar to that for people with two chronic health conditions but that the decreases on each SF8 dimension are significantly greater for those aged 45 years and older. All of the scores for both age groups are significantly lower than the population mean.

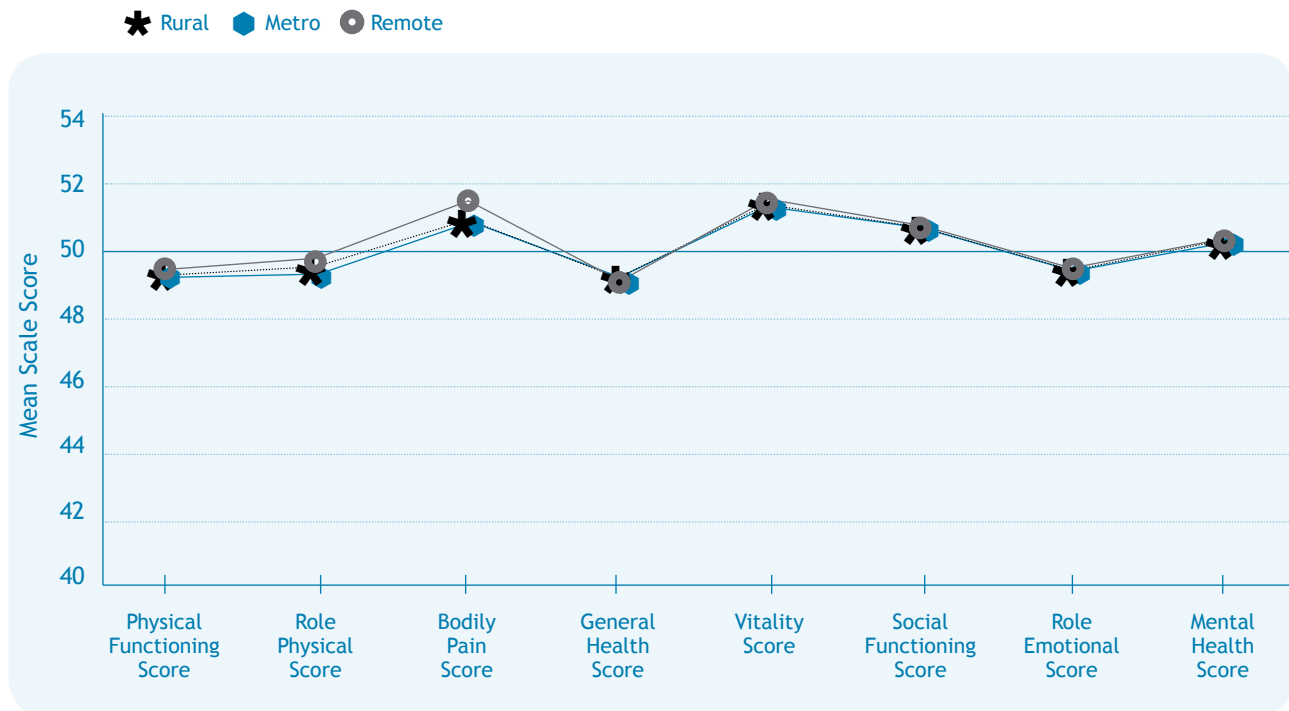
The biggest difference noted is the decrease in the differences between the age groups on the Social Functioning, Role Emotional and Mental Health dimensions. For the first time also, those aged 45 and older have lower Vitality scores compared with those age 16 to 44 years.



### 2.2.3 SF8 score profiles by area of residence

Figure 11 shows the SF8 profiles associated with region of residence for people aged 16 years and older.

**Figure 11** Mean SF8 score profiles by area of residence, persons aged 16 years and older, WA, 2002-06



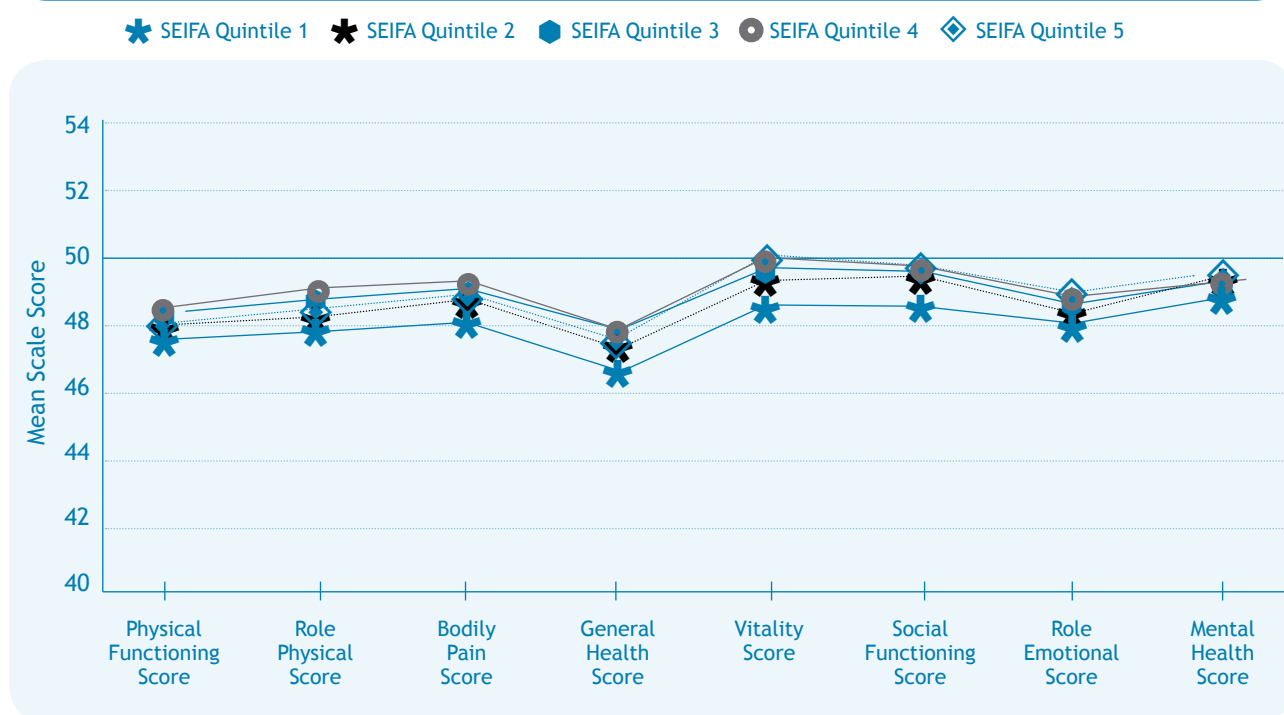
The figure shows that people living in remote areas of the state had a higher score on the dimension Bodily Pain compared with people living in metropolitan and rural areas of the state. Other than this one difference, the SF8 profile patterns for the three areas are very similar.

### 2.2.4 SF8 score profiles by level of socioeconomic disadvantage

The Australian Bureau of Statistics (ABS) has derived an Index of Relative Socio-Economic Disadvantage (IRSD). The IRSD is a measure of socioeconomic disadvantage based mainly on information about education level, income and employment within a particular Census Collector District (CCD), which can be applied to individuals living within that CCD. IRSD scores are presented as quintile groups, with quintile one representing the highest level of socioeconomic disadvantage and quintile five the lowest level of socioeconomic disadvantage. Figures 12 to 14 show SF8 score profiles associated with IRSD quintiles for people aged 16 years and older.



**Figure 12** Mean SF8 score profiles by SEIFA Quintile, persons aged 16 years and older with no chronic health conditions, HWSS, 2002-06



There were minor differences in mean scores for all SF8 dimensions associated with relative socioeconomic disadvantage for people who did not report having any chronic conditions (Figure 12). Although the overall SF8 score profile patterns were almost identical for all levels of relative socioeconomic disadvantage, there were small incremental decreases in mean in the scores for all factors as the level of relative socioeconomic disadvantage increased.



**Figure 13** Mean SF8 score profiles by SEIFA Quintile, persons aged 16 years and older who reported having one or two chronic health conditions, HWSS, 2002-06

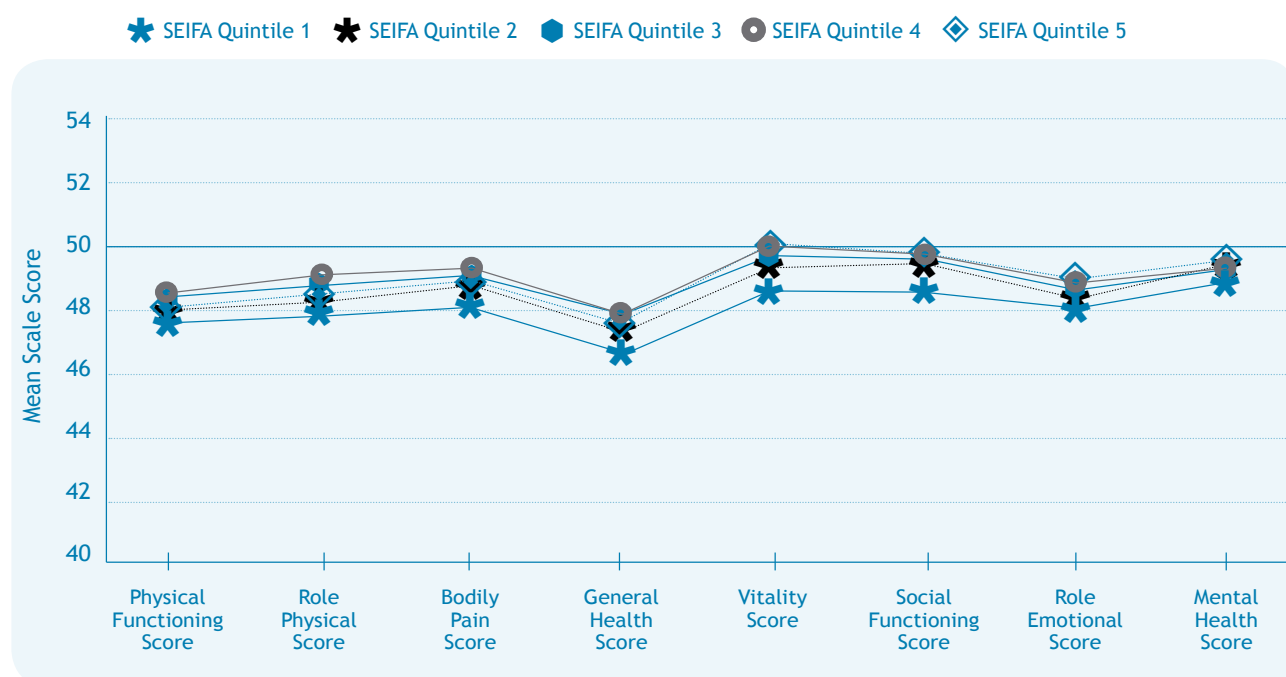
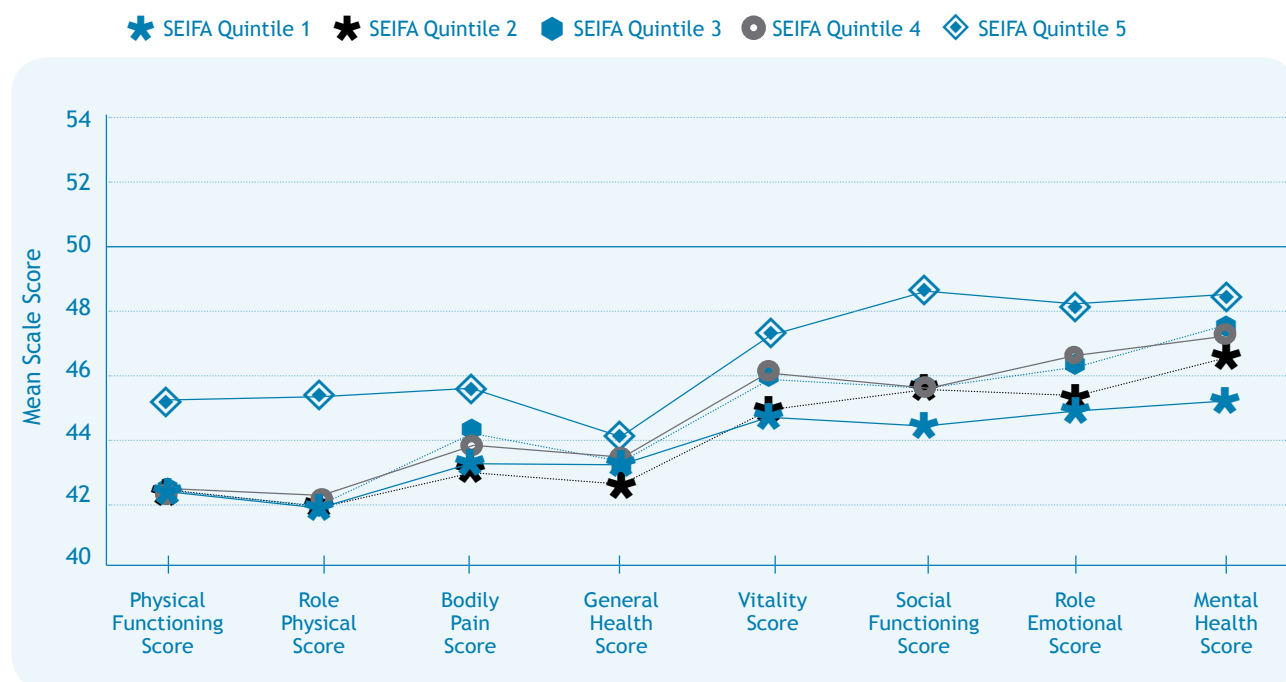


Figure 13 shows that the SF8 profiles for the five quintiles are starting to separate with Quintile 1 showing the greatest impact for people who report having one or two chronic health conditions. All scale scores are significantly lower than those who report having no chronic health conditions (Figure 12). The pattern noted above holds here as well with the lower quintiles showing the greatest impact.

**Figure 14** Mean SF8 score profiles by SEIFA Quintile, persons aged 16 years and older who reported three or more chronic health conditions, HWSS, 2002-06



People with three or more conditions had very low mean scores for all SF8 factors (Figure 14). The only clear pattern is that people who live in areas classified as least disadvantaged (Quintile 5) report higher mean scale scores across the SF8 profile with the exception of perceived General Health where there are no significant differences between any of the SEIFA groups.

People from areas classified as most disadvantaged (Quintile 1) had lower scores on all of the SF8 scales compared with people from the area classified as least disadvantaged (Quintile 5) except for the General Health dimension.

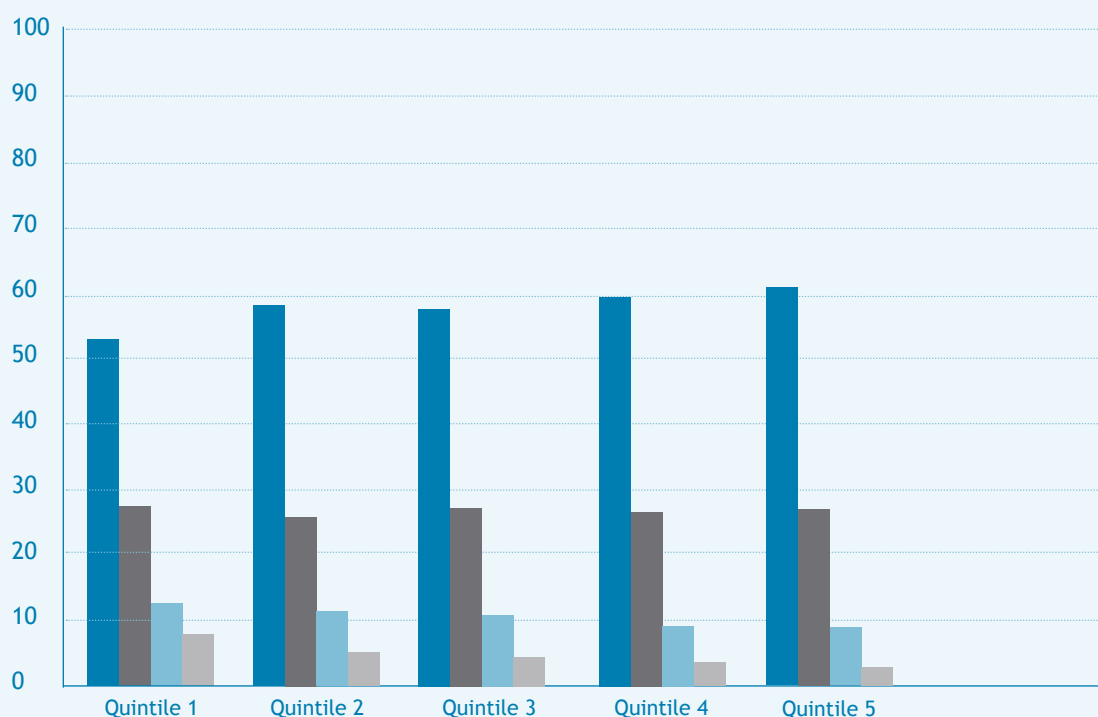
### Key finding:

19.3% of people from most disadvantaged areas had two or more chronic conditions, compared with 12.3% people from least disadvantaged areas.

This finding is important because of the higher prevalence of chronic illness associated with socioeconomic disadvantage. Figure 15 shows that a higher proportion of people living in Quintile 1 areas report having one or more chronic health conditions compared with all other groups. The mean number of chronic conditions reported from areas that are classified as most disadvantaged was 0.76 compared with 0.55 for least disadvantaged areas.

**Figure 15** Percent of the population 16 and over by number of conditions and SEIFA Quintile, HWSS, 2002-06

■ None ■ One ■ Two ■ Three or more



None	53.3	58.1	57.9	60.0	61.3
One	27.3	25.9	26.7	26.3	26.4
Two	12.0	11.1	10.6	9.5	9.1
Three or more	7.3	5.0	4.8	4.2	3.2

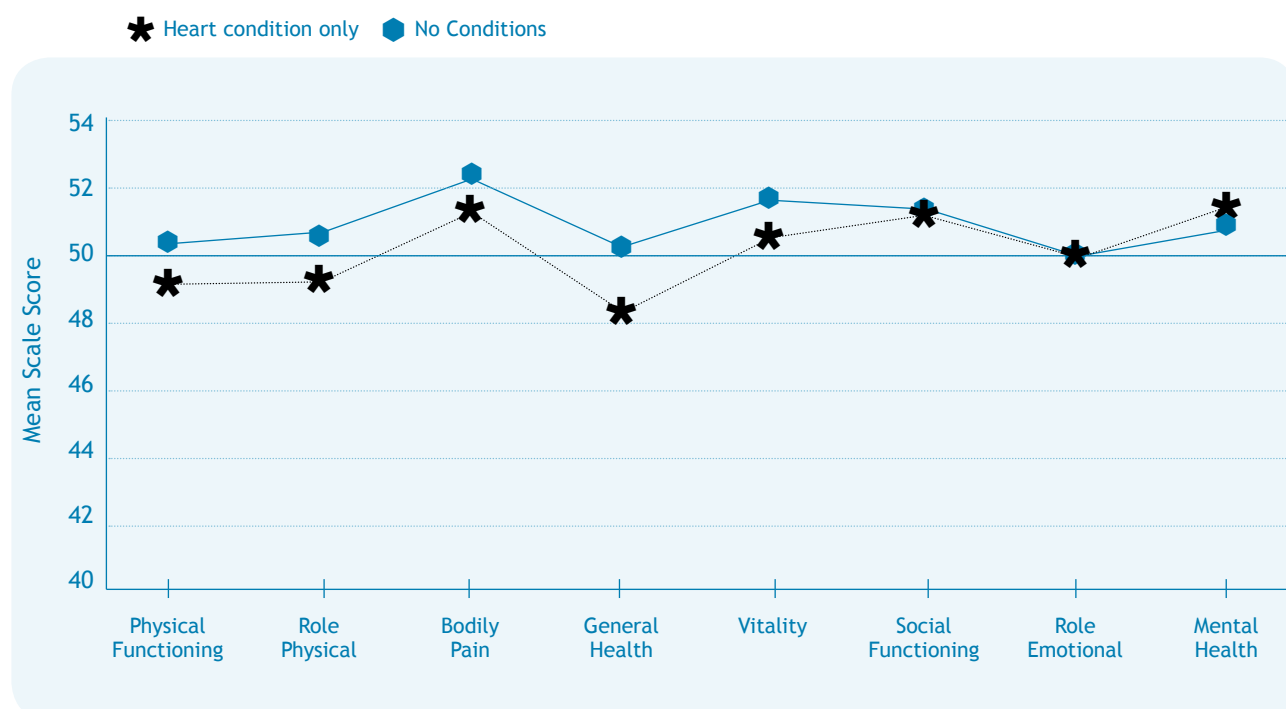
## 2.3 SF8 patterns for selected chronic health conditions

Section three shows how selected chronic conditions alter the SF8 dimensions. These have important implications for health promotion strategies and programs as areas where interventions would have the most impact on quality of life and functioning are identified. All prevalence estimates are taken from the 2006 HWSS data.<sup>6</sup>

### 2.3.1 Heart disease

One in fourteen adults (7.2%) in WA reported having heart disease in 2006. Cardiovascular disease is the largest cause of premature death and overall mortality in Australia and the costs and economic burden associated with CVD are higher than for any other disease.<sup>7</sup> The mean SF8 score profiles for people who reported having heart disease compared with people with no chronic health conditions are shown in Figure 16.

**Figure 16** Mean SF8 score profiles for people who reported having heart disease compared with people who have no chronic health conditions, persons aged 16 and over, HWSS, 2002-06

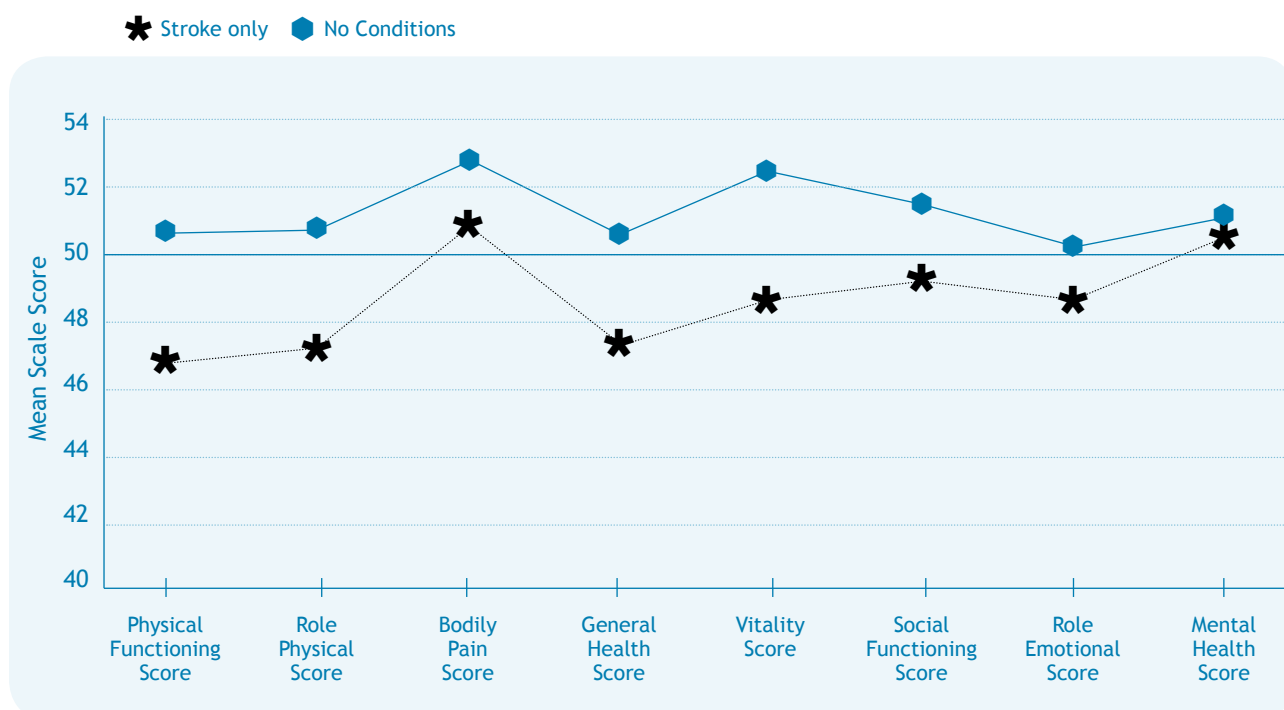


Mean scores for Physical Functioning, Role Physical, General Health and Vitality were significantly lower for people who reported having heart disease compared with people who did not report having any chronic health conditions.

### 2.3.2 Stroke

In 2006, the reported lifetime prevalence of stroke was 2.1%. Stroke is a leading cause of premature death, disability, costs and economic burden.<sup>8</sup> It mostly affects people in the older age groups.

**Figure 17** Mean SF8 score profiles for people who reported having a stroke compared with people who have no chronic health conditions, persons aged 16 years and older, HWSS 2002-06



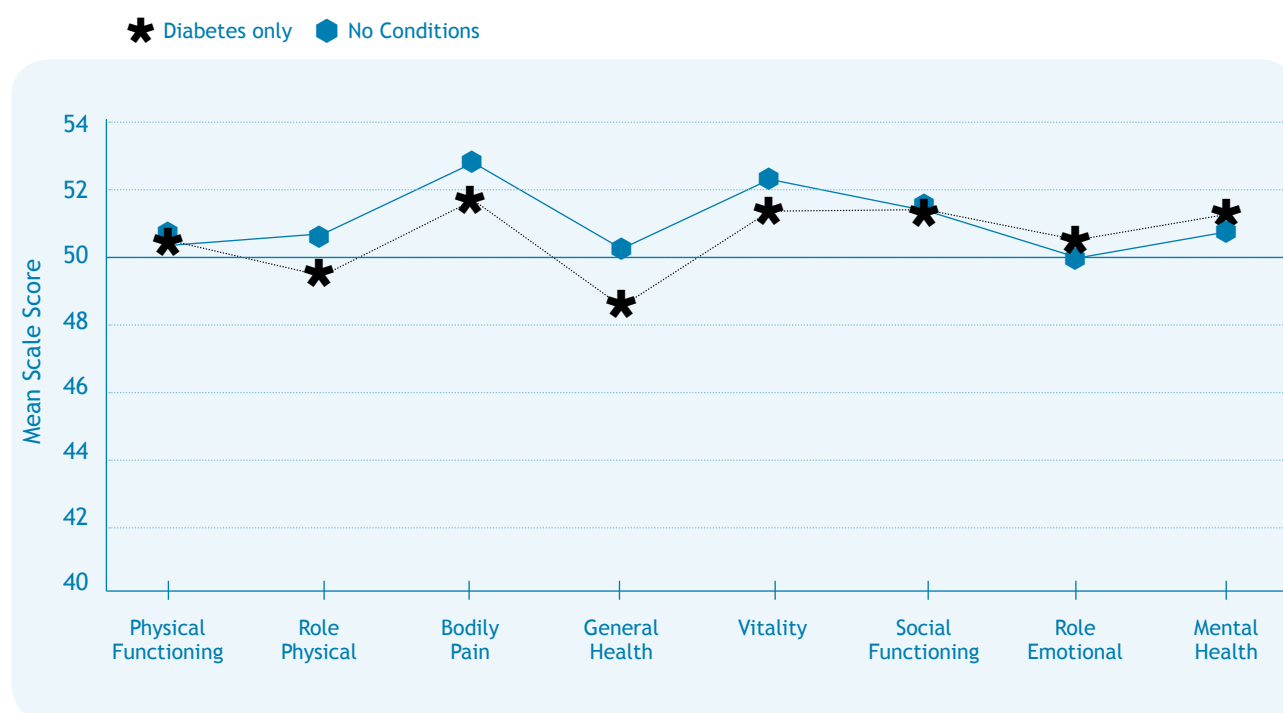
The mean SF8 score profiles for people who reported having had a stroke compared with people who reported not having any chronic health conditions are shown in Figure 17. Although those who reported having had a stroke had lower profile scores on all dimensions, only Physical Functioning, Role Physical, General Health and Vitality were significantly lower compared with people without any chronic health condition. The greatest impact was on the Physical Functioning and Vitality dimensions.

### 2.3.3 Diabetes

In 2006, six per cent of people aged 16 years and older reported having diabetes. Of these, 78.6% reported having Type 2 or non-insulin dependent diabetes. Type 2 diabetes has a huge impact on the Western Australian community with 27.7 deaths per 100,000 persons in 2003; 6,835 hospitalisations with type 2 diabetes as the principal diagnosis; and a further 62,342 hospitalisations with type 2 diabetes as an additional diagnosis in 2004-05.<sup>9</sup>



**Figure 18** Mean SF8 score profiles for people who reported diabetes compared with people who had no chronic health conditions, persons aged 16 years and over, HWSS, 2002-06



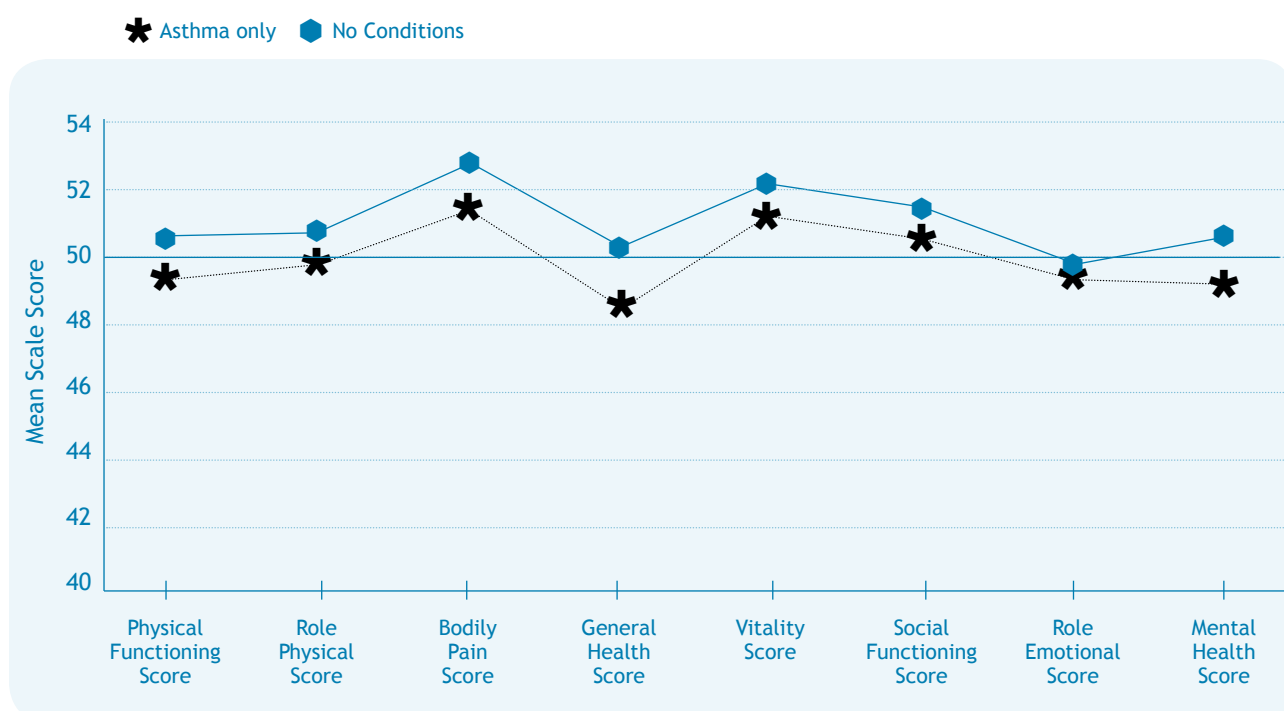
The mean SF8 score profiles for people who reported having diabetes compared with people without any chronic health conditions are shown in Figure 18. Mean scores for Role Physical, Bodily Pain, General Health and Vitality were significantly lower for people reporting diabetes compared with those who had no chronic health conditions. The effect was greatest in the General Health dimension.

#### 2.3.4 Asthma

One in ten people (10.8%) in the WA population in 2006 reported having had symptoms of or treatment for asthma in the last 12 months, while 17.3% reported having ever been diagnosed with asthma. Claiming 137 lives in WA in the period from 1999 to 2003,<sup>6</sup> asthma is a condition that has the potential for health gains and improved outcomes. Better health outcomes for people with asthma are due to improved and more readily accessible therapy, and to more effective management strategies.<sup>10</sup>

The mean SF8 score profiles for people who reported having asthma within the last twelve months compared with people with no chronic health conditions are shown in Figure 19. The scores for people with asthma were significantly lower than for people with no chronic health conditions on all eight SF8 dimensions. This is the first chronic condition to show significant decreases in the Mental Health dimensions for those with asthma.

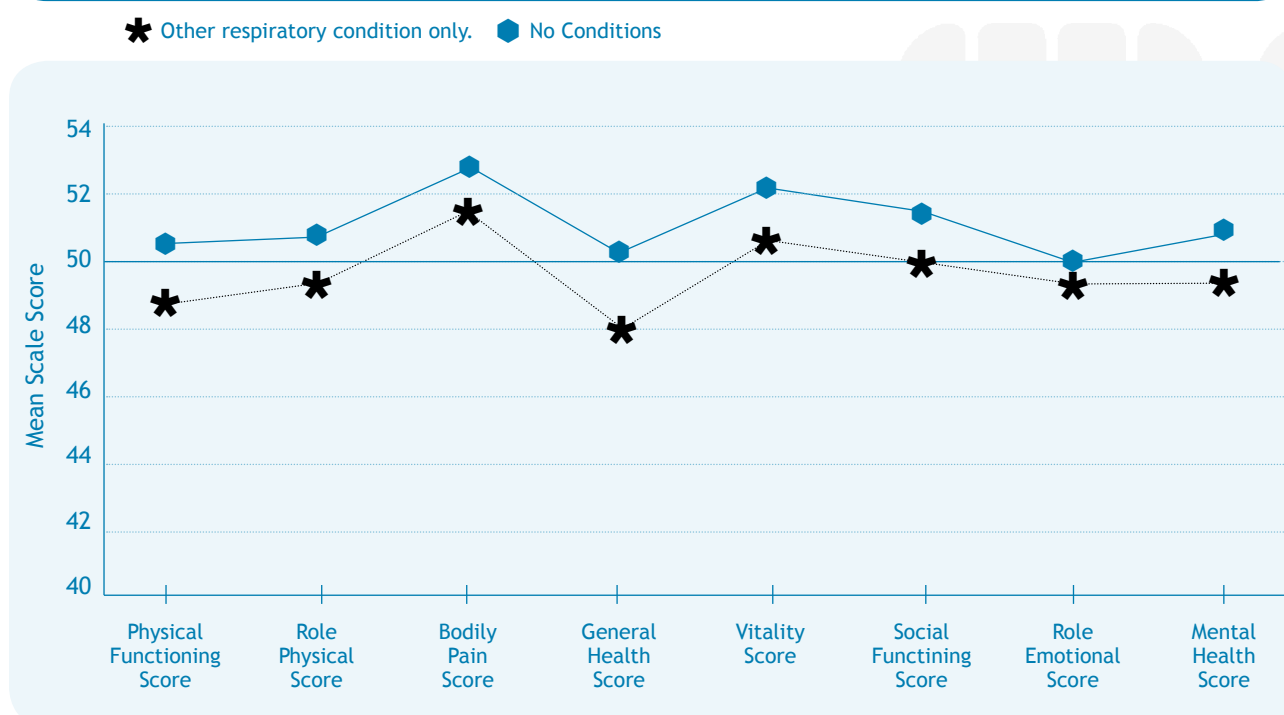
**Figure 19** Mean SF8 score profiles for people with current asthma compared with people who have no chronic health conditions, persons aged 16 years and over, HWSS, 2002-06



### 2.3.5 Respiratory condition other than asthma

In 2006, 1.9% of the population reported currently having a respiratory condition that had lasted more than six months. The mean SF8 score profiles for people who reported having a respiratory condition<sup>i</sup> other than asthma that was current compared with people who did not report having any chronic health conditions are shown in Figure 20.

**Figure 20** Mean SF8 score profiles for people who reported a respiratory condition other than asthma compared with people who had no chronic health conditions, persons aged 16 years and over, HWSS, 2002-06



<sup>i</sup> This was for anyone who had never been diagnosed with a respiratory disease other than asthma and who currently had it at the time of the survey.

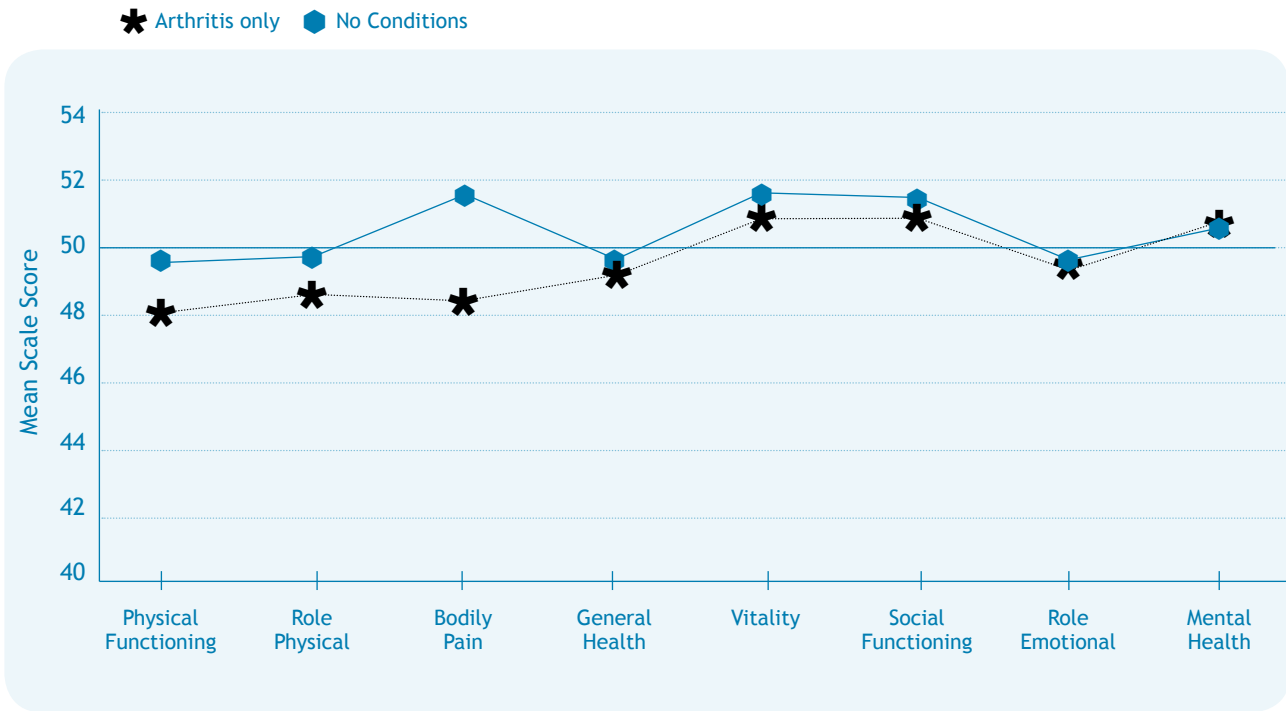
Overall mean score profiles for people who reported a respiratory condition were lower on all eight dimensions but only significantly lower for Physical Functioning, Role Physical, General Health and Vitality compared with people with no chronic conditions. The effect was greatest for General Health.

### 2.3.6 Arthritis and Osteoporosis

Arthritis is a condition that affects approximately one-quarter (24.4%) of the WA adult population.<sup>6</sup> It is one of the two most common musculoskeletal conditions that are associated with an increased risk of disability and a reduced quality of life. The other is osteoporosis. Osteoporosis is a chronic condition that affects approximately 6% of the WA population. In 2006, approximately one quarter (25.7%) of women aged 65 and older reported having osteoporosis.

The SF8 profiles for people who reported having arthritis only compared with people who did not have any chronic health condition are shown in Figure 21.<sup>11</sup>

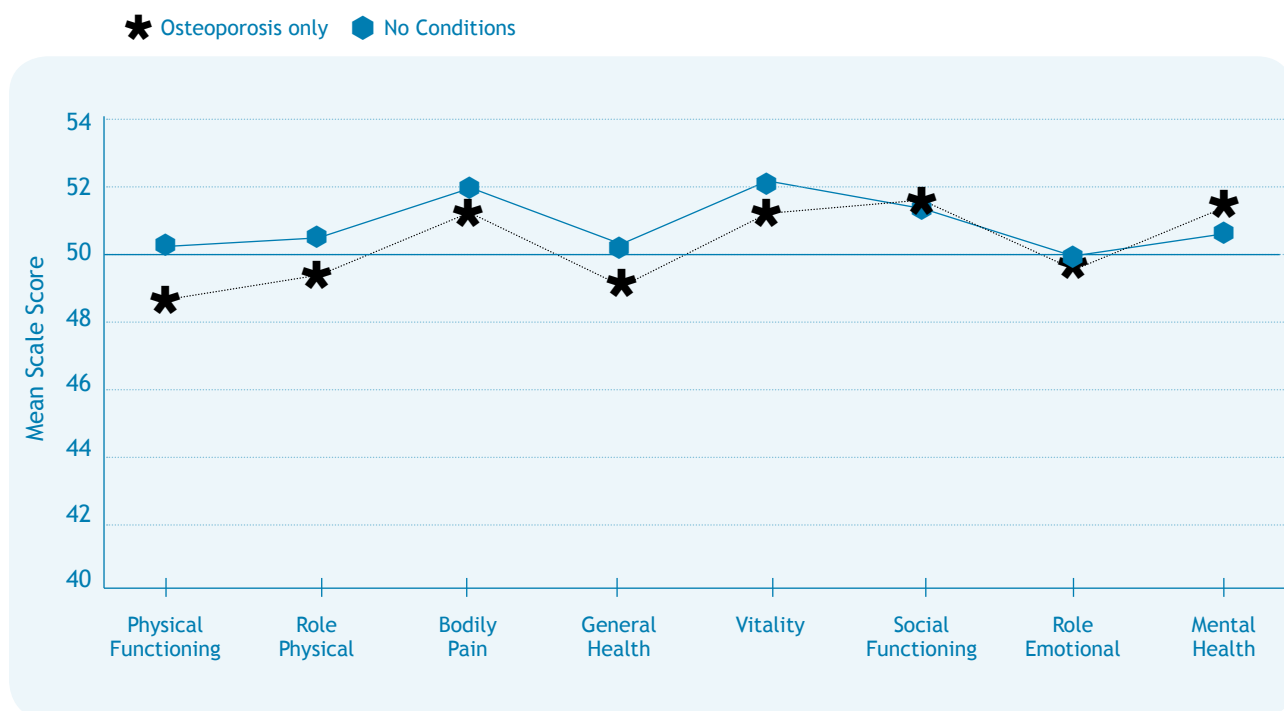
**Figure 21** Mean SF8 score profiles for people who reported having arthritis compared with people who have no chronic health conditions, persons aged 16 and over, HWSS, 2002-06



Mean scores for five of the SF8 dimensions, Physical Functioning, Role Physical, Bodily Pain, General Health and Vitality were significantly lower for people with arthritis compared with people who did not report having any health conditions. The greatest difference was for Bodily Pain.

The mean SF8 score profiles for people aged 45 years and over who reported having osteoporosis compared with people reported not having any chronic health conditions are shown in Figure 22. While scores were lower on five of the dimensions, Physical Functioning, Role Physical, Bodily Pain, General Health and Vitality, only Physical Functioning was significantly lower for people who report having osteoporosis compared with people without any chronic health conditions.

**Figure 22** Mean SF8 score profiles for people aged 45 years and over who reported having osteoporosis compared with people who have no chronic health conditions, 2002-06

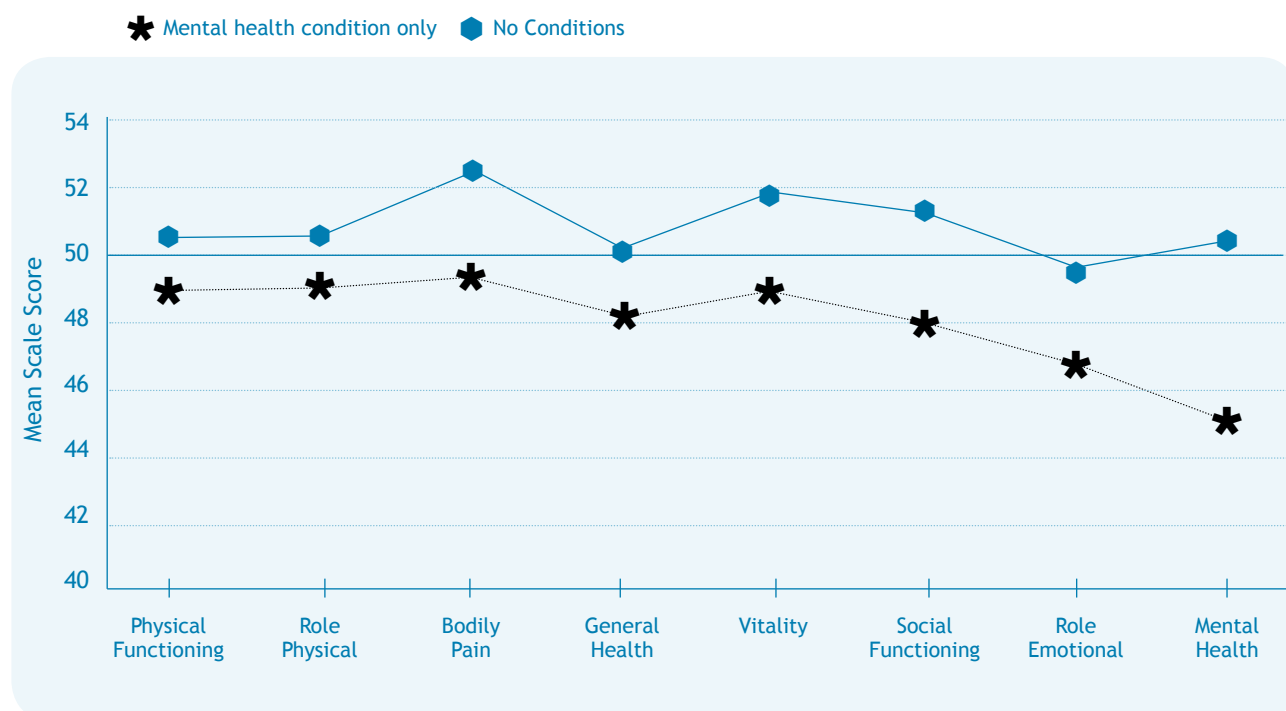


### 2.3.7 Mental Health Problem

In 2006, 12.2% of WA people aged 16 and over reported having a mental health problem diagnosed within the last twelve month and 4.3% reported currently having treatment for a mental health problem. Mental health problems and disorders occur when an individual is not able to negotiate the daily challenges and social interactions of life without undue emotional or behavioural incapacity. In WA, mental health disorders currently account for around 16% of the total burden of disease and by 2016 are expected to have moved from the third to the second highest cause of disease burden.<sup>12</sup>



**Figure 23** Mean SF8 score profiles for people aged 16 years and over who reported currently having a mental health problem compared with people who had no chronic health conditions, HWSS, 2002-06



The mean SF8 score profiles for people who reported currently having a mental health problem compared with people who have no chronic health conditions are shown in Figure 23. People who reported currently having a mental health problem had significantly lower scores for all eight SF8 dimensions. These differences were generally greater than for any physical condition and suggest that mental health problems have a significant impact on both physical and mental wellbeing.

### 2.3.8 Summary of the chronic health conditions and their SF8 profiles

Having a current mental health condition was the health condition that showed the greatest impact of all the conditions over all the dimensions of the SF8. A diagnosis of stroke, asthma or another respiratory condition showed the next greatest impact on a number of dimensions including Physical Functioning, Role Physical, Bodily Pain, General Health and Vitality.

SF8 profiles for heart disease, diabetes, and osteoporosis were very similar with their major impact also being on the Physical Functioning, Role Physical, General Health and Vitality dimensions.

## 2.4 How risk factors impact SF8 dimensions for people with chronic health conditions

This section examines the impact that risk factors have on people's quality of life with one or more chronic health conditions. The risk factors presented are those, which have been identified by the research literature as having an association with a particular chronic health condition.<sup>14</sup>

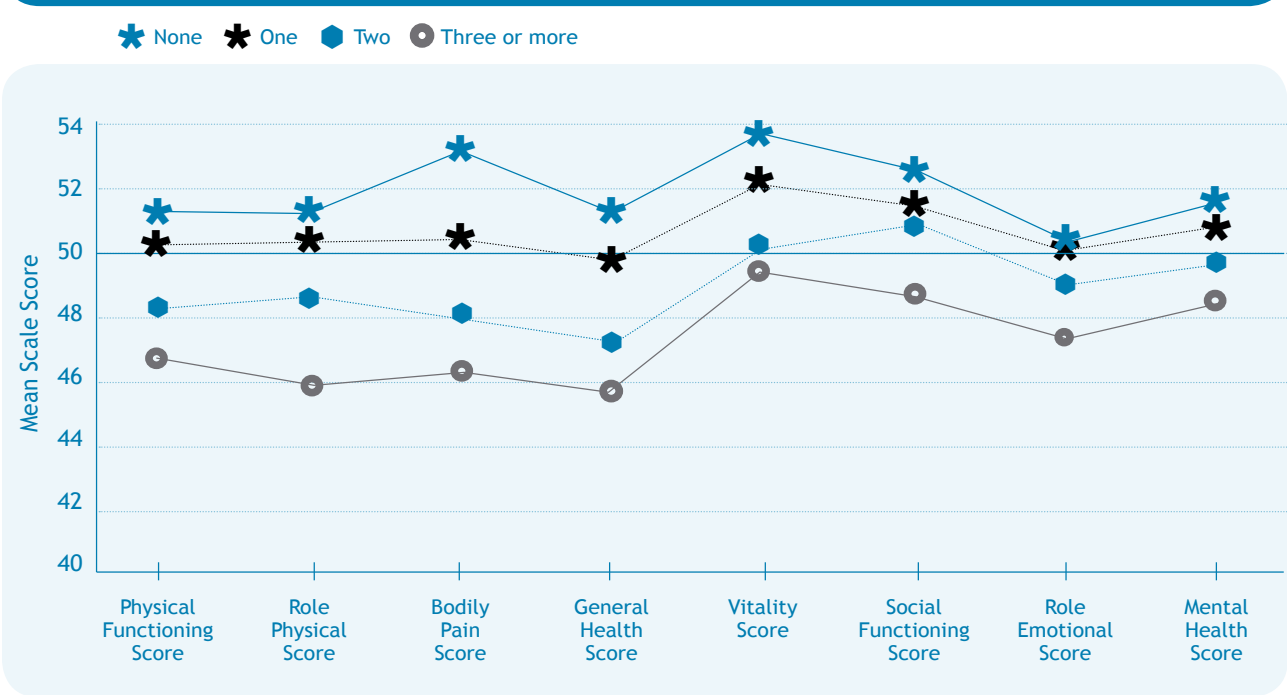
### 2.4.1 Physical Inactivity

Physical inactivity is a risk factor associated with a number of chronic health conditions including arthritis, heart disease, diabetes, osteoporosis and stroke. Insufficient activity has been defined as doing less than 150 minutes of physical activity each week, while 150 minutes or more over five or more sessions has been defined as sufficient.<sup>13</sup>



As Figures 24 and 25 will demonstrate, people who do sufficient leisure time physical activity, independent of the number of chronic conditions they have report substantially better functioning, both physical and mental, compared with those who do insufficient leisure time physical activity.

**Figure 24** Mean SF8 score profiles for people 45 to 64 years by number of chronic conditions for which physical inactivity is a factor who do sufficient physical activity, HWSS, 2002-06

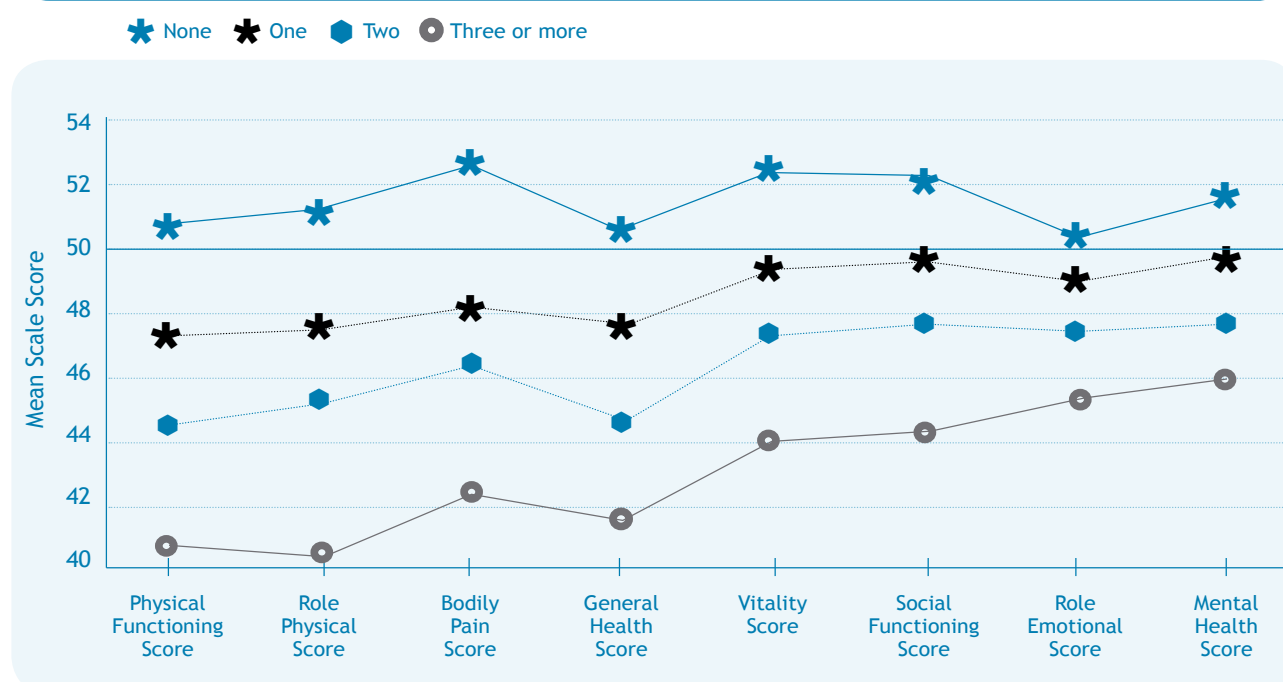


People who do sufficient leisure time activity show significantly decreasing scores over all SF8 dimensions with increasing numbers of chronic conditions (Figure 24).

People who do insufficient leisure time activity show significantly decreasing scores over Physical Functioning, Role Physical, Bodily Pain, General Health and Vitality dimensions with increasing numbers of chronic conditions. For Social Functioning, Role Emotional and Mental Health dimensions, the differences are significant between none one and two but not significantly different between two and three or more conditions (Figure 25).



**Figure 25** Mean SF8 score profiles for people 45 to 64 years by number of chronic conditions for which physical inactivity is a factor who do insufficient physical activity, HWSS, 2002-06



When the profiles of those doing sufficient leisure time activity are compared with the profiles of those doing insufficient leisure time physical activity, on each of the SF8 dimensions, the scores are significantly lower for people with one, two and three or more conditions. People with no chronic conditions who do sufficient leisure time physical activity do not score significantly differently on Physical Functioning, Role Physical, Role Emotional or Mental Health dimensions compared with people with no chronic conditions who do not do sufficient leisure time physical activity.

### Key finding:

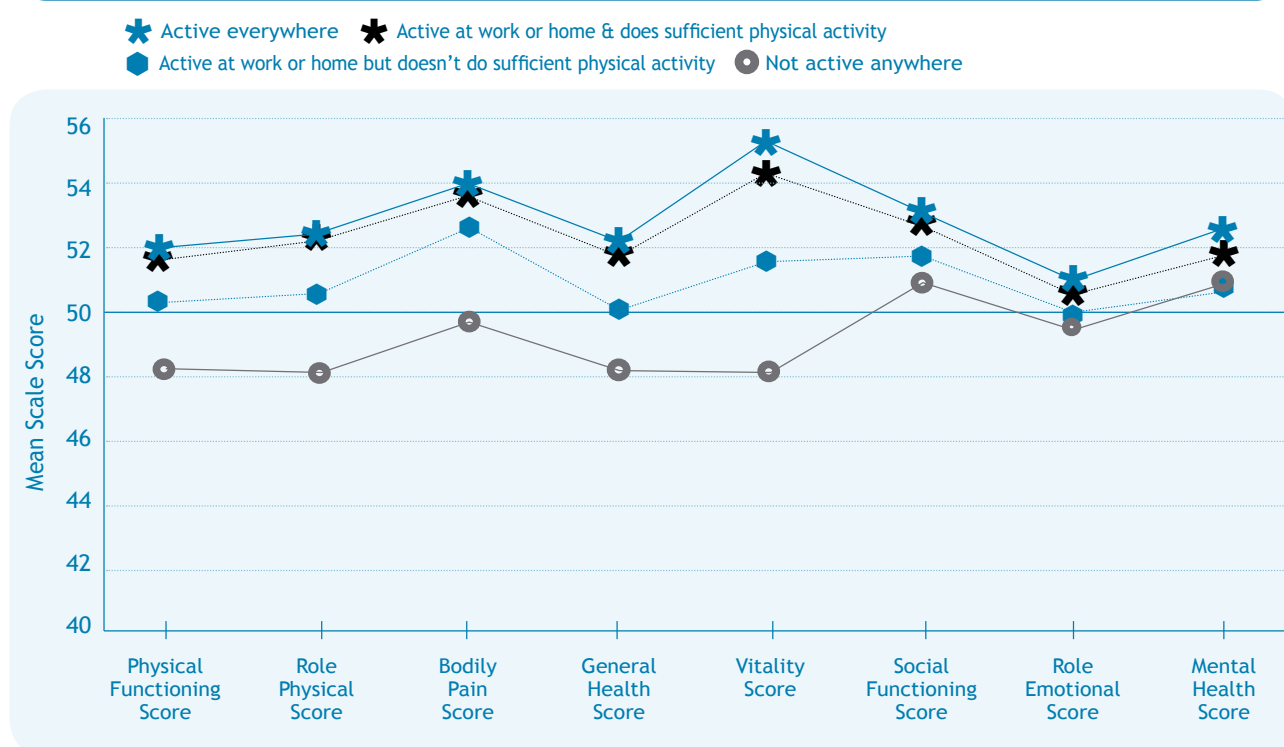
As the number of chronic conditions increases, SF8 scores on all dimensions decrease whether or not sufficient leisure time physical activity is done. However, people who do sufficient leisure time physical activity, even with chronic health conditions report substantially better mental and Physical Functioning on all dimensions compared with those who do insufficient leisure time activity

#### 2.4.2 Inactivity both at home and at work

The usual measure of physical inactivity is by assessing how much leisure time physical activity people do and then using guidelines to define what is sufficient versus insufficient activity, the latter also referred to as physical inactivity (Section 2.4.1). Another way to assess physical inactivity is to ask people how much time they spend in sedentary leisure pursuits such as watching television, and also to ask how they mostly spend their day, sitting, standing, walking or doing physical labour. Using these three separate measures it is possible to come up with an overall level of activity. The SF8 profiles of people by activity level and number of health conditions are shown in Figures 26 and 27.

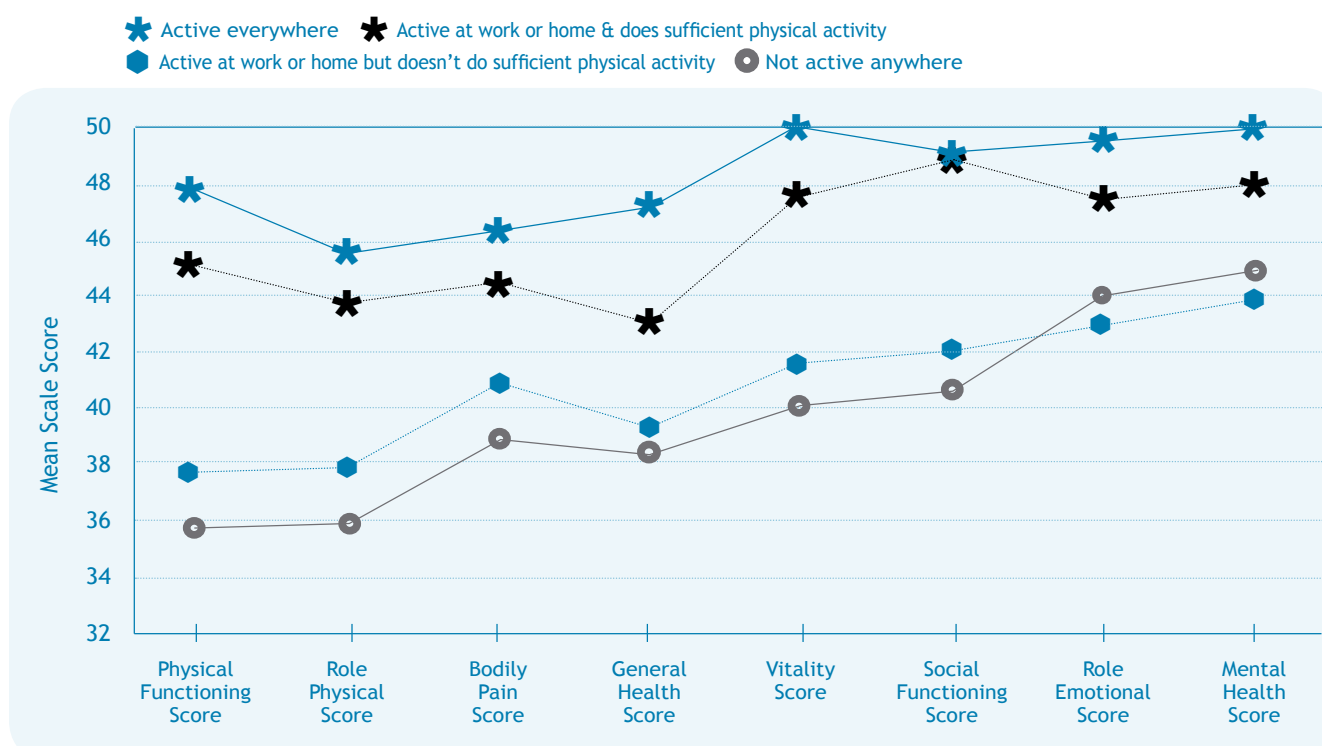
People with no or only one chronic health condition who are active at home, at work and do sufficient leisure time physical activity, scored significantly higher on the Vitality dimensions compared with those who are active at work or at home and who do sufficient leisure time physical activity.

**Figure 26** Mean SF8 score profiles for people 45 to 64 years with no or one chronic health condition by activity level, HWSS, 2002-06



The scores on all the SF8 dimensions decrease significantly for people who are active at home or work but don't do sufficient physical activity and for people who do no activity compared with those who are active everywhere and those who are active at work or home and do sufficient physical activity.

**Figure 27** Mean SF8 score profiles for people 45 to 64 years with two or more health conditions by activity level, HWSS, 2002-06



People with two or more health conditions and who are either wholly inactive or active at home or work but do not do sufficient leisure time physical activity score significantly lower than people who are active everywhere and people who are active at work or at home and who do sufficient leisure time activity.

While the effect is seen over all the SF8 dimensions, the biggest differences are seen on the Physical Functioning, Role Physical, Vitality and General Health dimensions.

## Key finding:

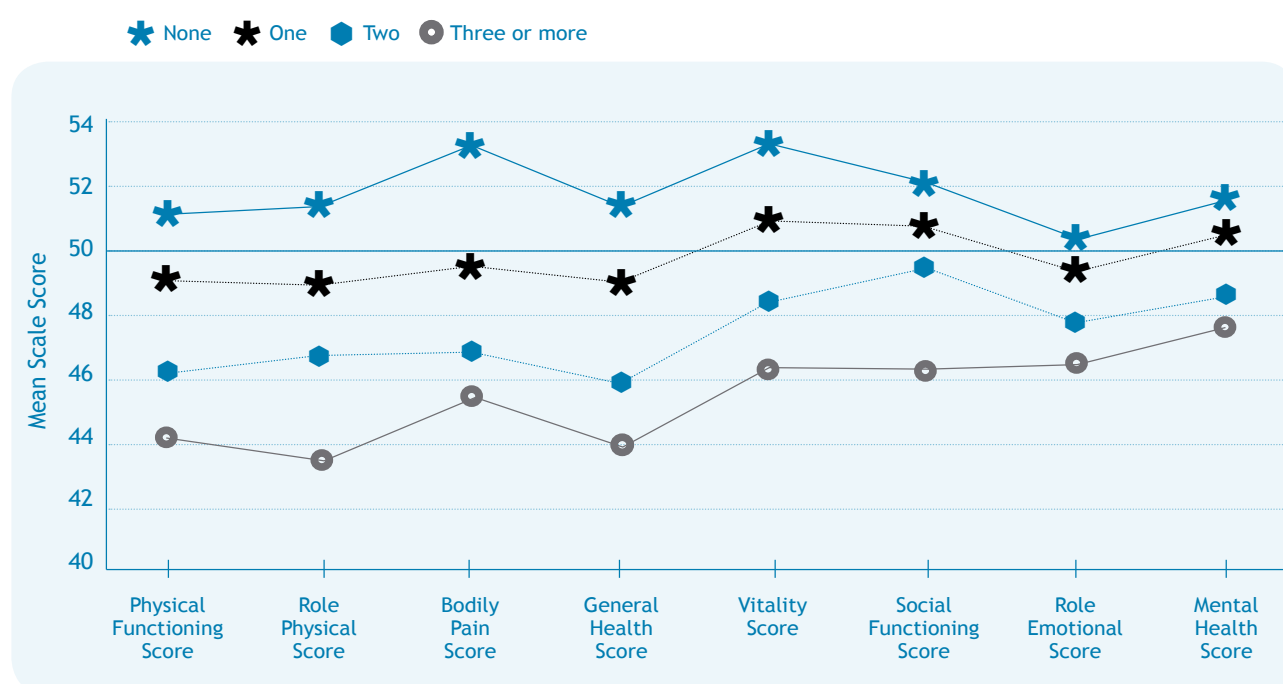
When all types of activity are considered, the more active people are the better their SF8 profile whether or not they have chronic conditions.

With increasing inactivity levels, the effect of increasing numbers of chronic conditions is worsened. The SF8 profile of people who are inactive and who have three or more chronic health conditions are the lowest of all the groups examined.

### 2.4.3 Overweight and Obesity

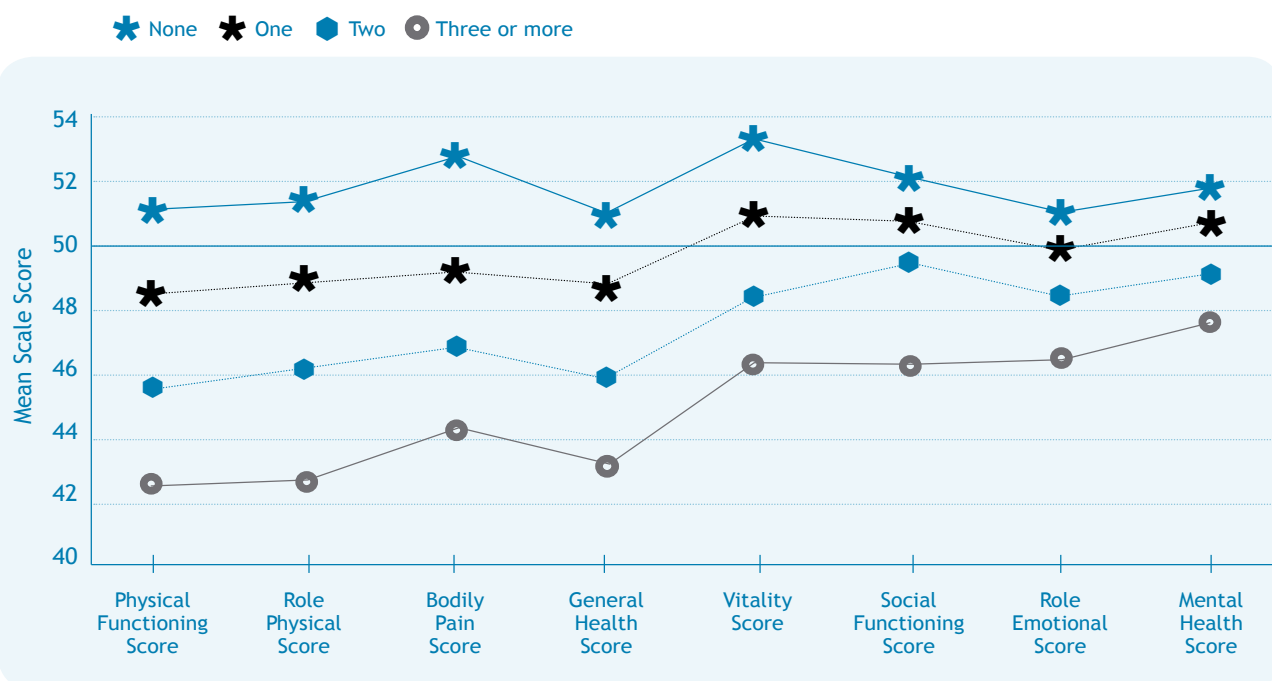
Excess weight is associated with many health conditions including arthritis, asthma, heart disease, stroke, diabetes and depression.<sup>14</sup> Excess weight is significantly associated with physical inactivity but it is not a perfect correlation as 36.7% who are in the obese category of the Body Mass Index (BMI) also report doing sufficient physical activity and a further 9.5% do 150 moderate minutes but not over five sessions. This section examines the effect of overweight and obesity on the health conditions for which it is a risk factor. Figures 28, 29 and 30 show the SF8 profiles for BMI category by number of chronic conditions

**Figure 28** Mean SF8 score profiles for people 45 years and over who are neither overweight nor obese by number of chronic conditions, HWSS, 2002-06



There is a significant decrease in all eight dimensions with increasing numbers of chronic conditions for people who are not obese. The only three exceptions are for Bodily Pain, Role Emotional and Mental Health dimensions between people with two and three or more conditions where the scores are not significantly different.

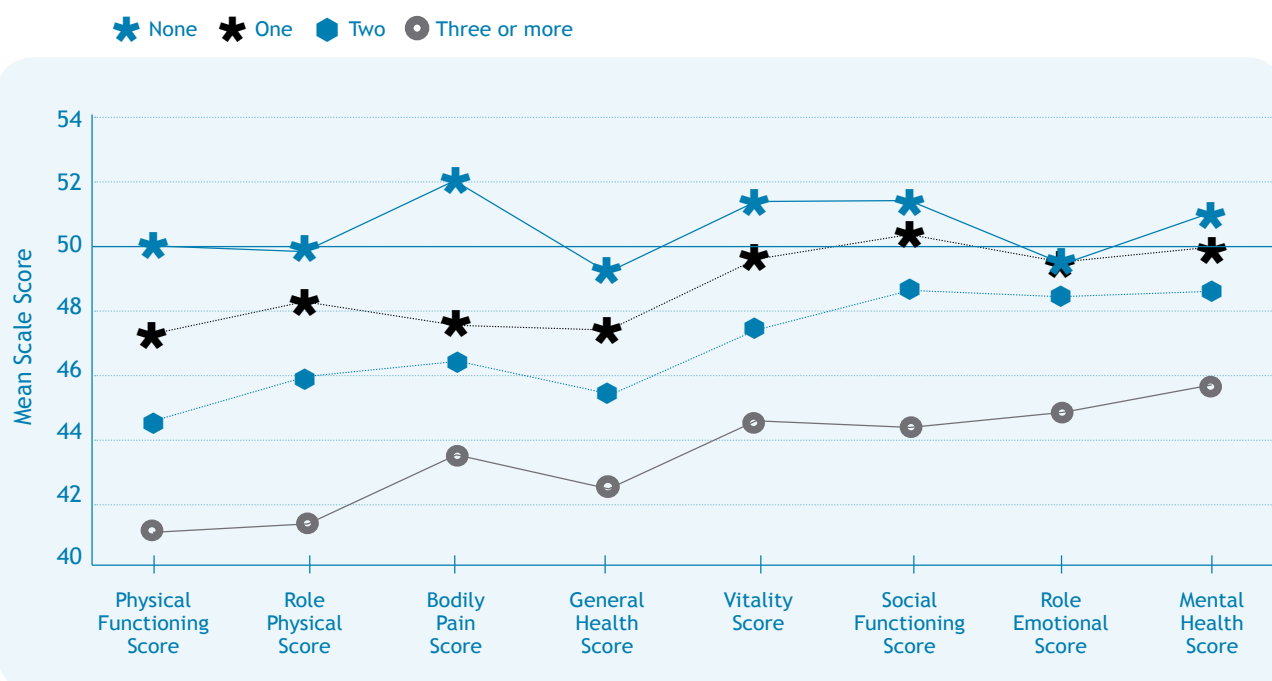
**Figure 29** Mean SF8 score profiles of overweight people aged 45 years and over by number of chronic conditions, HWSS, 2002-06



The SF8 profiles of people who are overweight are very similar to the SF8 profiles of those who are not overweight as shown in Figures 28 and 29. There are no significant differences between any of the SF8 dimensions between people who are not overweight compared with people who are overweight but not obese.

The SF8 profile of people who are obese by number of health conditions are shown in Figure 20.

**Figure 30** Mean SF8 score profiles for people 45 years and over by number of chronic conditions for which excess weight is a risk factor who are obese, HWSS, 2002-06



People who are obese show decreasing scores with increasing numbers of health conditions. They score lower on all dimensions except Mental Health compared with people who are not overweight and score significantly lower on five of the eight dimensions, Physical Functioning, Role Physical, Bodily Pain, General Health and Vitality, compared with people who are overweight but not obese.

People who are classified as obese score lower on all dimensions of the SF8 whether or not they have a chronic health condition. The effects are most noticeable on the Physical Functioning, Role Physical and Bodily Pain dimensions.

**Key finding:** As the number of chronic conditions increases, there are significant decreases in the SF8 dimensions whether or not a person is overweight or obese. With exception of those who have three or more chronic conditions, people who are not obese show substantially better Mental and Physical Functioning on all dimensions compared with those who are obese.

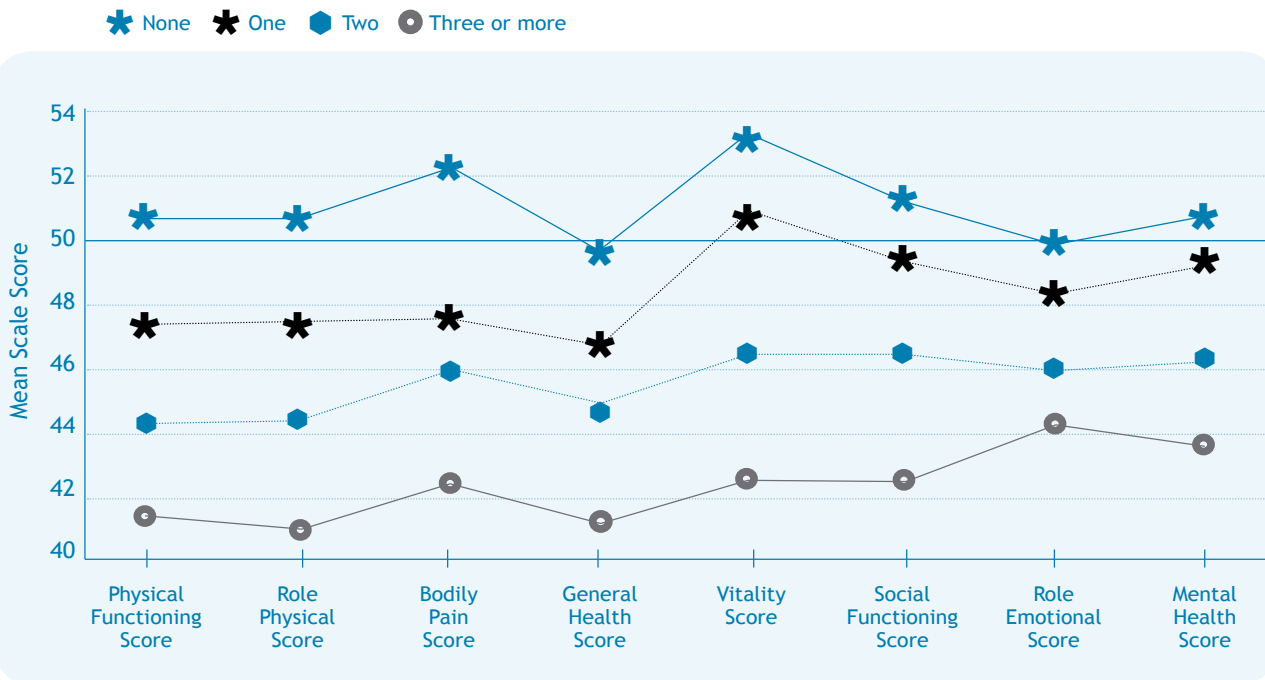
#### 2.4.4 Smoking

Smoking is a risk factor associated with a number of chronic health conditions including heart disease, stroke, asthma, chronic obstructive pulmonary disease (COPD), and osteoporosis.<sup>2</sup> This section looks at the effects of being a current smoker and an ex-smoker on the SF8 profiles of people with chronic health conditions for which smoking is a risk factor.

The SF8 profiles of people by number of health conditions and smoking status are shown in Figures 31 and 32. There is a decrease across all dimensions with increasing numbers of health conditions whether not a person is a current or ex-smoker

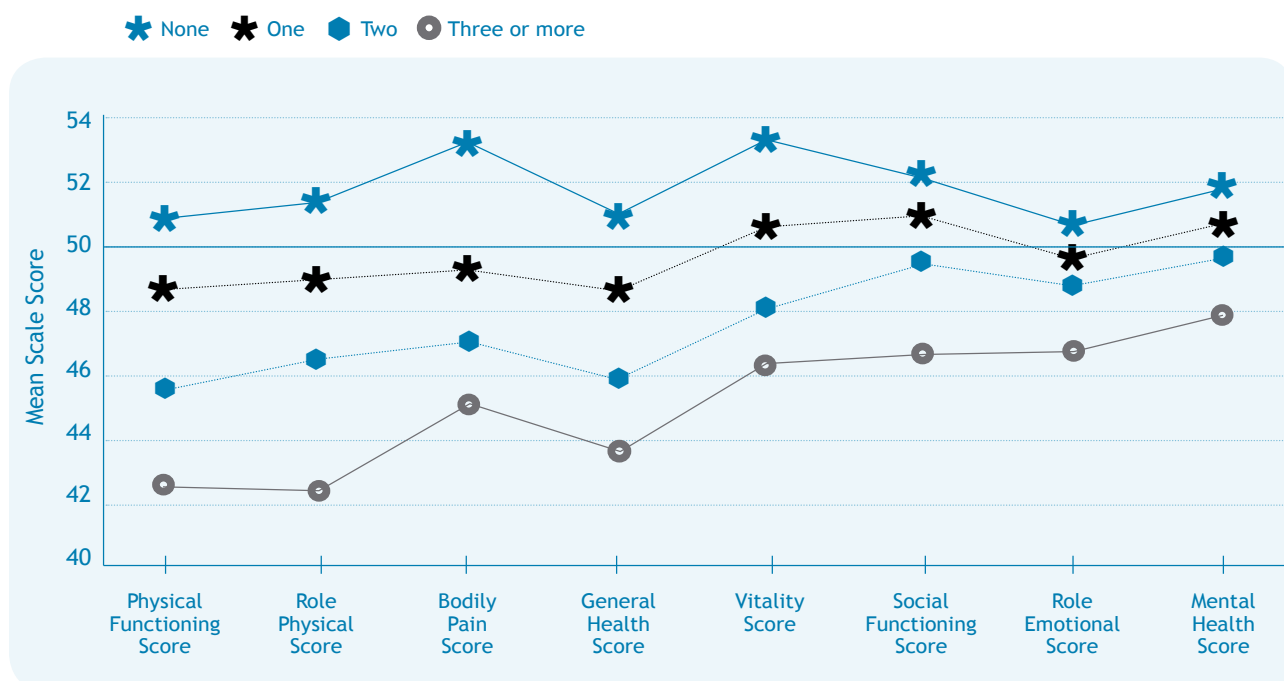
People aged 45 years and over who have three or more chronic conditions, who are current smokers, scored significantly lower on seven of the SF8 dimensions compared with never smokers and ex-smokers. There were no significant differences on the Role Emotional dimensions between the three groups.

**Figure 31** Mean SF8 score profiles for people 45 years and over who currently smoke by number of chronic conditions, HWSS, 2002-06



People who currently smoke and who have one chronic condition score significantly lower on seven of the SF8 dimensions compared with people who never smoked who have one chronic condition; the exception was on the Vitality dimension where the difference was not significant. People with two conditions and who currently smoke scored significantly lower on the Role Physical, Vitality, Social Functioning, Role Emotional and Mental Health dimensions compared with people who never smoked. People with three or more conditions who currently smoke scored significantly lower on Physical Functioning, General Health, Vitality, Social Functioning, Role Emotional and Mental Health dimensions compared with people who never smoked.

**Figure 32** Mean SF8 score profiles for people 45 years and over who are ex-smokers by number of chronic conditions, HWSS, 2002-06

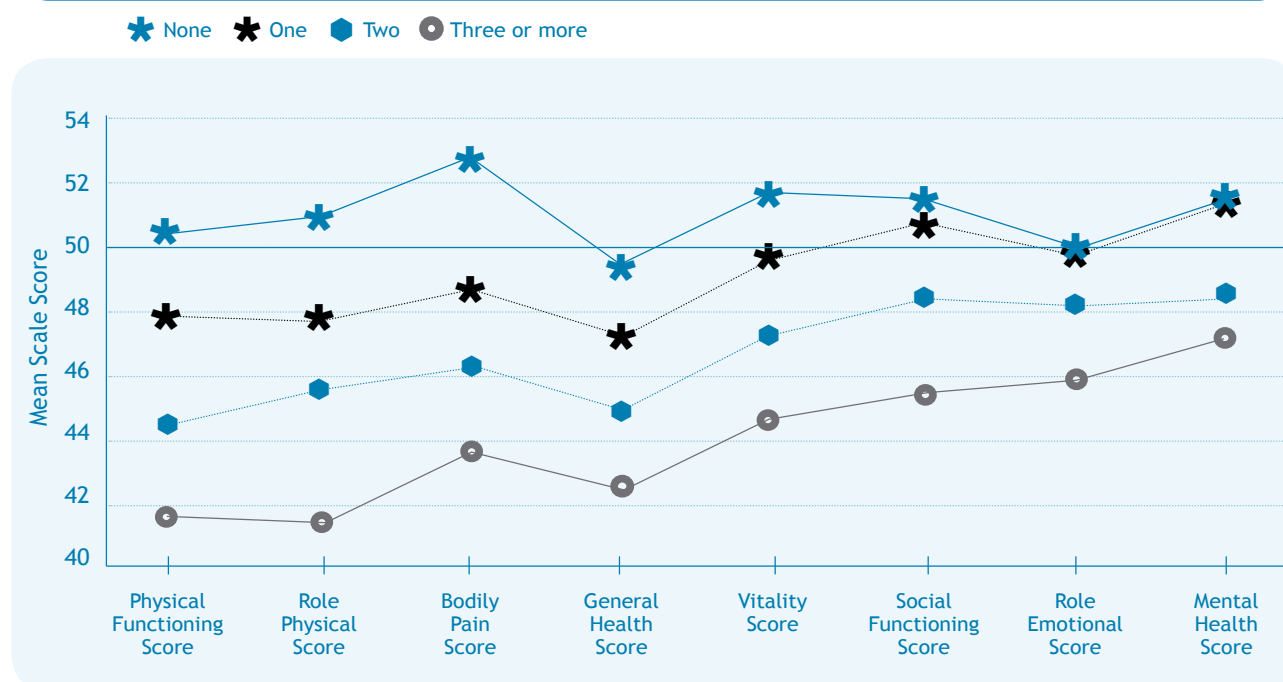


There were no significant differences between the SF8 scores for people who were ex-smokers compared with people who never smoked.

#### 2.4.5 High Blood Pressure

The SF8 profiles for people with high blood pressure or are on medication for high blood pressure by the number of chronic health conditions are shown in Figure 33. As the number of conditions increases, SF8 scores decrease independent of whether or not the person has high blood pressure.

**Figure 33** Mean SF8 score profiles for people 45 years and over who currently have high blood pressure or are on medication by number of chronic conditions, HWSS, 2002-06



People who report that they had high blood pressure or who were on medication for high blood pressure score significantly lower than people without high blood pressure on the General Health and Vitality dimensions, independent of the number of chronic conditions. People with one, two, or three or more health conditions and who did not have high blood pressure scored significantly better on the Physical Functioning and Role Physical dimensions compared with people who had high blood pressure or were on medication for high blood pressure.

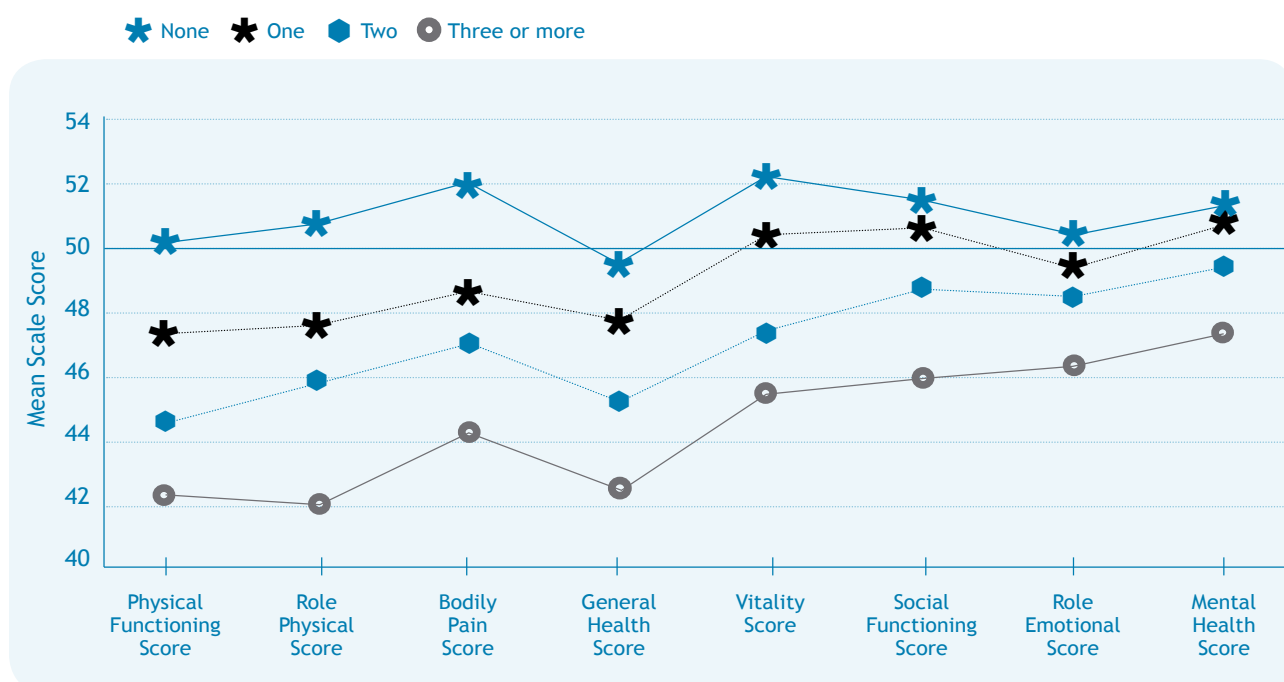
#### 2.4.6 High Cholesterol

The SF8 profiles for people with high cholesterol or on medication for high cholesterol by number of health conditions are shown in Figure 34.

There is a significantly lower Physical Functioning score across all numbers of chronic conditions for people who reported having high cholesterol compared with those who didn't have high cholesterol. For people with no chronic conditions or with only one chronic condition and who also had high cholesterol, there were significantly lower scores on the Bodily Pain, General Health and Vitality dimensions compared to those who didn't have high cholesterol.



**Figure 34 Mean SF8 profiles for people aged 45 years and over who reported having high cholesterol by number of chronic conditions, HWSS 2002-06**



#### 2.4.7 Summary of the risk factors and SF8 profiles for people aged 45 years and over

Being totally inactive or being inactive at home or work and doing insufficient leisure time activity were the risk factors that showed the greatest impact of all the conditions over all the dimensions of the SF8 whether or not people had any chronic health conditions. When people were inactive and did have chronic health conditions, the SF8 scores decreased significantly with increasing number of chronic conditions.

Being a smoker and being obese also significantly lowered SF8 profile scores independent of the presence of chronic conditions. Scores decreased with increasing numbers of health conditions.

### 3 CONCLUSION

People who have any chronic health conditions show poorer physical and mental functioning compared with people who have no chronic health conditions. Each additional chronic health condition adds to the decreases in SF8 dimensions scores significantly. People with three or more chronic health conditions report very low levels of both physical and mental functioning although the decreases are greatest on the physical dimensions.

The presence of risk factors not only increases the difference between people with and without chronic health conditions, they also, on their own, have an effect on the SF8 dimensions.

Being physically inactive showed the greatest impact on quality of life even when people did not have any chronic health conditions.

This report has implications for health promotion strategies. Keeping healthy makes a big difference to your quality of life and keeping healthy and physically active is the combination that showed the highest levels of quality of life, independent of age.

## 4 REFERENCES

- <sup>1</sup> Information on the SF8 and the SF36 can be found at the following website address:  
<http://www.sf-36.org/tools/sf8.shtml>
- <sup>2</sup> Ware JE, Kosinski M, Dewey JE and Gandek B. *How to Score and Interpret Single-Item Health Status Measures: A Manual for Users of the SF8™ Health Survey*. Lincoln, RI: Quality Metric Incorporated, 2001.
- <sup>3</sup> Australian Bureau of Statistics, Population by Age and Sex, Australian States and Territories, Catalogue Number 3201.0, June 2006.
- <sup>4</sup> More information on the summary scores can be found on the following website address:  
<http://www.sf-36.org/tools/sf36.shtml>
- <sup>5</sup> The PCS and MCS are negatively skewed but not so much that transformations were necessary.
- <sup>6</sup> Wood, Nerissa & Daly, Alison (2007). Health and Wellbeing of Adults in Western Australia 2006, Overview of Results. Department of Health, Western Australia.
- <sup>7</sup> Crouchley K, Molster C and Daly A (2006) WA Health and Wellbeing Surveillance System: Monitoring Health Priorities in WA—Coronary Heart Disease Bulletin 2. March. Perth: Epidemiology Branch, Department of Health WA.
- <sup>8</sup> National Health Priority Area: Cardiovascular Health.  
Website: <http://www.health.gov.au/internet/wcms/publishing.nsf/content/health-pq-cardio-index.htm>
- <sup>9</sup> Crouchley K, Daly A and Molster C (2006). WA Health and Wellbeing Surveillance System: Monitoring Health Priorities in WA—Type 2 Diabetes Bulletin 3. June. Perth: Epidemiology Branch, Department of Health WA.
- <sup>10</sup> Daly A, Molster C and Crouchley K (2006) WA Health and Wellbeing Surveillance System: Monitoring National Health Priority Areas in WA—Asthma Epidemiology Bulletin No. 1. January. Perth: Epidemiology Branch, Department of Health WA.
- <sup>11</sup> Only people with the specified health condition and no other health condition are shown in the figures.
- <sup>12</sup> Molster C and Daly A (2006) Monitoring National Health Priority Areas in WA—Mental health problems. Bulletin No 4. Perth: Epidemiology Branch, Analysis and Performance Reporting Directorate, Department of Health WA.
- <sup>13</sup> Australian Institute of Health and Welfare (AIHW) 2003. The Active Australia Survey: A Guide and Manual for Implementation, Analysis and Reporting. Canberra:AIHW
- <sup>14</sup> Australian Institute of Health and Welfare 2006. Chronic diseases and associated risk factors in Australia, 2006. Cat. No. PHE81. Canberra:AIHW.







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