

Chapter 11: SF-36 Health Status Questionnaire: Health Risk Behaviours, Specific Conditions and Health Service Utilisation

Key points

- Smoking status had some impact on self-reported health, particularly amongst non-Māori, though less than its effect on objective health status.
- Increasing duration of physical activity was generally associated with higher SF-36 scores.
- Low-to-moderate consumers of alcohol had, on the whole, better self-reported health than either non-drinkers, or heavier drinkers.
- The cross-sectional nature of the survey makes it unclear whether lower health status was a consequence of the adoption of certain patterns of behaviour, or a determinant of them.
- High blood pressure had considerable impact on SF-36 scores, particularly amongst Māori, perhaps reflecting ethnic differences in stage or implications of diagnosis.
- Diabetes had some impact on self-reported health, though again this was more pronounced in Māori.
- Those who had made fewest visits to their GP and had no hospital admissions in the past 12 months had the best self-reported health.

Results

SF-36* profiles by health risk behaviours

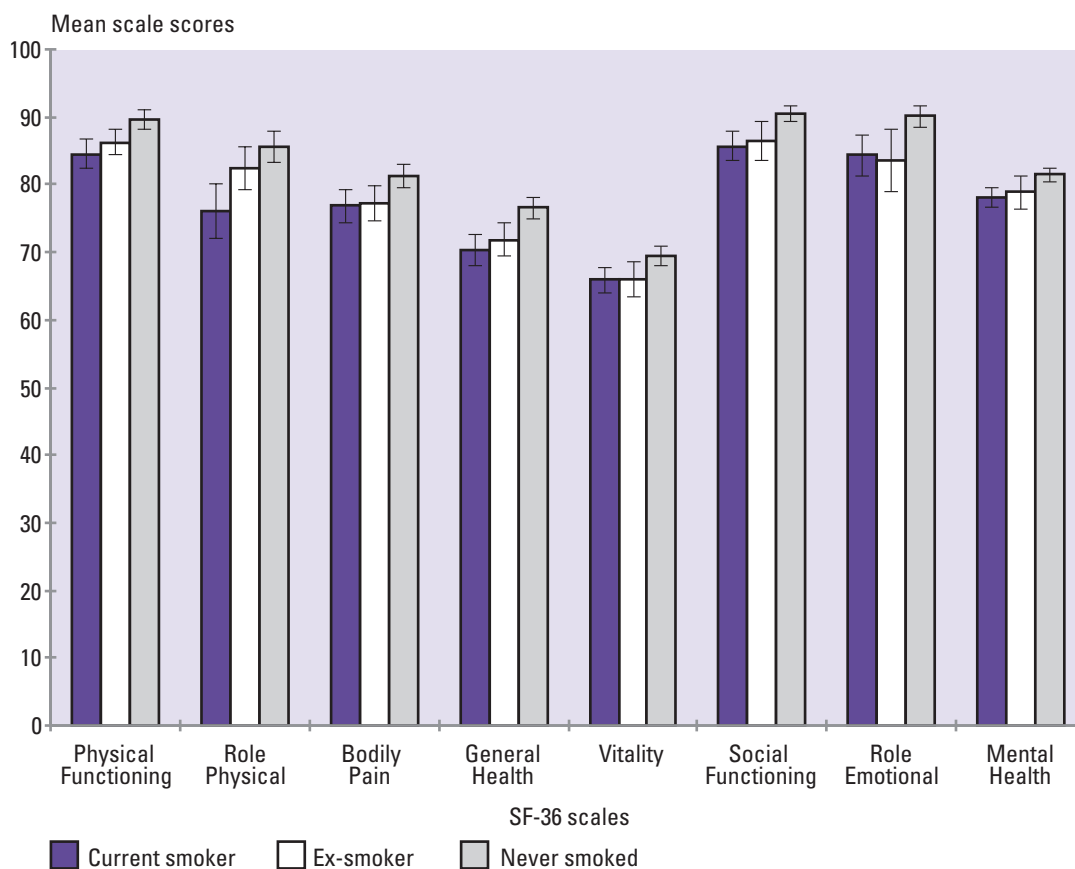
SF-36 profiles by smoking status

Smoking status affected self-reported health, both physical and mental, although less profoundly than its generally accepted effect on objective health status. On the SF-36 the self-reported health advantage for never-smokers occurred more systematically in non-Māori than in Māori, and amongst Māori occurred more for females than for males. Explanations for some of these patterns may relate to a discrepancy between the nature and degree of the subjective effects of smoking (some of which may be perceived of as positive, for example, as stress relief) and the profound, negative objective effects.

The relationship between smoking status (current smoker, ex-smoker and never-smoker) and SF-36 scores was found to differ significantly for ethnic group and sex on all scales ($p < 0.0001$ for each scale).

* See Chapter 10 for an introduction to the SF-36.

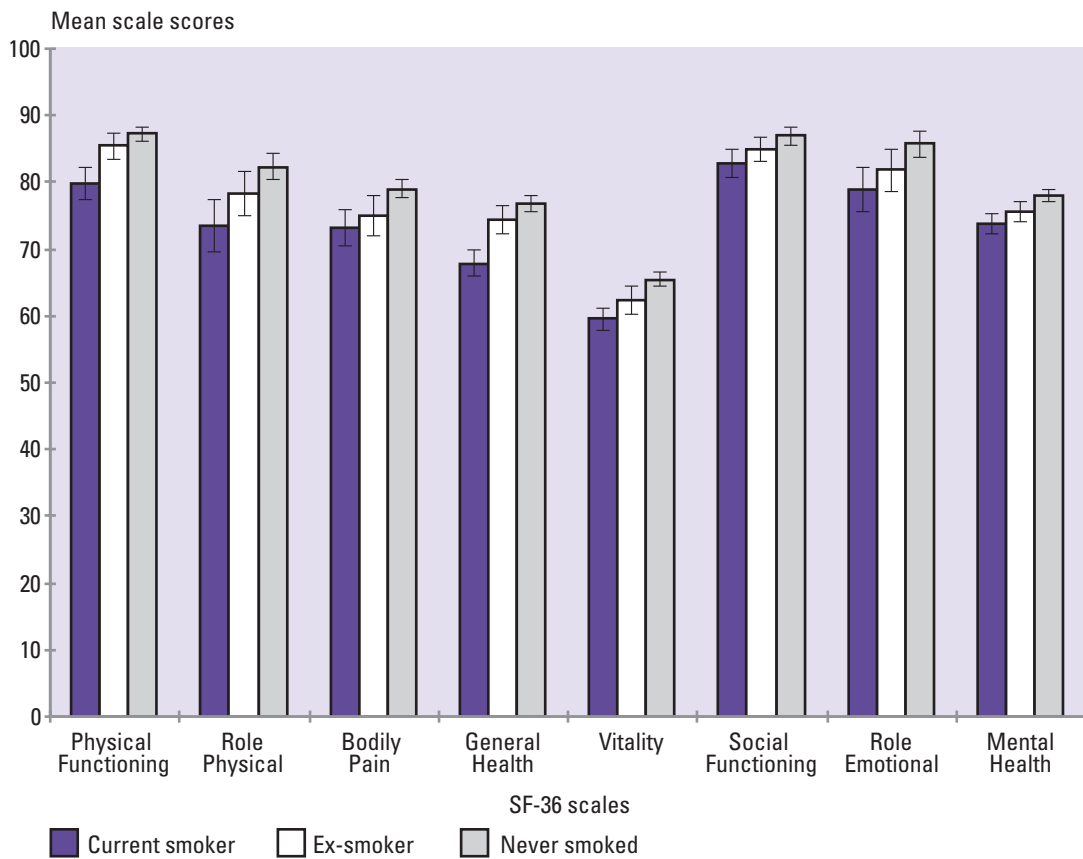
Figure 75: SF-36 profiles, by smoking status, non-Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Non-Māori males showed a clear pattern of highest ratings for self-assessed health in the never-smoked group (see Figure 75). This group had significantly higher scores than the current smoker group on all scales, and they were significantly higher than the ex-smoker group on most scales, except Role Physical and Mental Health.

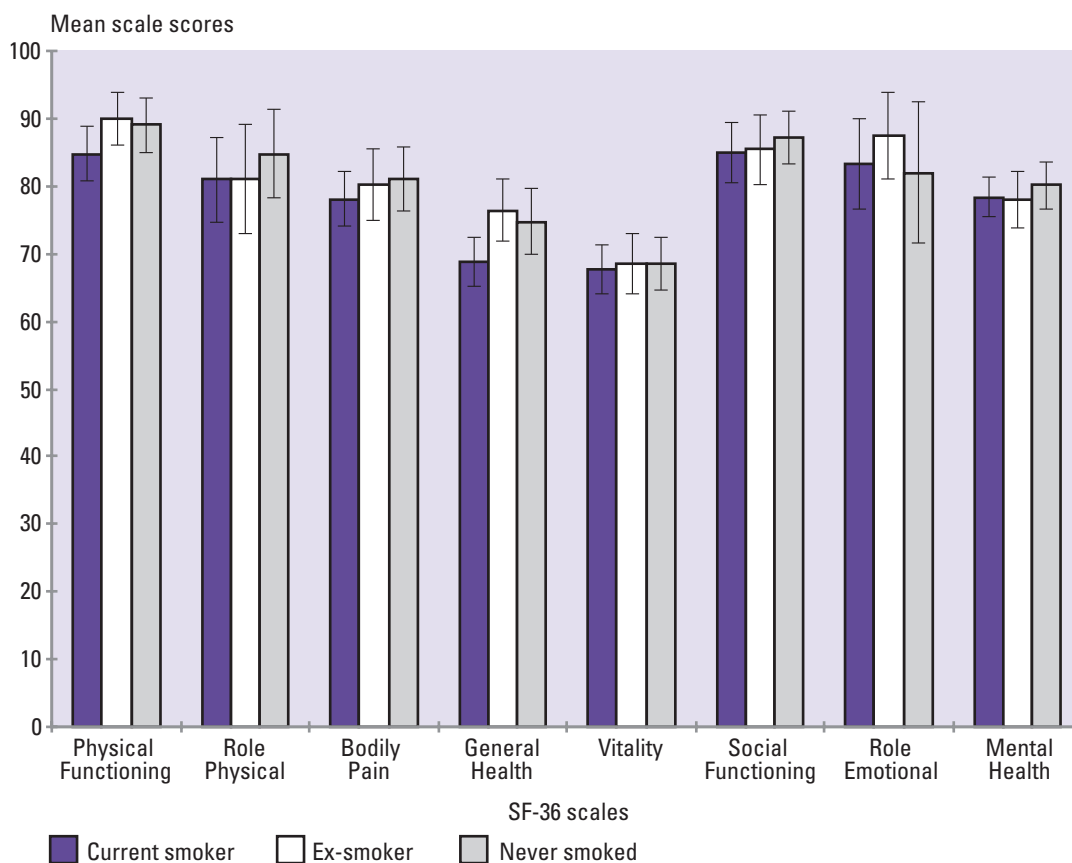
Figure 76: SF-36 profiles, by smoking status, non-Māori females (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

As Figure 76 illustrates, non-Māori females exhibited a similar pattern to non-Māori males, showing significantly higher scores amongst the never-smoked group relative to current smokers on all scales.

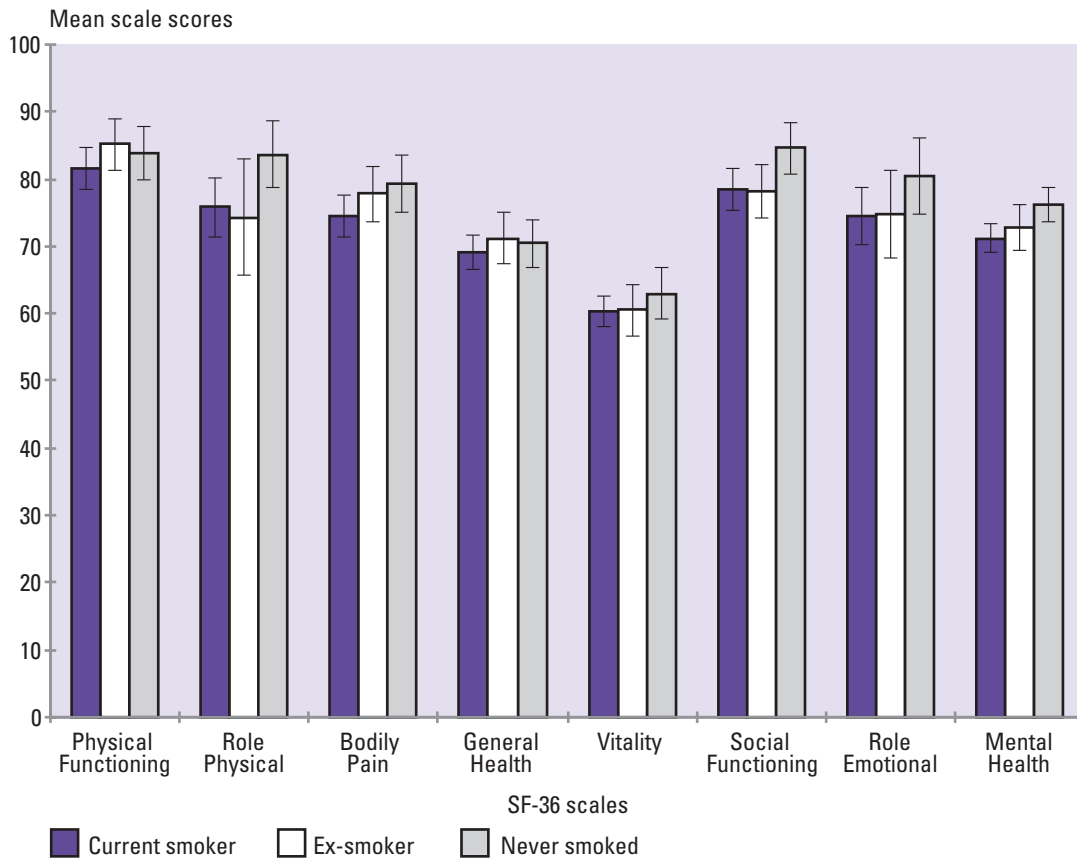
Figure 77: SF-36 profiles, by smoking status, Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Among Māori males the never-smoked group did not score significantly higher than current smokers on any scale, nor did they rate their health significantly higher than ex-smokers on any scale (see Figure 77).

Figure 78: SF-36 profiles, by smoking status, Māori females (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Māori females showed a rather more differentiated pattern between the smoking groups than Māori males (see Figure 78). The never-smoked group scored significantly higher than the current smokers on three of the scales (Role Physical, Social Functioning and Mental Health), though only significantly higher than ex-smokers on the Social Functioning scale.

Although these data showed statistically significant differences in self-reported health amongst groups differing in smoking status, the differences are smaller than the well-documented profound objective effect of smoking on physical health (see Chapter 2: Smoking). There may be several explanations for this. Smoking probably has fewer immediately discernible effects on health relative to its known long-term consequences. Also, self-reported health in relation to smoking is likely to be influenced by the extent to which smoking is considered socially acceptable amongst some sub-groups in the population, such as young women. These data may also reflect the perception among some smokers that smoking relieves stress. This latter possibility may be particularly pertinent to Māori.

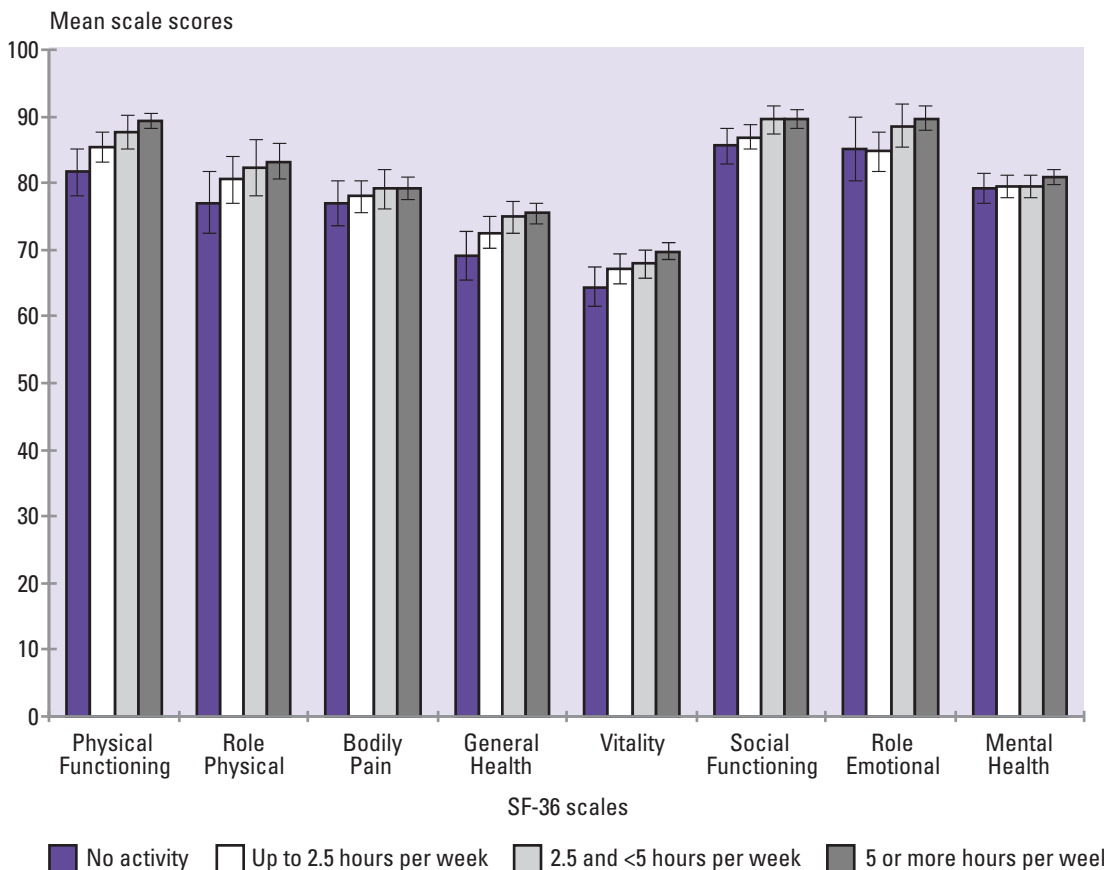
A British study (Lyons et al 1994) on SF-36 scores among smokers and non-smokers found significantly poorer health status in smokers (including current and ex-smokers) after adjusting for age, sex, alcohol intake and social group. However, the differences were only significant for the four scales relating to physical health, together with the Vitality scale. Similarly, Tillman and Silcock (1997) found that smoking status only significantly affected scores on three of the SF-36 scales (Vitality, General Health and Mental Health).

SF-36 profiles by physical activity

Duration of physical activity was associated with higher SF-36 scores in both ethnic groups, although the direction of the effect is unclear; that is, whether level of physical activity is influencing health status, or is the result of it. The relationship between duration of physical activity and SF-36 scores was more systematic (occurring across more of the scales) in non-Māori, and most systematic of all in non-Māori females. Non-Māori females were the only group to show an association between duration of physical activity and the Mental Health scale.

The relationship between duration of physical activity and SF-36 scores was found to differ significantly for ethnic group and sex on all scales ($p < 0.0001$) except Bodily Pain. For discussion on the definition of physical activity, see Chapter 3: Physical Activity.

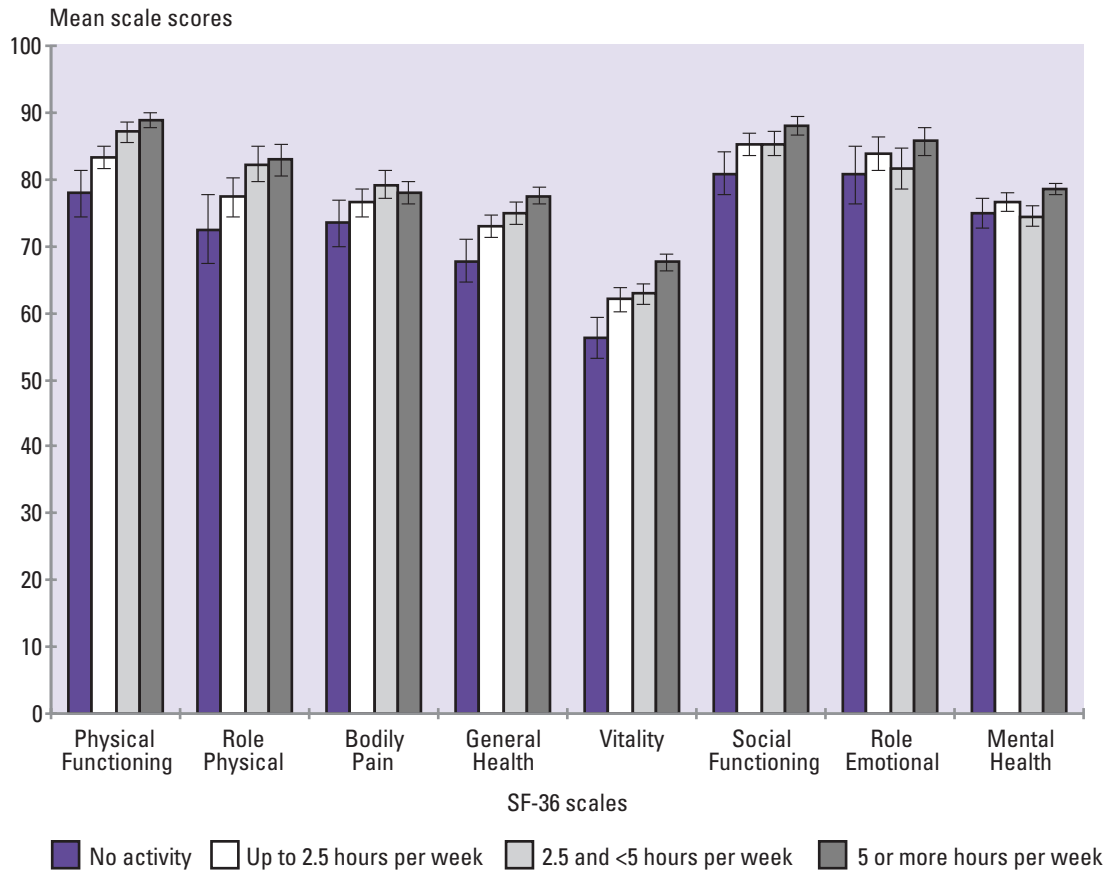
Figure 79: SF-36 profiles, by duration of physical activity, non-Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Non-Māori males showed a gradient of increasing self-reported health with increasing duration of physical activity (see Figure 79). This emerged as a significant effect between the two most extreme groups (no activity versus five or more hours per week) on the Physical Functioning, Role Physical, General Health, Vitality and Social Functioning scales.

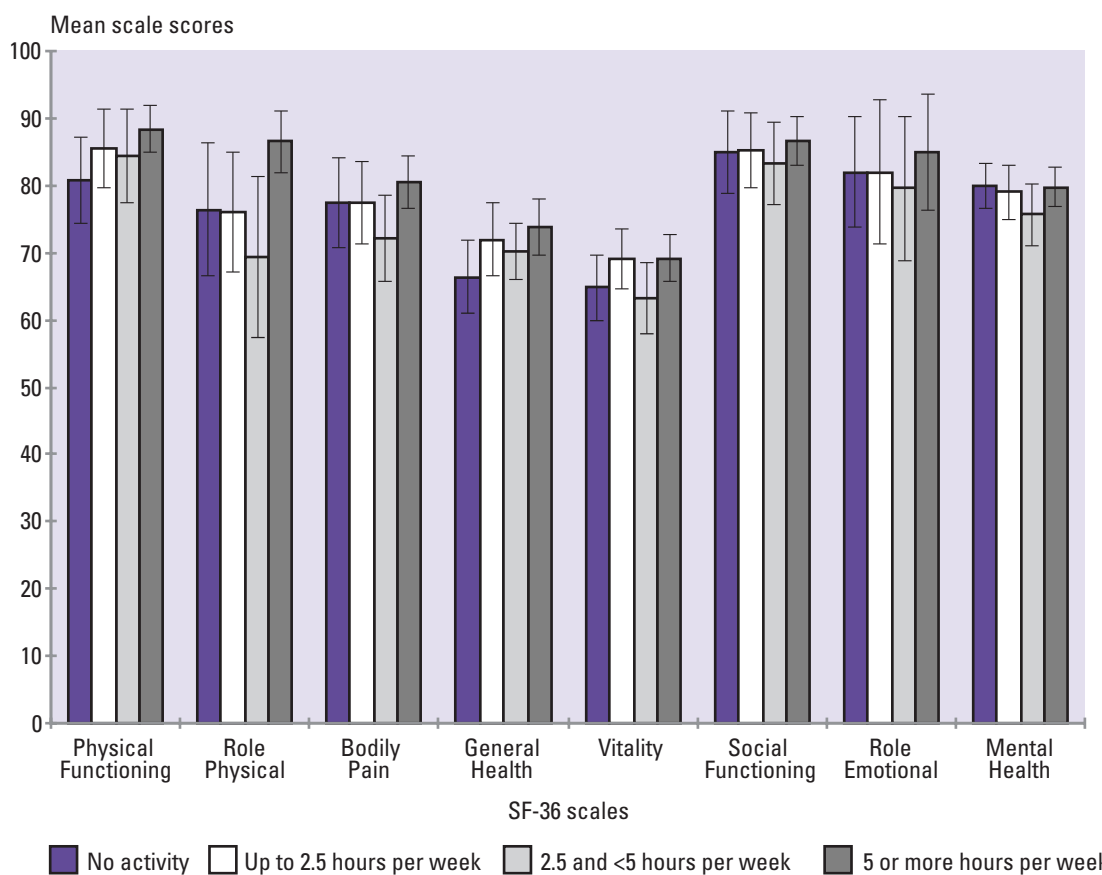
Figure 80: SF-36 profiles, by duration of physical activity, non-Māori females (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

In non-Māori females a similar but slightly more pronounced gradient occurred, with those engaged in five or more hours of activity per week having significantly higher scores on all scales, compared with those engaged in no activity (see Figure 80).

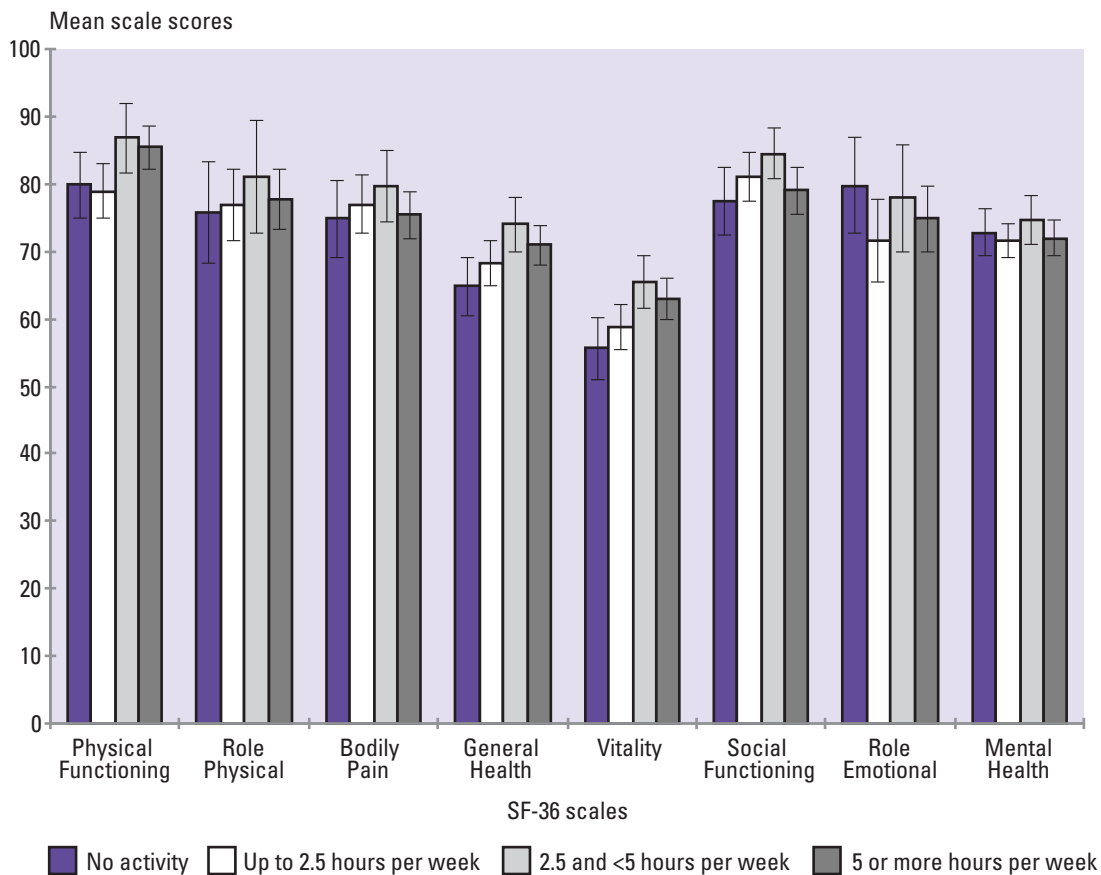
Figure 81: SF-36 profiles, by duration of physical activity, Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Māori males showed a more variable pattern than non-Māori, with significant differences between the two extremes of physical activity duration on only two of the scales related to physical health (Physical Functioning and General Health) (see Figure 81).

Figure 82: SF-36 profiles, by duration of physical activity, Māori females (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Māori females showed a significant difference between the two extremes of physical activity duration on two scales (General Health and Vitality) (see Figure 82). They also showed a tendency, which was significant on one scale (Social Functioning), for the group with the second to highest duration of activity to have higher scores than the group with the highest duration.

Due to the cross-sectional nature of these data, it is not clear whether people who do less exercise feel less healthy as a consequence, or whether people who feel less well therefore do less exercise. Probably both apply.

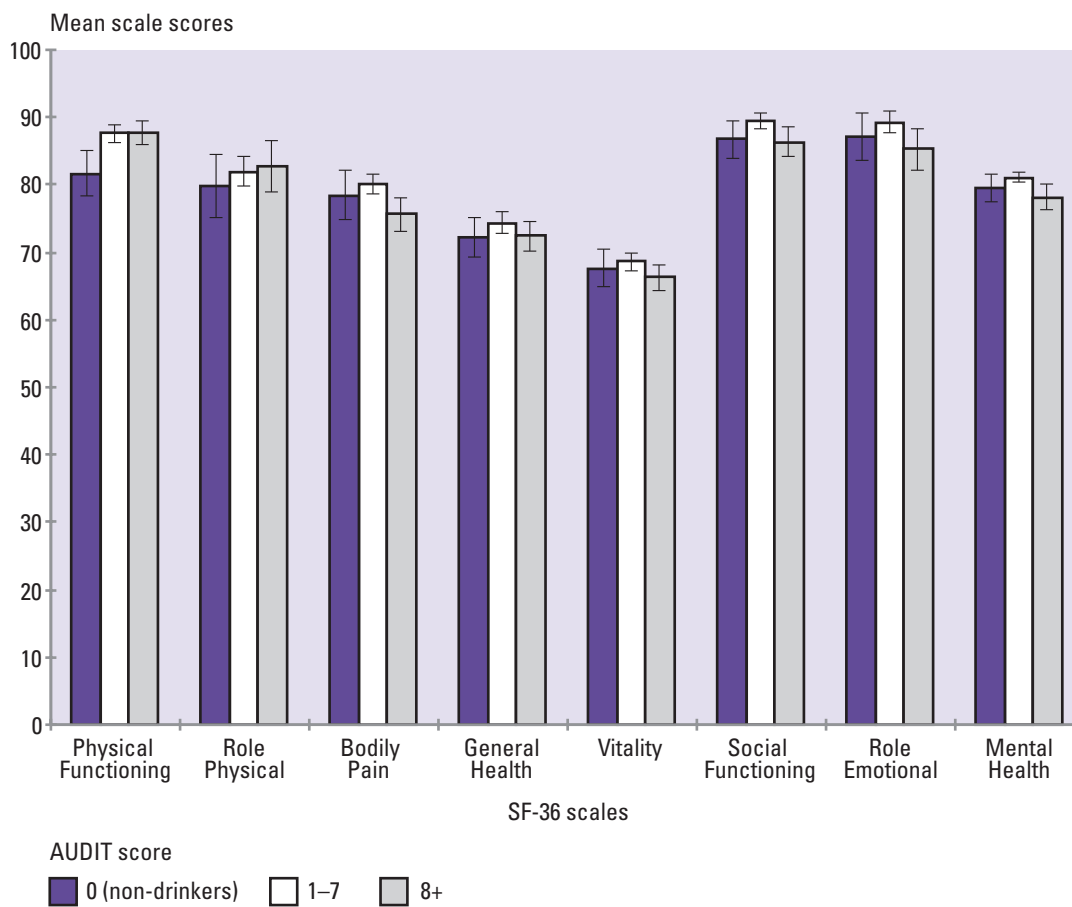
SF-36 profiles by AUDIT score (alcohol)

Low-to-moderate drinkers, on the whole, had better self-reported health than either non-drinkers or potentially hazardous drinkers. Across all groups the advantage of low-to-moderate drinking over non-drinking showed most consistently on the Physical Functioning scale, while the relative advantage of low-to-moderate drinking over heavier drinking emerged mostly consistently on the Mental Health scale. Whether drinking patterns are influencing health status, or vice versa, is uncertain.

Respondents were classified into three groups with regard to alcohol consumption: non-drinkers; those who scored 1–7 on AUDIT ('low-to-moderate drinkers'); and those who scored 8 or more on AUDIT ('potentially hazardous drinkers'). For more information about AUDIT, see Chapter 5: Alcohol Use.

The relationship between alcohol consumption group and SF-36 scores was found to differ significantly for ethnic group and sex, for all scales ($p < .0001$, except Role Physical ($p < .01$) and Bodily Pain ($p < .05$)).

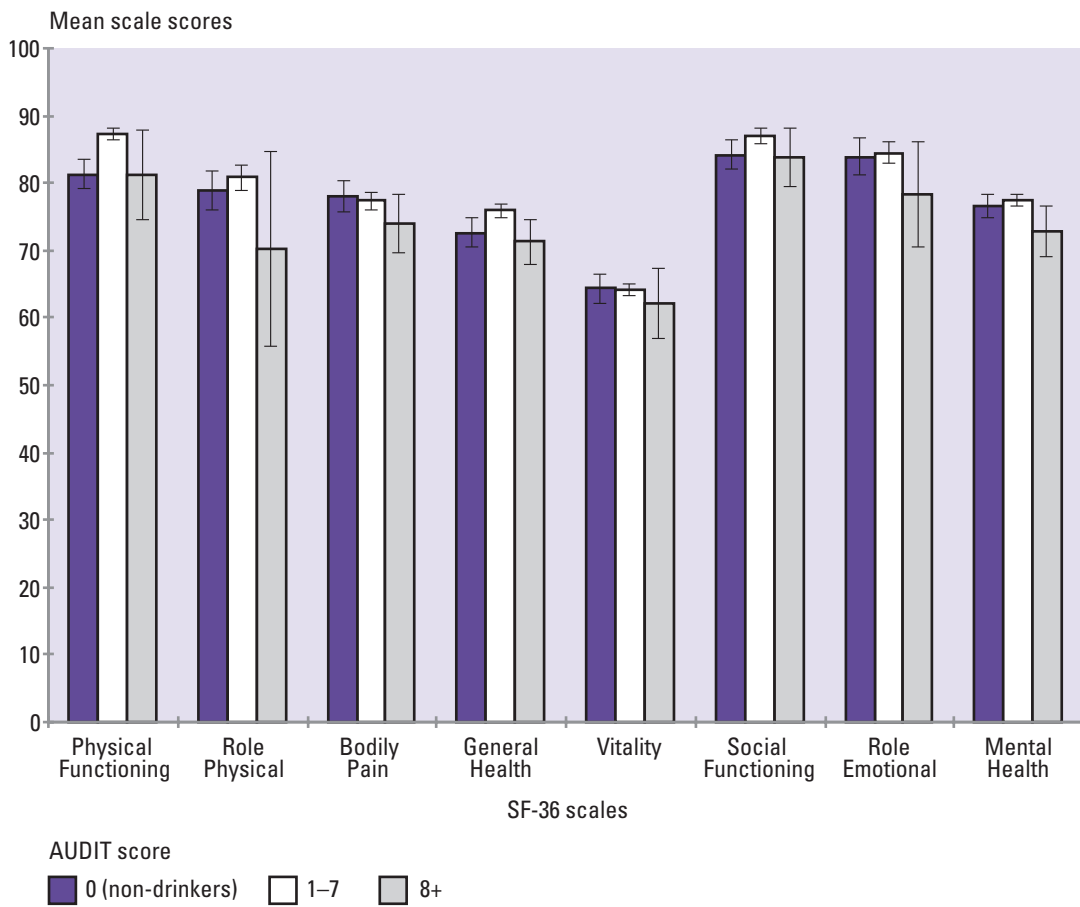
Figure 83: SF-36 profiles, by AUDIT score, non-Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Figure 83 shows that self-reported health amongst non-Māori males was generally best in the group scoring 1–7 on AUDIT: the low-to-moderate drinkers. This group scored significantly higher than non-drinkers on the Physical Functioning scale, and significantly higher than the potentially hazardous drinkers (AUDIT score of 8+) on the Bodily Pain scale and the three scales most associated with mental health (Social Functioning, Role Emotional and Mental Health).

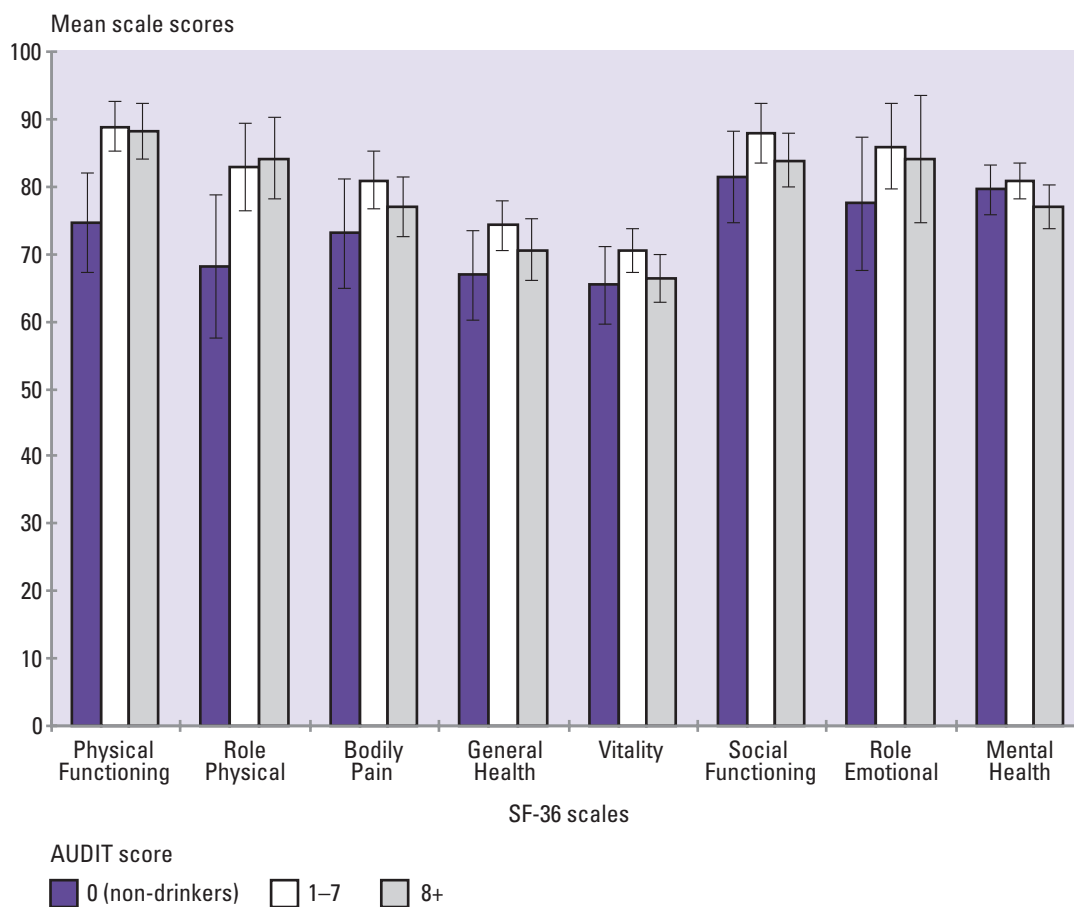
Figure 84: SF-36 profiles, by AUDIT score, non-Māori females (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Non-Māori females (see Figure 84) also tended to show the highest SF-36 scores in the low-to-moderate drinkers group, which scored significantly higher than non-drinkers on the Physical Functioning, General Health and Social Functioning scales, and significantly higher than potentially hazardous drinkers on the General Health and Mental Health scales.

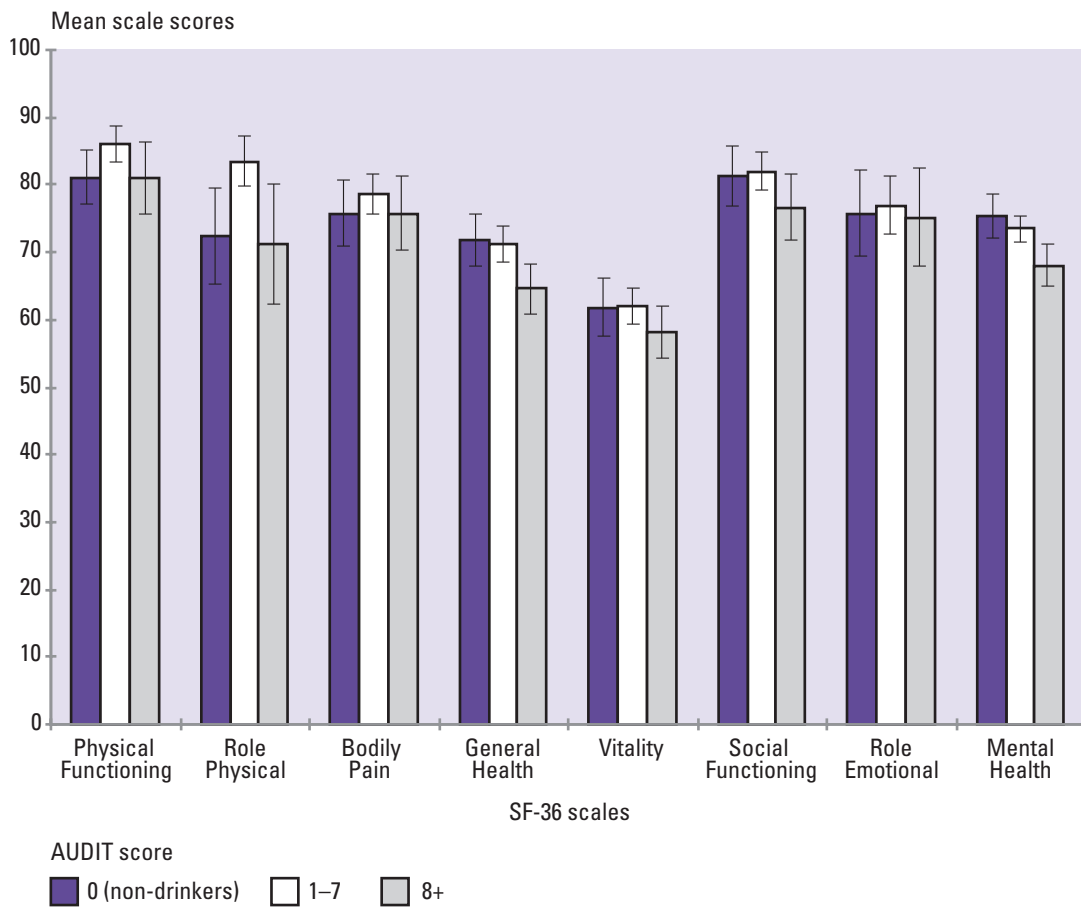
Figure 85: SF-36 profiles, by AUDIT score, Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

In Māori males (see Figure 85) the same general trend occurred for the low-to-moderate drinking group to have the higher scores, at least relative to non-drinkers, although the group differences were not always statistically significant. The low-to-moderate drinkers had significantly higher scores than non-drinkers for the Physical Functioning and Role Physical scales, and significantly higher scores than potentially hazardous drinkers for the Vitality scale.

Figure 86: SF-36 profiles, by AUDIT score, Māori females (age-standardised)




Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Māori females (see Figure 86), showed a similar pattern to Māori males, with significantly better self-reported health for the low-to-moderate drinkers relative to non-drinkers on the Physical Functioning and Role Physical scales. Māori females showed a significant advantage of low-to-moderate drinking relative to potentially hazardous drinking on the Role Physical, General Health and Mental Health scales.

The suggestion of an advantage of low-to-moderate drinking over not drinking at all, or heavier drinking, is not new. There have been many reports of this J- or U-shaped association between alcohol and all-cause mortality (Brenner et al 1997; Anderson 1996; Poikalainen 1995; Duffy 1995). It has also been found in subjective assessments of health, using the single self-rated health question (Poikalainen et al 1996) and amongst primary care patients using the SF-36 (Volk et al 1997).

The public health literature documenting the consequences for health of heavier drinking has tended to highlight the physical consequences of drinking, in that mortality has usually been the health outcome measure (although suicide is one of the causes of alcohol-related mortality). These SF-36 results showing, in most groups, better self-reported mental health status in low-to-moderate drinkers relative to heavier drinkers, may highlight the mental health consequences of heavier drinking. Alternatively, the results may suggest a greater awareness, amongst heavier drinkers, of the mental rather than the physical consequences.



However, cross-sectional studies such as this one limit any conclusions about whether drinking patterns are determining health status, or the reverse. The lower SF-36 scores in heavier drinkers may reflect the higher prevalence of mood and anxiety disorders amongst those with alcohol dependence (Volk et al 1997), or the tendency for some individuals experiencing stress or low mood to drink more heavily to 'self-medicate'. Similarly, the lower SF-36 scores amongst non-drinkers may be influenced by those who have physical ill-health and have therefore given up alcohol. With regard to the latter point, however, a number of studies have controlled for former drinkers and for those with pre-existing medical conditions amongst current non-drinkers, and have still found the usual J- or U-shaped relationship between consumption and mortality (Brenner et al 1997; Poikalainen et al 1996).

For a multivariate analysis of alcohol use and the SF-36 results from this survey see Scott et al 1999.

SF-36 profiles and health risk behaviours: conclusion

On the whole, the expected relationships between self-reported health status and health risk behaviours emerged, although they were not always as pronounced as results using objective health status indicators (for example, between smoking and mortality rates). Interpretation of the data is complicated by ethnic group and sex differences, and because a cross-sectional survey such as this one cannot establish whether poorer health status is a consequence or a determinant of the adoption of certain patterns of behaviour.

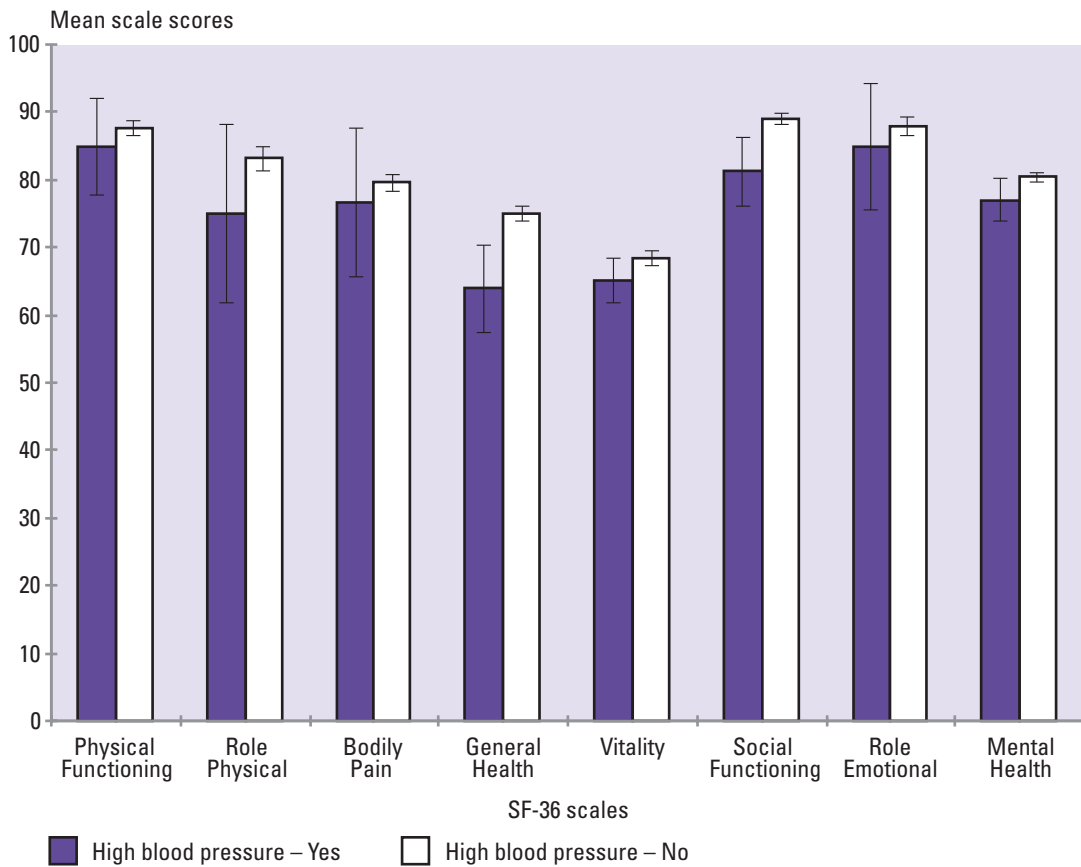
SF-36 profiles by specific conditions

SF-36 profiles by high blood pressure

High blood pressure status appeared to have a considerable impact on self-reported health, although the effects differed according to ethnicity (generally greater in Māori) and sex (greater in males among Māori, but in females among non-Māori). These results may be showing some co-existence of high blood pressure with other disorders. There may also be ethnic differences in the stage and/or implications of a diagnosis of high blood pressure.

The relationship between high blood pressure status (whether or not an individual has ever taken, or is currently taking, medication for high blood pressure) and SF-36 scores was found to differ significantly for ethnic group and sex on all scales ($p < .0001$ for each scale).

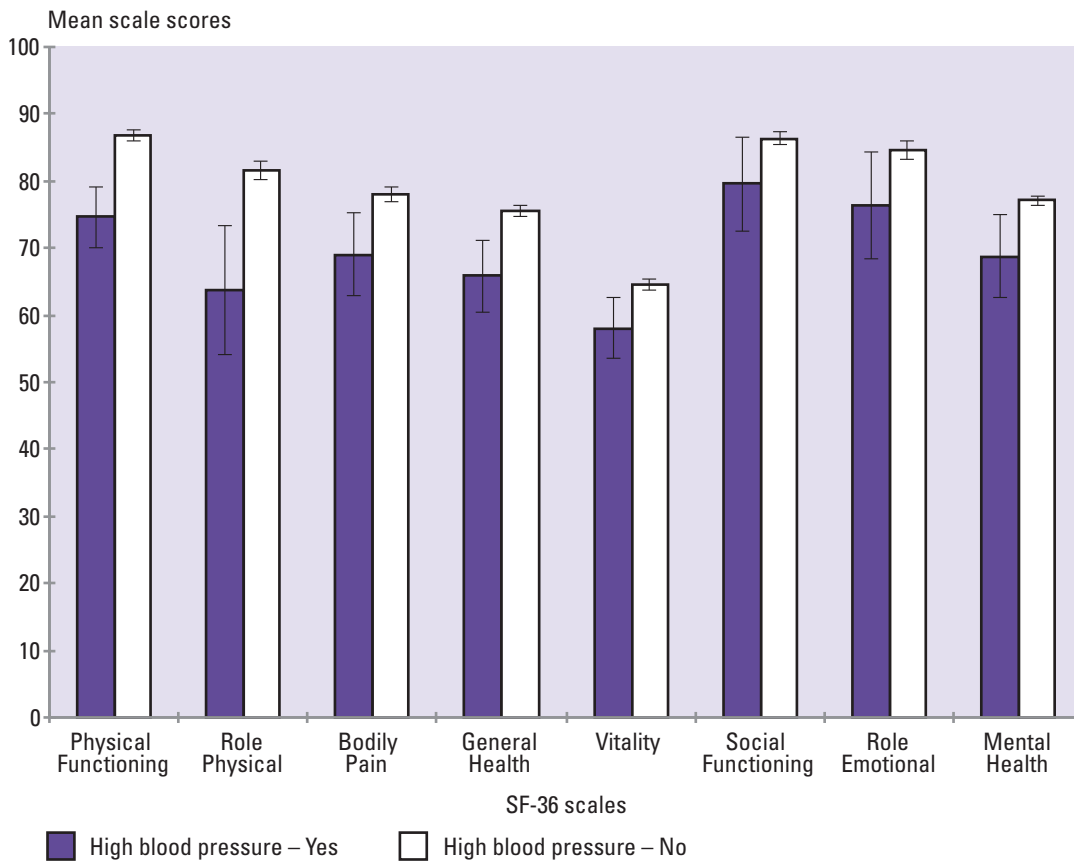
Figure 87: SF-36 profiles, by high blood pressure status, non-Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

In non-Māori males (see Figure 87), those without high blood pressure had generally higher self-rated health than those with high blood pressure; however, due to the size of the confidence intervals this effect was only statistically significant for some scales (General Health, Vitality, Social Functioning and Mental Health).

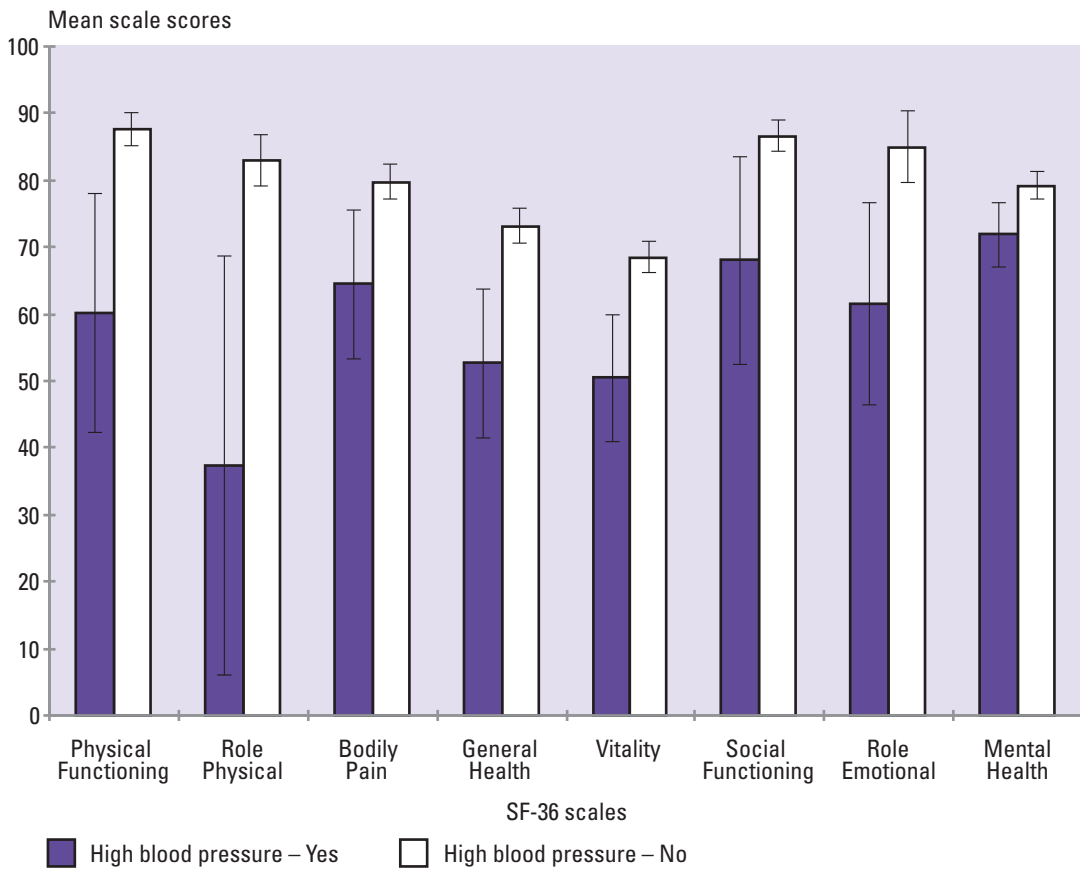
Figure 88: SF-36 profiles, by high blood pressure status, non-Māori females (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Non-Māori females (see Figure 88) showed a more pronounced effect, whereby those without high blood pressure scored significantly higher than those with high blood pressure on all scales except Social Functioning.

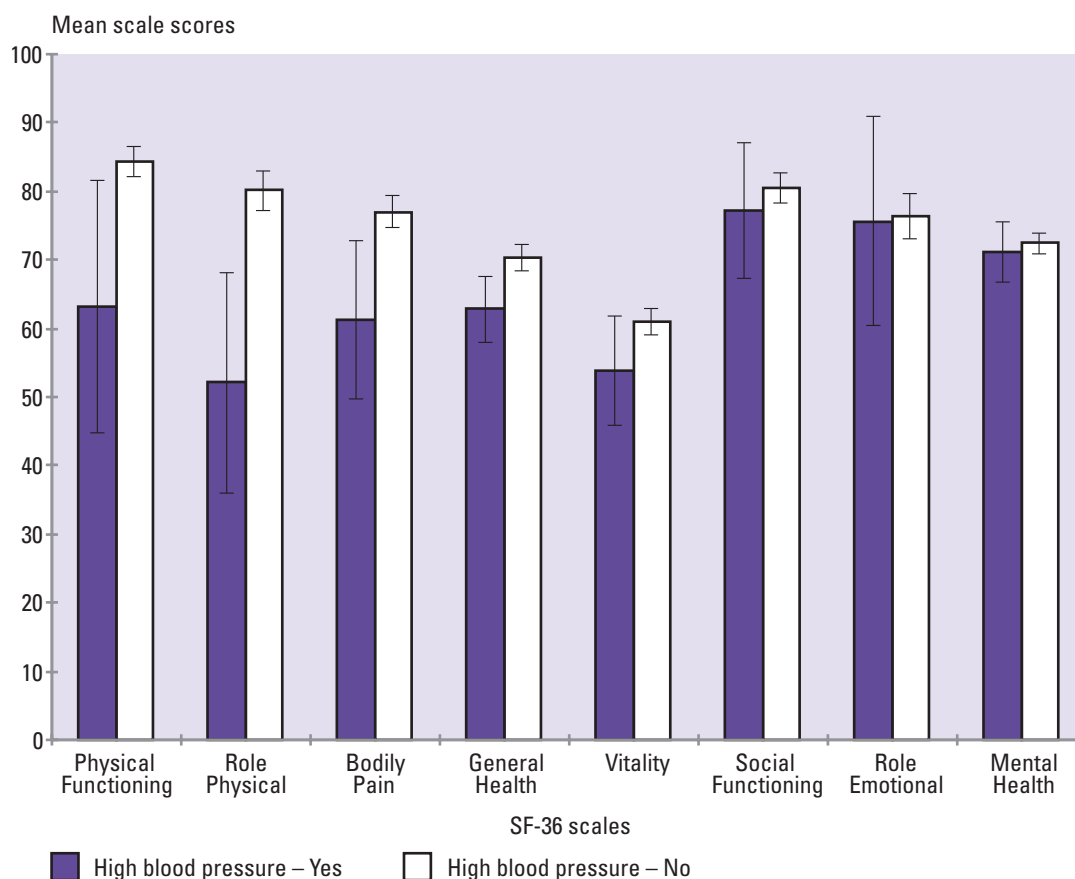
Figure 89: SF-36 profiles, by high blood pressure status, Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

The relationship between high blood pressure status and SF-36 scores among Māori males (see Figure 89) was considerable. Those without high blood pressure had statistically higher scores on all scales relative to those with high blood pressure, particularly those scales relating to role performance limitations due to physical and emotional health (Role Physical and Role Emotional).

Figure 90: SF-36 profiles, by high blood pressure status, Māori females (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

For Māori females (see Figure 90), those without high blood pressure had significantly higher scores than those with high blood pressure for the four scales most related to physical health.

Uncomplicated high blood pressure is generally asymptomatic, so it may be that this impact of high blood pressure on self-reported health is a function of co-existent conditions such as diabetes, heart disease and stroke; or of some of the side effects of anti-hypertensive medication. It may also be that high blood pressure is to some degree a marker for chronic disease and disability.

There is also a body of research on the impact of hypertension labelling which has found that a diagnosis of hypertension negatively affects individuals' perceptions of their health (independently of actual health status) and results in increased absenteeism from work (Bloom and Monterossa 1981; Melamed et al 1997). Although Stewart et al (1989) found that self-reported health status was less negatively affected in hypertensives than in other clinical groups.

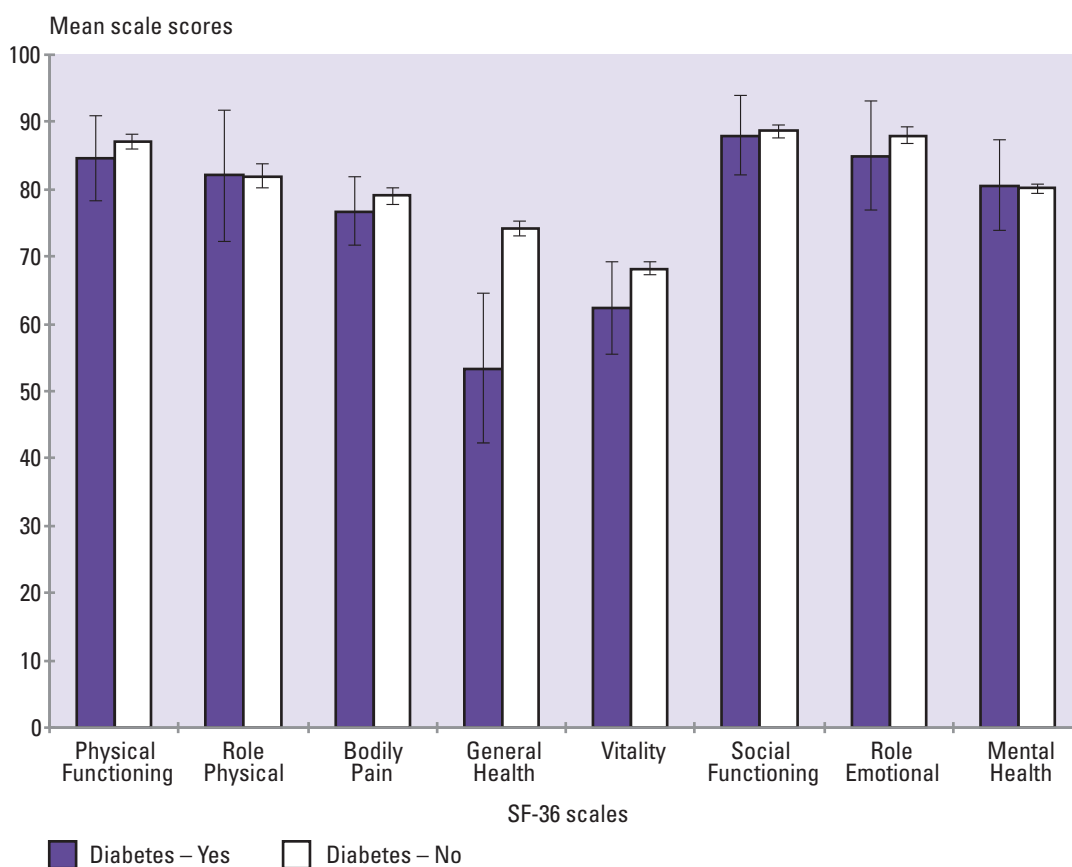
The effect of high blood pressure status on self-reported health was greater for Māori, particularly Māori men, which may reveal ethnic differences in the stage of diagnosis, and/or the consequences of such a diagnosis. Where Māori have poorer access to medical care they may only be diagnosed with high blood pressure if they have a co-existent condition, or at a later stage when there is more likelihood of complications from the high blood pressure. Additionally, cultural differences in the perception of health and disease may mean that Māori men are more negatively affected by a diagnosis of high blood pressure than non-Māori men.

SF-36 profiles by diabetes status

Diabetes status had considerable effect on the self-reported health of Māori, but much less effect on non-Māori. In Māori, both males and females appeared to be affected to a similar degree, although there was some variation in which of the SF-36 scales were most affected.

The relationship between diabetes status (whether an individual has been told by a doctor they have diabetes) and SF-36 scores was found to differ significantly for ethnic group and sex on all scales ($p < .0001$ for each scale, except Bodily Pain ($p < .01$) and Physical Functioning ($p < .001$)).

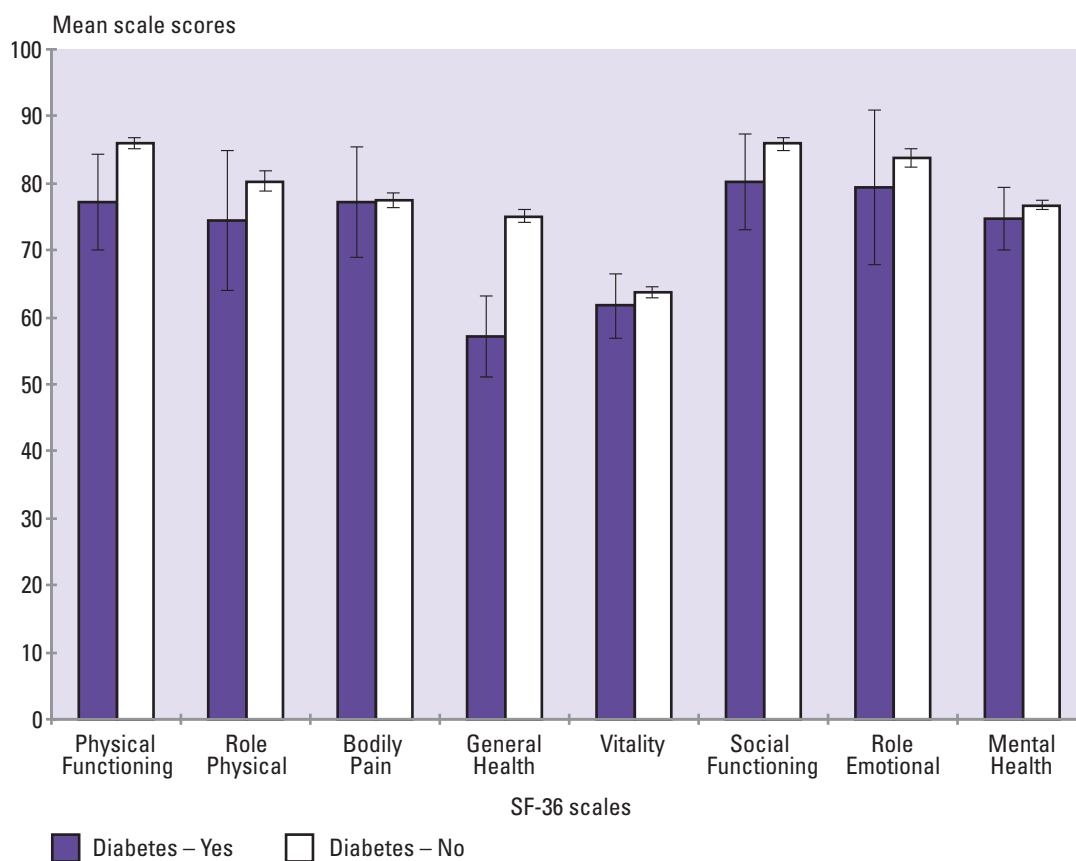
Figure 91: SF-36 profiles, by diabetes status, non-Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

As Figure 91 indicates, diabetes status did not impact greatly on the SF-36 scores of non-Māori males, with significant differences in diabetes status groups only on the General Health scale.

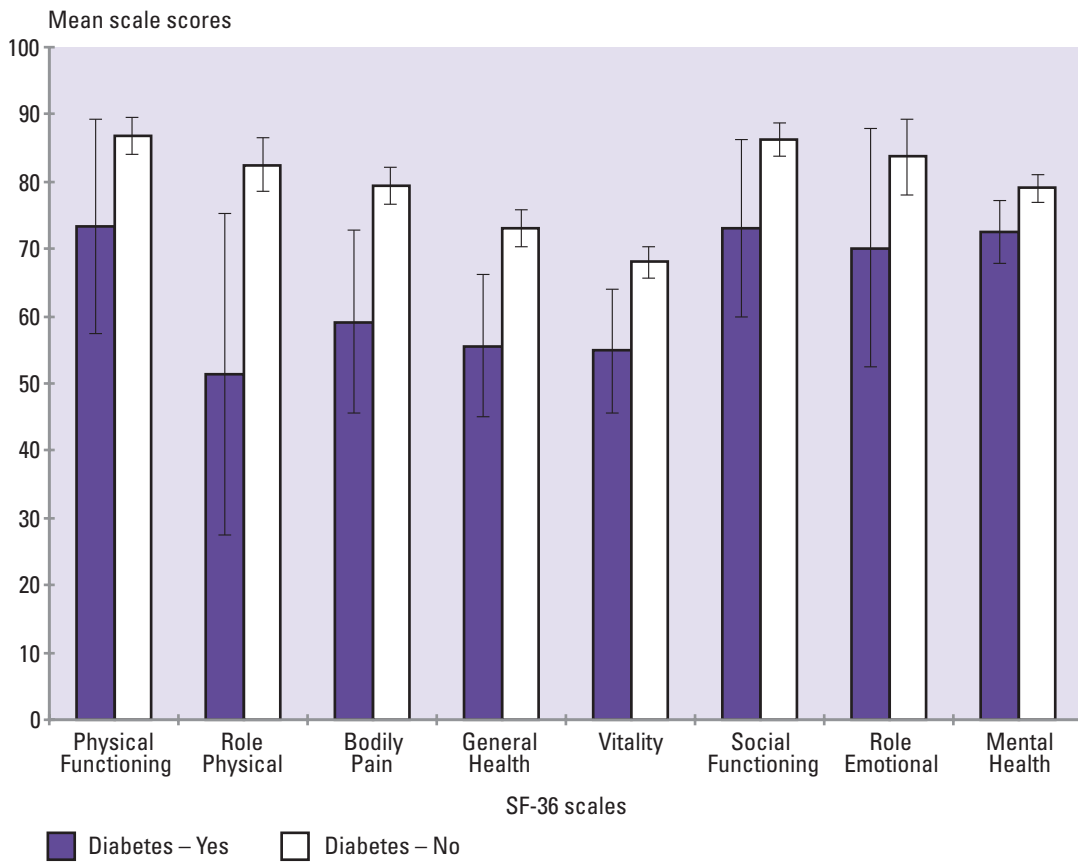
Figure 92: SF-36 profiles, by diabetes status, non-Māori females (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Similarly, there were few differences in diabetes status groups for non-Māori females, except on the General Health and Physical Functioning scales (see Figure 92).

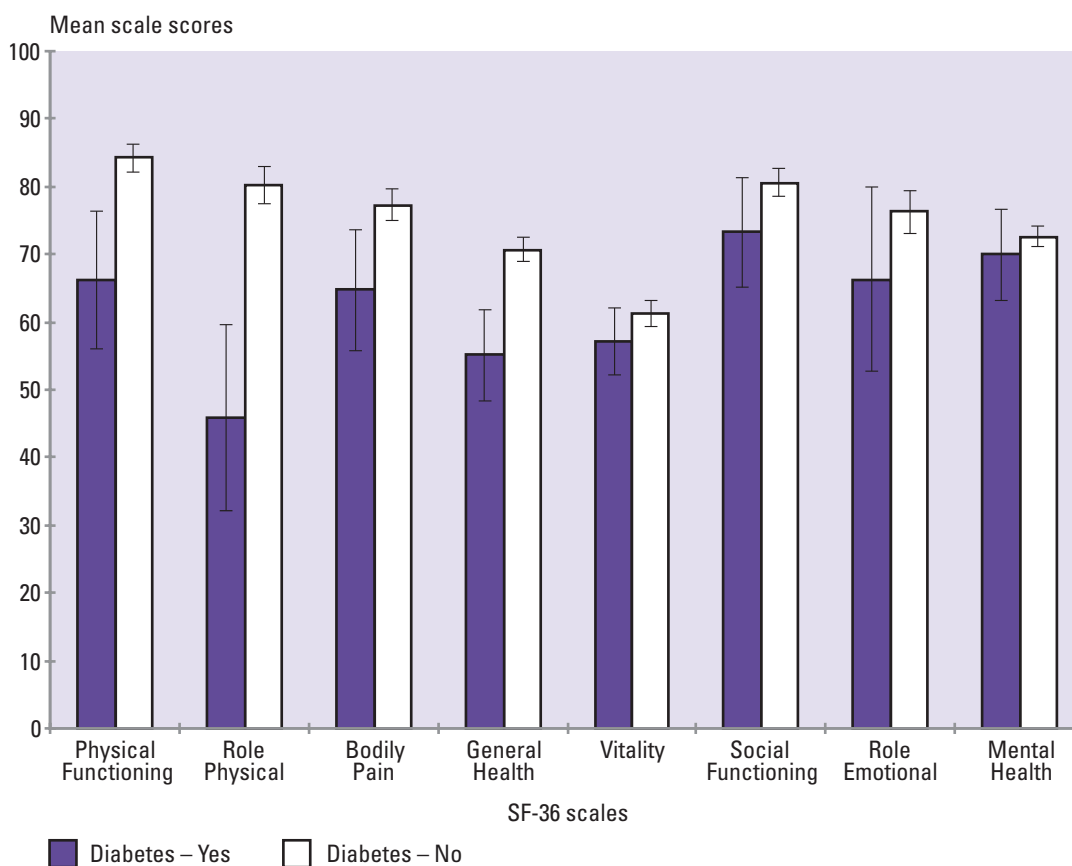
Figure 93: SF-36 profiles, by diabetes status, Māori males (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

In Māori males (see Figure 93), the effect was more pronounced than in non-Māori (as was the case with high blood pressure): Māori males without diabetes showed significantly higher scores than those with diabetes on most of the scales (Role Physical, Bodily Pain, General Health, Vitality and Mental Health).

Figure 94: SF-36 profiles, by diabetes status, Māori females (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Māori women (see Figure 94) showed a similar pattern in diabetes as with high blood pressure: significant differences between the two diabetes status groups on the four scales most associated with physical health.

The comments made above with reference to the ethnic differences in the effect of high blood pressure on SF-36 scores may apply to diabetes also.

In other studies where the SF-36 profiles of groups differing in type and severity of clinical condition have been compared (McCallum 1995; McHorney et al 1993), the SF-36 results have generally been in line with the nature and severity of the condition measured. However, there have been occasional unexpected findings, where mild conditions have been associated with lower SF-36 scores than more serious conditions such as diabetes (Solomon et al 1993). This may reflect deficiencies in the labelling of conditions as 'mild' or 'serious', or it may reflect the degree to which the SF-36 is influenced by a number of factors in addition to symptom severity.

SF-36 profiles and specific conditions: conclusion

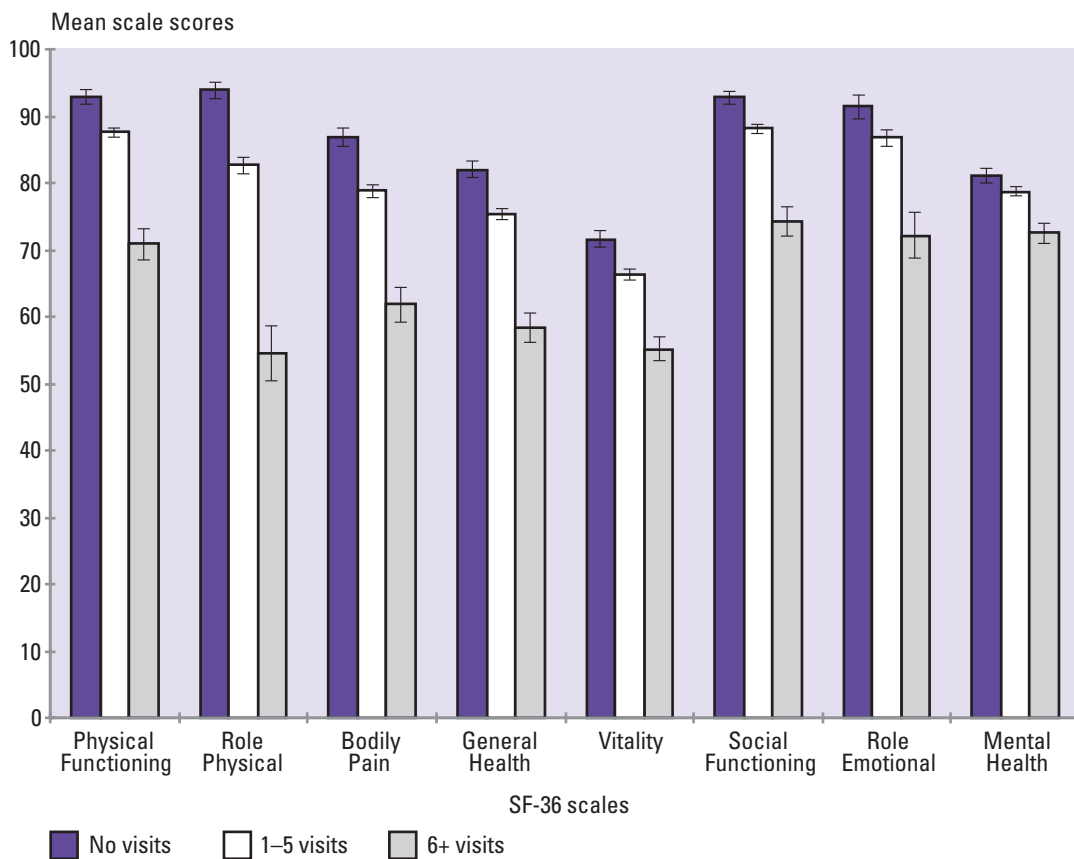
Considerable differences emerged in the self-reported health status of groups with and without specific conditions such as high blood pressure and diabetes. The degree of these differences seems to be not always consistent with the level of symptomatology generally associated with these conditions. It may be that some diagnoses are markers of other chronic conditions. There may also be ethnic differences in the stage or implications of diagnosis.

SF-36 profiles by health service utilisation

SF-36 profiles by frequency of GP use

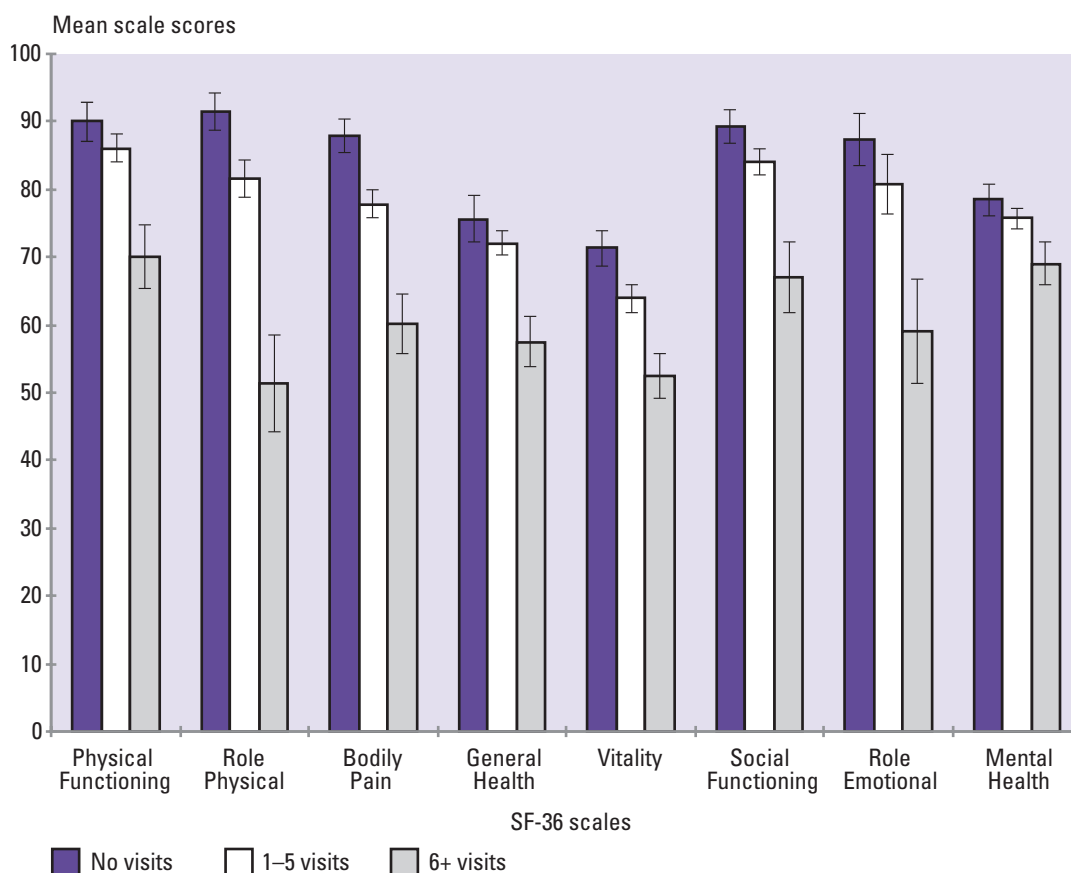
The SF-36 scores by frequency of GP use: (no visits; 1–5 visits; and 6 or more visits in the past 12 months) are presented in Figures 95 and 96. These are stratified by ethnicity only as there was little sex difference. The comparisons are not age-standardised.

Figure 95: SF-36 profiles, by GP use, non-Māori



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Figure 96: SF-36 profiles, by GP use, Māori



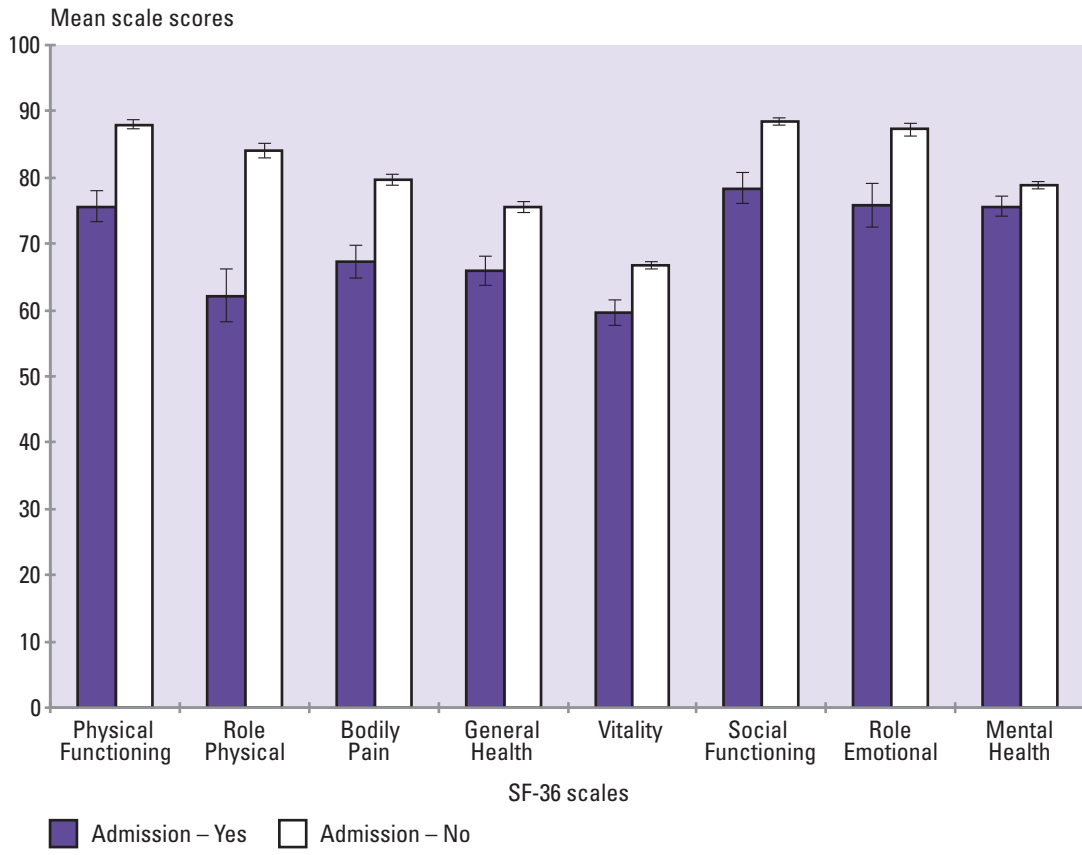
Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

As Figures 95 and 96 indicate, there was little ethnic difference in the relationship between SF-36 scores and frequency of GP use. The expected gradient emerged in both groups, with those going to their GP more frequently during the year showing the lower SF-36 scores, although the differences between the 'No visits' and '1-5 visits' groups were not always statistically significant.

SF-36 profiles by hospital admission

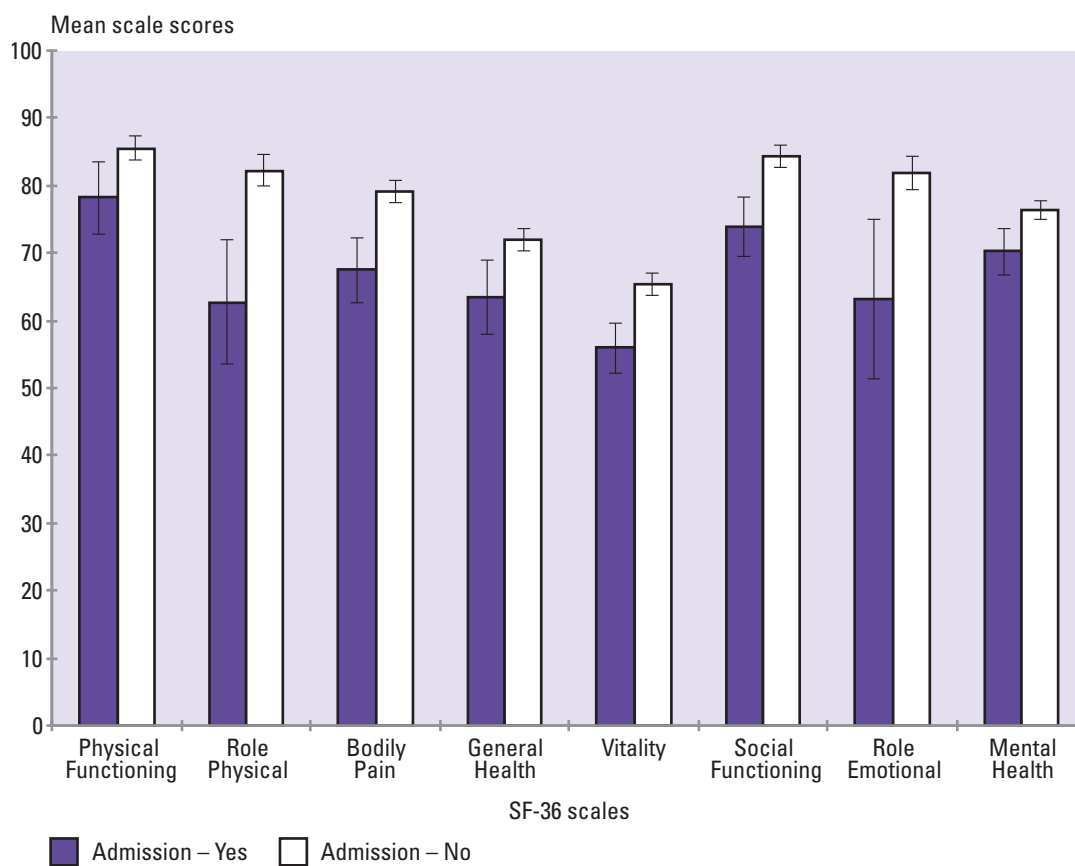
The relationship between self-reported health status and whether or not an individual had been admitted to hospital in the past 12 months is shown in Figures 97 and 98. As with frequency of GP use, these data are stratified by ethnicity only as there was little sex difference. The comparisons are not age-standardised.

Figure 97: SF-36 profiles, by hospital admission, non-Māori



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

Figure 98: SF-36 profiles, by hospital admission, Māori



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

For both Māori and non-Māori, self-reported health status was significantly lower in those who had been admitted to hospital in the past 12 months.

SF-36 profiles by health service utilisation: conclusion

The relationship between SF-36 scores and health service utilisation showed the expected pattern of higher health status in those who had made least use of primary or secondary health care.

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