

# Adult health status (SF-36)

## Introduction

The Medical Outcomes Study Short Form 36 questionnaire (SF-36) is one of the most widely used questionnaires for measuring self-reported physical and mental health status in adults. The SF-36 consists of 36 questions (items) measuring physical and mental health status in relation to eight health domains: physical functioning, role limitation (physical), bodily pain, general health perceptions, vitality (energy/fatigue), social functioning, role limitation (emotional), and general mental health (Ware et al 2005). Responses to each of the SF-36 items are scored, and expressed on a 0–100 scale for each of the eight health domains. Box 4.2 lists the SF-36 domains and provides a summary for interpreting the scores.

Box 4.2: Interpretation of SF-36 domain scores

Code	Domain	Low score interpretation	High score interpretation
PF	Physical functioning	Limited a lot in performing all physical activities, including self-care, due to health	Performs all types of physical activities, including the most vigorous, without limitations due to health
RP	Role limitation – physical	Limited a lot in work or other daily activities as a result of physical health	No problems with work or other daily activities as a result of physical health
BP	Bodily pain	Very severe and extremely limiting bodily pain	No pain or limitations due to pain
GH	General health perceptions	Evaluates own health as poor and believes it is likely to get worse	Evaluates own health as excellent
VT	Vitality	Feels tired and worn out all of the time	Feels full of energy all of the time
SF	Social functioning	Extreme and frequent interference with normal social activities due to physical or emotional problems	Performs normal social activities without interference due to physical or emotional problems
RE	Role limitation – emotional	Problems with work or other daily activities as a result of emotional problems	No problems with work or other daily activities as a result of emotional problems
MH	Mental health	Has feelings of nervousness and depression all of the time	Feels peaceful, happy and calm all of the time

Note: A four-week recall period is used in all domains, except GH, which uses an ‘in general’ recall period.

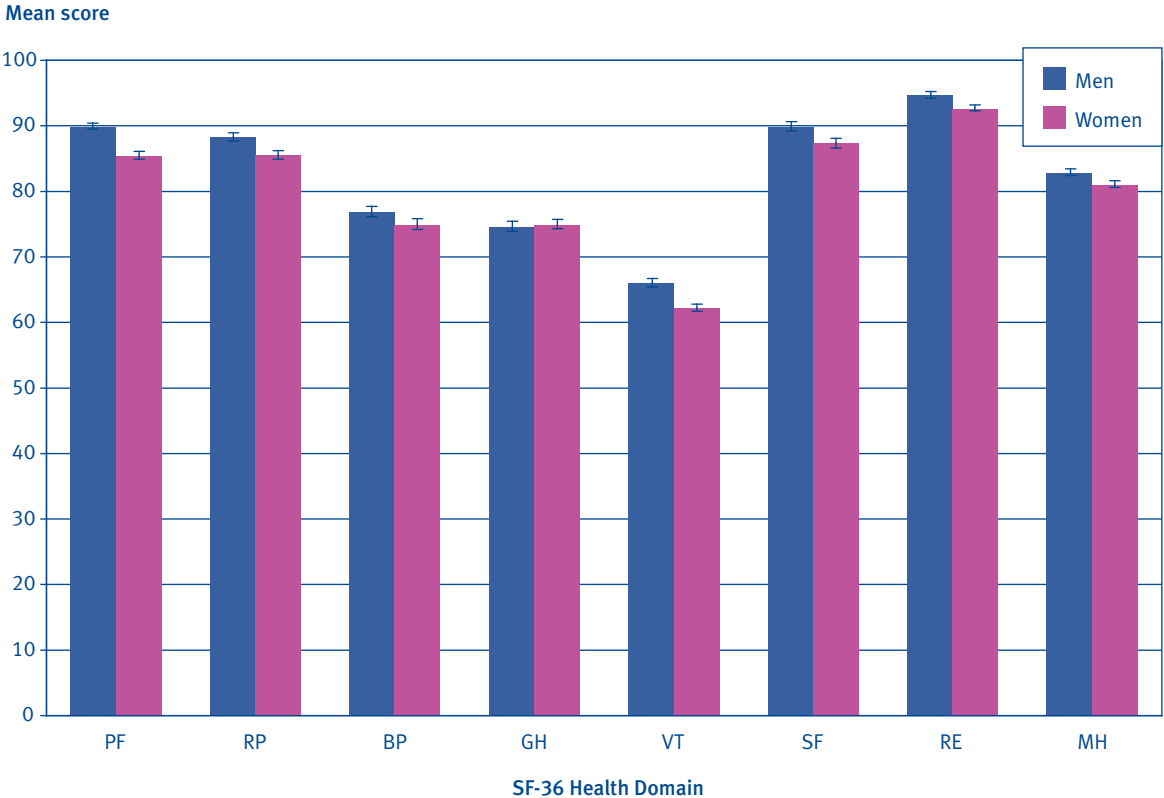
Interpretation of the SF-36 is based on the mean average scores. The domains are independent of each other and domain scores cannot be compared. However, within each domain, population subgroup (ethnic group, age, NZDep2006 quintile) means can be compared. The ordering of the domains used in this report is an international standard, with the order from left to right representing the extent to which each scale measures physical health (closer to the left) or mental health (closer to the right).

The New Zealand edition for Version 2 of the standard SF-36 was used in the 2006/07 New Zealand Health Survey. This version improved the wording and layout, and reduced the number of responses in some questions, minimising ambiguity and bias and allowing for greater comparability between cultural adaptations and translations. Versions 1 and 2 of SF-36 can be directly compared (Ware et al 2000).

### Mean SF-36 scores for adults

Men scored significantly higher than women on all SF-36 health domains except general health, adjusted for age (Figure 4.11). The differences were most pronounced for physical functioning and vitality.

Figure 4.11: Mean SF-36 scores for adults, by gender (age standardised prevalence)



Source: 2006/07 New Zealand Health Survey

Note: Comparisons can be made between genders within domains, not between health domains.

## SF-36 scores for adults, by age group

Mean SF-36 scores across the health domains generally declined with age, particularly in physical functioning, role physical and bodily pain, which are the domains most associated with physical health. General health, vitality, social functioning and role emotional were fairly stable throughout the age groups, but then declined in 75-year-olds and over (earlier for general health). Mental health mean scores improved with age, with a stabilising in the mean score from 55 years of age (Table 4.3).

Table 4.3: Mean SF-36 scores for adults, by age group (unadjusted)

Age group (years)	Physical functioning	Role physical	Bodily pain	General health	Vitality	Social functioning	Role emotional	Mental health
15–24	93.6 (92.8–94.4)	91.0 (90.1–92.0)	78.6 (77.2–80.0)	74.6 (73.5–75.7)	64.6 (63.6–65.7)	88.7 (87.6–89.7)	93.6 (92.8–94.4)	79.8 (79.0–80.5)
25–34	92.3 (91.4–93.1)	89.9 (88.9–90.9)	77.9 (76.5–79.3)	76.1 (75.0–77.2)	63.1 (62.2–63.9)	88.8 (87.6–89.9)	93.3 (92.5–94.1)	80.7 (80.0–81.5)
35–44	90.7 (89.9–91.5)	88.8 (87.8–89.8)	76.1 (74.9–77.2)	76.5 (75.6–77.4)	63.5 (62.5–64.5)	88.1 (87.2–89.0)	93.2 (92.6–93.8)	81.4 (80.7–82.0)
45–54	87.4 (86.3–88.5)	87.1 (85.8–88.4)	75.2 (73.6–76.7)	75.4 (74.2–76.6)	65.3 (64.2–66.3)	89.6 (88.5–90.6)	94.0 (93.0–94.9)	82.8 (81.9–83.7)
55–64	81.3 (80.1–82.6)	83.2 (81.9–84.5)	73.0 (71.6–74.5)	73.6 (72.5–74.6)	65.0 (64.1–66.0)	89.0 (88.0–90.1)	94.6 (93.9–95.4)	84.6 (83.9–85.2)
65–74	73.6 (71.9–75.2)	76.5 (74.6–78.5)	70.1 (68.2–71.9)	71.0 (69.5–72.4)	64.3 (63.0–65.6)	88.1 (86.7–89.5)	94.2 (93.3–95.1)	85.2 (84.5–86.0)
75 +	56.2 (54.2–58.1)	63.5 (61.0–66.0)	68.8 (67.1–70.5)	67.5 (65.9–69.0)	58.9 (57.5–60.3)	82.4 (80.6–84.2)	91.6 (90.3–93.0)	84.9 (84.0–85.9)

Source: 2006/07 New Zealand Health Survey

Note: Comparisons can be made between age groups within domains (ie, within columns).

Looking at gender within the above age groups, men consistently had higher scores than women in the domain of physical functioning, and mainly had higher scores in the domains of vitality (except in the 55–64 years range, where there was no difference between men and women) and mental health (except for the 25–34 and 45–54 years ranges, where there were no differences).

Men also had higher scores than women for the age groups in the following health domains:

- role physical for ages 25–34, 35–44 and 75 years and over
- bodily pain for ages 65–74 and 75 years and over
- social functioning for ages 15–24 years and 75 years and over
- role emotional for ages 15–24, 65–74 and 75 years and over.

Other age groups in the domains above showed no difference between men and women.

In the domain of general health, men aged 15–24 years scored higher than women of the same age, and women aged 45–54 years scored higher than men of the same age. There were no other differences between the genders by age group.

### **SF-36 scores for adults, by ethnic group**

This section summarises the SF-36 mean score rate ratios by ethnic group and gender. All results have been age standardised.

European/Other men and women had no differences in mean scores compared to men and women in the total population for all domains, except vitality, where European/Other men scored slightly lower than all men.

Māori men and women had lower mean scores than men and women in the total population on all SF-36 domains except vitality, where there were no differences for either gender, and mental health, where Māori men showed no difference compared to all men but Māori women were lower than all women.

Pacific men and women had lower mean scores than men and women in the total population on the two domains related to limitations in daily activities because of physical and emotional health problems. Pacific women also had lower mean scores than all women on physical functioning, general health and social functioning, whereas Pacific men had no difference in these domains compared to all men.

Asian men and women had a significantly higher mean score than men and women in the total population for bodily pain and vitality, with no other differences for this ethnic group compared to the total population.

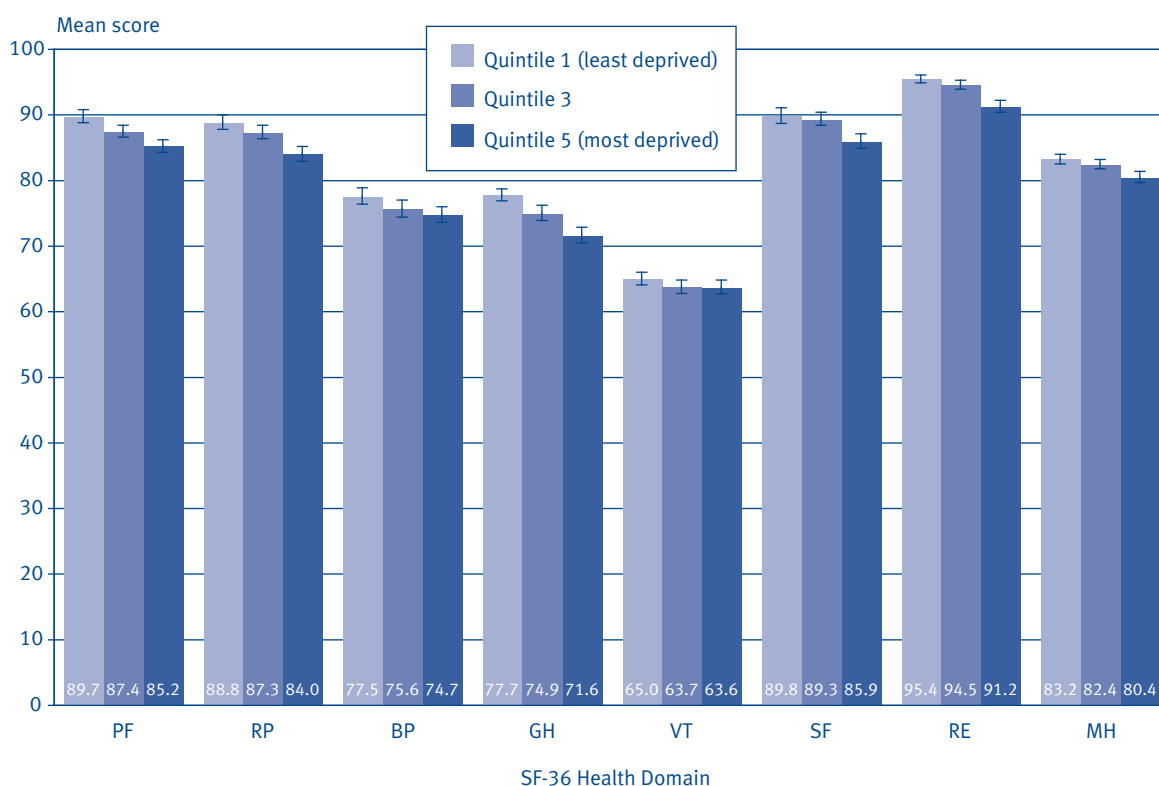
### **SF-36 scores, by neighbourhood deprivation**

The same patterns were evident in SF-36 mean scores for both men and women by NZDep2006 quintile, so the analysis here combines data for men and women.

In all SF-36 domains, mean scores decrease as neighbourhood deprivation increases, with the exception of vitality, where there is no significant difference by NZDep2006 quintile.

In the SF-36 domains more closely related to physical health (physical functioning, role physical, bodily pain and general health), a steady gradient of decreasing score with increasing deprivation is evident, whereas in the domains more closely related to mental health (social functioning, role emotional and mental health) there is little difference, if any, between NZDep2006 quintiles 1 and 3, and then a significant decrease between quintile 3 and quintile 5 (Figure 4.12).

Figure 4.12: SF-36 mean scores for adults, by NZDep2006 quintile (age standardised prevalence)



Source: 2006/07 New Zealand Health Survey

Note: Comparisons can be made between NZDep2006 quintiles within domains, but not between domains.

## Time trends in SF-36 scores for adults

This section summarises the time trends in SF-36 mean scores for adults by gender and ethnic group. All results have been age standardised, and differences are only mentioned when they are statistically significant.

For women there was no change in the general health and vitality scores between 1996/97 and 2006/07.

For men, there was an increase in SF-36 scores from 1996/97 to 2006/07 in the role physical and role emotional domains. There was a decrease in the bodily pain score between 1996/97 and 2006/07 and within the vitality domain between 2002/03 and 2006/07. Between 1996/97 and 2002/03 there were increases in the physical functioning, general health, social functioning, and mental health domains, followed by decreases between 2002/03 and 2006/07.

For women, there was an increase in the role emotional score between 1996/97 and 2006/07 and in the role physical score between 2002/03 and 2006/07. Between 1996/97 and 2002/03 there were increases in the physical and social functioning scores, followed by decreases between 2002/03 and 2006/07. There was also an increase in bodily pain score between 2002/03 and 2006/07. Between 1996/97 and 2002/03 there was an increase in the mental health score but no change between 2002/03 and 2006/07.

For Māori the same trends as above can also be seen across the SF-36 domains.