Food and Nutrition Monitoring Unit
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# Monitoring food habits and food security: Australia 1995–1996

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# Contents

# Background

The data reported in this paper were collected as part of a National Health Advancement Program funded project to the Australian Institute of Health and Welfare to develop and evaluate indicators for national food and nutrition monitoring. The aim of this study was to obtain data on food security and a limited number of food habits to determine the extent of differences, in food habits and food security, between major sub-groups within the Australian population. The study also examined the practicality of using the ABS Population Survey Monitor (PSM) as a vehicle for providing both regular and timely information about Australian food habits that are of particular interest in relation to policy making and evaluation. The data contained in this report were obtained from a total of 5,422 households in two surveys conducted during August 1995 and February 1996 (ABS 1995; ABS 1996).

## Survey methods

### Sampling

The PSM is a quarterly household survey conducted throughout Australia by the Australian Bureau of Statistics. It is a user-funded survey for which clients pay to include one or more questions on a topic of their choice. In addition to the user-funded questions each survey also asks a set of core socio-demographic questions of each usual resident aged 15 years and over within the selected household (Appendix 1). User-funded questions can be asked either of a randomly selected member of the household or of a defined person aged 18 years or over.

The survey covers rural and urban areas across all States and Territories of Australia except sparsely settled areas. All usual residents in private households are included in the PSM but persons living in non-private dwellings are excluded. For the August 1995 survey 3,267 households were visited and completed questionnaires obtained from 66.2%. In February 1996 completed questionnaires were obtained from 70.4% of the 4,625 households initially selected (Table 1).

**Table 1: Survey response and sources of sample loss**

| | August 1995 | February 1996 |
|---|---|---|
| Refusals | 367 | 457 |
| Vacant dwellings | 405 | 472 |
| Uncontactable during interview week | 250 | 340 |
| Death, illness or language problems | 81 | 98 |
| Completed interviews | 2,164 (66.2%) | 3,258 (70.4%) |
| **Total initial sample selected** | **3,267** | **4,625** |

The sample in each quarterly survey is considered to be adequate to provide quarterly data for Australia, and annual data for the States and Territories (from data obtained over four quarters), at an acceptable level of accuracy and reliability. The

data obtained over four quarters), at an acceptable level of accuracy and reliability. The distribution of respondents by State and Territory, in the August 1995 and February 1996 PSM, is given in Table 2.

**Table 2: Distribution of respondents by State and Territory**

| State/Territory | August 1995 | February 1996 |
|---|---|---|
| New South Wales | 433 | 538 |
| Victoria | 436 | 528 |
| Queensland | 358 | 363 |
| Western Australia | 255 | 411 |
| South Australia | 263 | 418 |
| Tasmania | 143 | 359 |
| ACT | 146 | 396 |
| NT | 130 | 245 |

Weighting factors provided by the Australian Bureau of Statistics are used to adjust the sample data to provide population estimates which minimise the effects of non-response bias on the age-sex-area distribution of the sample relative to that of the total population.

## Data collection

The PSM obtains information from adult members of selected households, in face-to-face interviews, conducted by trained interviewers who have extensive experience in conducting household surveys.

Households selected for the survey are approached initially by letter. The letter informs them of their selection in the survey and advises them that an interviewer will call to arrange a suitable time to conduct the interview. A brochure, providing some background to the survey, information about the interview process and a guarantee of confidentiality are included with the initial letter.

At the initial visit, a Household Form is completed from information provided by an adult member of the household. This form contains questions about the basic demographic characteristics of the household and establishes those persons within the household who are within the scope of the survey.

In order to obtain a personal interview with appropriate respondents, interviewers make appointments to call-back as necessary. Every effort is made to contact the occupants of selected dwellings. Interviewers make at least three call-backs in rural areas and five call-backs in urban areas before a dwelling is classified as non-contact. All interviews are conducted face-to-face either in private or in the presence of other household members according to the wishes of the respondent.

## Costs

The cost of including questions in the PSM is determined by one of two charging methods. The first method is based on the number of questions and a set charge per question and the second on the time taken for interviewing and a set charge

per minute of interviewing. The first approach is generally taken when the number of questions is small and the questions are straightforward, and the latter when topics include a large number of questions or where the questions themselves are complex.

Charges in force in 1995, when these data were commissioned, were $2,500 per question and $10,000 per minute of interviewing time. Generally one question is estimated to take about 15 seconds of interviewing time. Inclusion of the same questions in subsequent surveys attracts a discount of 20%. For a sample size of 2000 respondents the cost is therefore $1.25 per question per respondent for the initial survey and $1.00 for subsequent surveys.

## Access to data

Release of data obtained through the PSM is governed by the provisions of the Census and Statistics Act. The relevant clause permits the Australian Statistician to approve the release of unidentified individual statistical records only where the information is disclosed in a manner which is not likely to enable identification of the particular person or organisation to which it relates, and subject to the Statistician being given appropriate written undertaking that the relevant Department will:

- not attempt to identify a particular person
- use the information only for statistical purposes, and
- not disclose the information to any other person or organisation.

Such a provision is clearly necessary in order to maintain public confidence in the complete confidentiality of the data collected by the Australian Bureau of Statistics.

In the Australian situation, variables relating to geographic location have the potential to identify individuals living in areas with small populations and for this reason it is not always possible to provide a unit record file which includes data on both a respondent's State and capital city/urban/rural location and in some instances both a respondent's State and the quintile of an area based SEIFA index (ABS 1994). These restrictions limit to some extent the possibilities for geographically based analyses by the commissioning body. The ABS will, however, produce basic tabulations from the data at no extra cost and facilitate in other ways exploratory analysis of data that may be necessary for the development of indicators from multiple data items.

## Availability of data

The data from the PSM are usually available to users within six weeks of the completion of interviewing. These surveys are thus able to provide data to users without significant time delay. Even when data are aggregated over several surveys data for a given year should be available, in a format which is useful for policy makers, within six months of the final data collection period as in the case of the present report.

## Food habits questions

Five questions on food habits were included in the August 1995 and the February 1996 PSM. All five questions were questions which had been included in the 1995 National Nutrition Survey (NNS) and were asked in exactly the same format (Appendix 2). The purpose of doing this was to make sure that the response categories from these five questions could be related to the more detailed dietary data that will become available from the NNS and so enable the validity of these questions to be assessed as indicators of trends in actual food intake.

The five questions used were selected, from those used in the 1995 NNS, with a view to providing information on issues of particular importance. They included a question on food security, and questions on the type of milk used, trimming of meat and on intake of fruit and vegetables. The questions thus addressed not only the issue of economic constraints on access to food but also key elements of the *Dietary Guidelines for Australians* such as recommendations about saturated fat, fruit and vegetable consumption and intake of iron and calcium (NHMRC 1992). In selecting the questions some consideration was also given to the possibility of constructing a summary 'food habits' index from the responses to all five questions. The actual number of questions included was based mainly on cost considerations in view of the 'exploratory' nature of the project.

The same five questions were included in both the August 1995 and February 1996 surveys to increase the sample size sufficiently to provide reliable estimates for major population sub-groups defined by socio-demographic characteristics of interest.

In order to provide a summary measure of current Australian food habits, directly related to Australian dietary guidelines and associated recommendations about food intake, a 'food habits' index with a possible score of 0 to 10 was constructed from the responses to all five questions (Appendix 3). It should be stressed that this index is experimental in nature and still needs to be assessed in relation to more detailed data on food intakes such as those which will become available from the 1995 National Nutrition Survey. A similar but more comprehensive index has recently been introduced in the United States of America to provide a summary measure of overall diet quality (Kennedy et al. 1995).

The main purpose of constructing a 'food habits' index, in the context of this project, was to determine whether such an index would be able to discriminate more effectively between population sub-groups, who have dietary patterns which deviate substantially from current recommendations, than individual questions alone.

## Data presentation

All percentages presented in the figures and the text of this report are estimates derived from population weighted data for the relevant response categories.

In general the differences observed between the two PSM surveys were small and more likely to be due to sampling error than to real differences with season. The largest difference observed was for the intake of fruit which, as might be expected, was higher in February than in August and provides some support for the view

that simple questions, of the type used in these surveys, can provide relevant data for monitoring real changes of practical significance.

Estimates of population proportions for each question and the 'food habits' index have been calculated for the Australian population (18 years and over) as a whole and for the following demographic sub-groups: sex, State of residence, 10-year-age group, highest level of education attained, country of birth, marital status, labour force status, occupation, household family classification, household income quintile, nature of household occupancy and quintile of the index of relative socioeconomic disadvantage.

To assist with interpretation of the data an indication of the width of the 95% confidence interval is provided in the text for the data relating to each demographic sub-group but not for each individual estimate. Confidence intervals for specific estimates can be derived from Appendix 4 which gives absolute precision, in percentage points, for population proportions between 5% and 95% and a confidence level of 95% (nineteen chances in twenty that the true value is within the specified range).

# Summary of main findings

## Type of milk usually consumed

- Just over half (54%) of the Australian population aged 18 years and over reported usually consuming whole fluid milk. The proportion was higher among men (60%) than among women (47%).
- The population sub-groups with the highest proportion usually consuming whole milk were the unemployed, those renting their dwelling and those aged 18–24 years (63–65%).
- The population sub-group with the highest proportion usually consuming reduced fat or skim milk was that living in South Australia (56%).
- On average 4.5% of Australians aged 18 years and over reported not consuming any milk.

## Trimming of meat

- Three out of four Australians aged 18 years and over (76%) reported usually trimming the fat from their meat. The proportion was higher among women (80%) than men (72%).
- The population sub-group with the lowest proportion (66%) usually trimming their meat was the unemployed. The proportion was also well below the national average in those aged 18-24 years (69%) and in those living in single person households (69%).
- On average 3.7% of Australians aged 18 years and over reported not consuming any meat.

## Number of serves of vegetables per day

- Less than one in five Australians (16%) reported usually consuming at least four serves of vegetables per day.
- The population sub-group with the highest proportion (22%) meeting the currently recommended intake (≥ 4 serves per day) was that aged 55 years and over. The proportion usually consuming at least four serves of vegetables per day was also well above the national average in those in the lowest quintile of household income and in those not currently in the labour force (21%).
- Only 9% of those aged 18-24 years reported usually consuming at least four serves of vegetables per day

## Number of serves of fruit per day

- Just over half (51%) of all Australians aged 18 years and over reported usually consuming at least two serves of fruit per day. The proportion was considerably higher in women (58%) than in men (43%).

- The population sub-group with the highest proportion meeting the currently recommended intake (≥ 2 serves per day) was the group aged 65 years and over (62%).
- Only 39% of those aged 18-24 years and 39% of those living in Northern Territory reported usually consuming at least two serves of fruit per day.
- Almost one in ten of the unemployed (9.5%) reported not usually eating any fruit.

## Food security

- On average 1 in 12 Australians aged 18 years and over reported having run out of food at some time during the last 12 months and not having enough money to buy more (food insecurity).
- The population sub-groups who reported the highest level of food insecurity were the unemployed (23%) and those living in households renting their dwelling (20%).
- The population sub-groups who reported the lowest level of food insecurity (<3%) were those aged 55 years and over, those in households where the dwelling was owned and those from households in the highest quintile of household income.

## Food habits index

While the food habits index used in this study remains to be evaluated in relation to actual levels of food and nutrient intake it did provide a useful summary measure for assessing the proportion of the Australian population aged 18 years and over whose food habits were largely consistent with (score of ≥ 9), or inconsistent with (score of ≤ 5), key dietary recommendations as well as for identifying population sub-groups with high and low proportions of such individuals. Using this index the data from the PSM surveys can be summarised as follows:

- Approximately 1 in 8 Australians aged 18 years and over had a score of five or less and 1 in 4 a score of nine or more.
- The population sub-groups with the highest proportion of scores ≤ 5 were the unemployed (21%), those in households renting their dwelling (21%) and those aged 18–24 years (18%).
- The population sub-groups with the highest proportion of scores ≥ 9 were those aged 55 years and over (35%) and those in part-time employment (32%).
- Significantly more women (32%) than men (19%) had a score of ≥ 9 and significantly more men (14.6%) than women (8.5%) a score of five or less.

# 1 Differences by survey and sex

In Figures 1.1–1.6 separate data are shown for the August 1995 (2,164 respondents) and the February 1996 PSM (3,258 respondents) as well as for the combined data from both surveys. In general estimates of population proportions from the two surveys did not differ significantly from those estimated from the combined data. The only exception was for fruit for which the proportion consuming at least two serves of fruit per day in August was significantly lower (48%) than the proportion of 51% estimated from the combined data.

The number of male and female respondents in the combined data set was 2,349 and 3,073 respectively. With sample sizes of this order the width of the 95% confidence interval for population proportions of 40–60% is two percentage points or less on either side of the estimate (Appendix 4).

## 1.1 Type of milk usually consumed

Overall 54% of the population usually consumed whole milk, 30% reduced-fat milk and a further 12% skim milk. Significantly more men (60%) than women (47%) consumed whole milk and more women (16%) than men (8%) consumed skim milk. The proportion not consuming any milk was 5.4% in men and 3.5% in women.

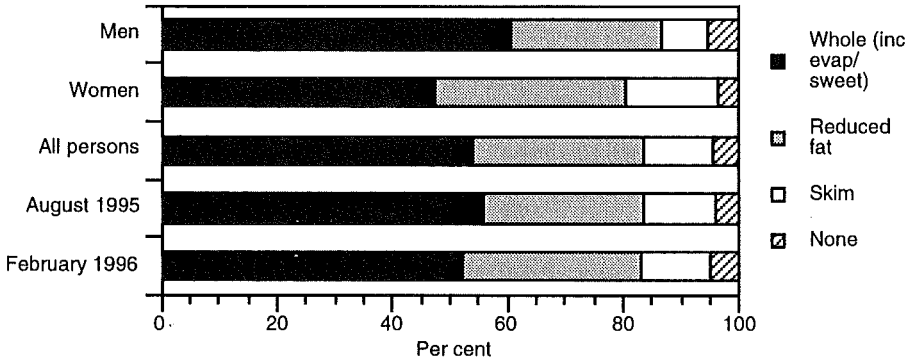


**Figure 1.1 Type of milk usually consumed**

## 1.2 Trimming of meat

Overall 76% of the population usually trimmed the fat from their meat and 11% reported never or rarely trimming their meat. A higher proportion of women (80%) than men (72%) reported usually trimming their meat. Compared with the population average of 3.7% more women than men reported not eating any meat.

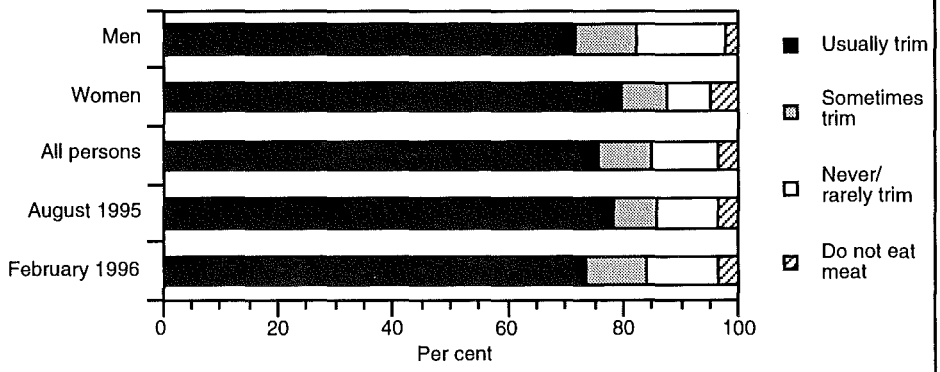


**Figure 1.2 Frequency of trimming meat**

## 1.3 Number of serves of vegetables usually consumed

Overall 16% of the population usually consumed at least four reference serves of vegetables per day (the recommended intake) and about one third (35%) consumed one serve or less (See Appendix 2 for definition of a reference serve). Twenty percent of women as compared with 13% of men reported usually consuming at least four serves per day.

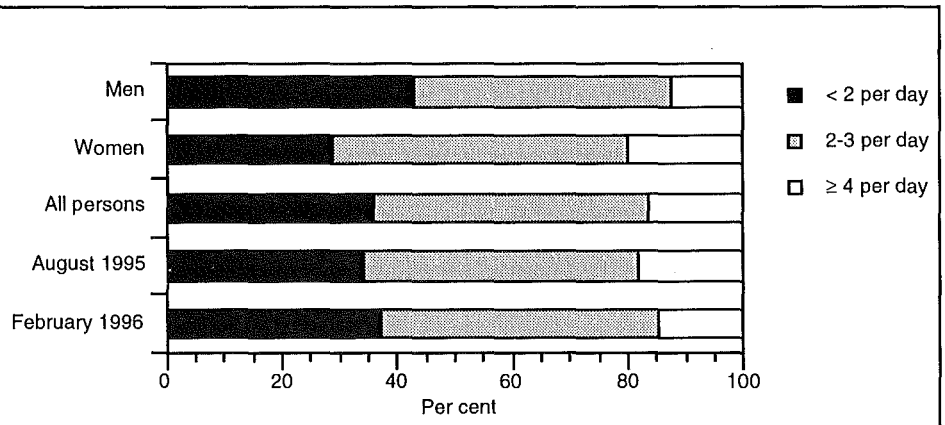


**Figure 1.3 Number of serves of vegetables usually consumed per day**

## 1.4 Number of serves of fruit usually consumed

Overall just over half of the population (51%) usually consumed at least two reference serves of fruit per day (the recommended intake) and more women (58%) than men (43%) reported this level of intake. A higher proportion of men than women reported not usually eating any fruit.

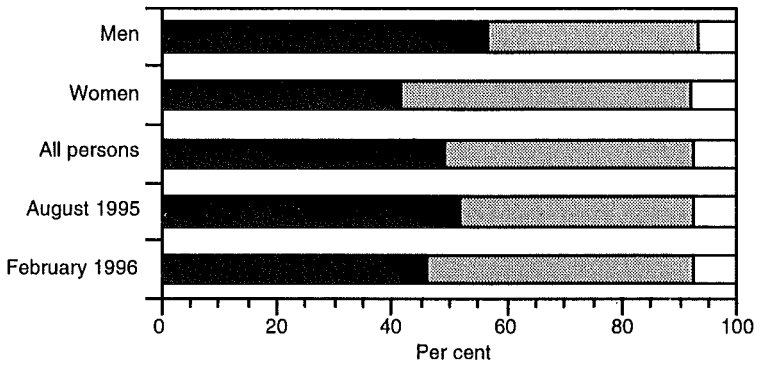


**Figure 1.4 Number of serves of fruit usually consumed per day**

## 1.5 Food security

The proportion of the population aged 18 years and over who reported having run out of food at some in the last 12 months and not having sufficient money to buy more was 8.4%. The proportion was marginally higher in women than in men.

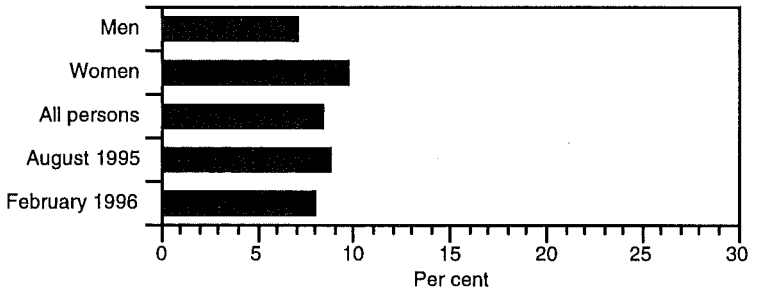


**Figure 1.5 Proportion reporting insufficient money to buy food**

## 1.6 Food habits index

Overall 11.5% of the population had a score of five or less on this index and 24% a score of six or less. The proportion of men with a score of ≤ 5 was 14.6% as compared with 8.5% of women. Compared with the population proportion of 26%, a markedly higher proportion of women than men had a score of ≥ 9 (32% and 19% respectively).

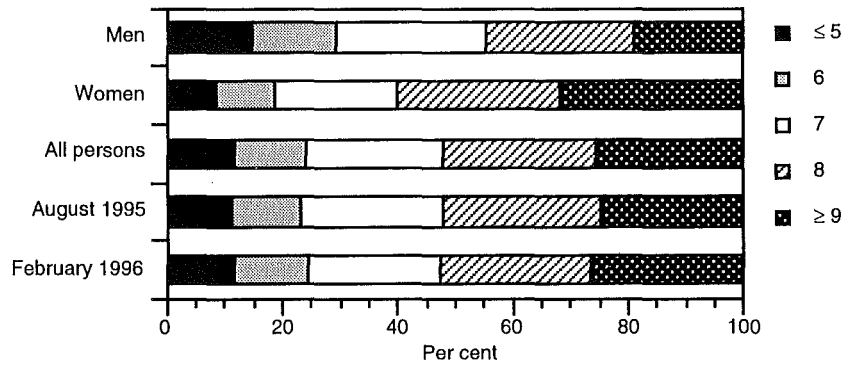


**Figure 1.6 Distribution of scores for the food habits index**

# 2 Differences by State and Territory

Figures 2.1–2.6 give data for all State and Territories. Because of smaller sample size the estimates for Tasmania and the Territories have larger confidence intervals than those for the mainland States even though these areas were oversampled. The number of respondents from each State and Territory in the PSM data set was as follows:

| NSW | Victoria | Queensland | Western Australia | South Australia | Tasmania | ACT | NT |
|---|---|---|---|---|---|---|---|
| 971 | 964 | 721 | 666 | 681 | 502 | 542 | 375 |

With a sample size of 1000 the width of the 95% confidence interval for population proportions of 40–60% is three percentage points whereas with a sample size of only 400 it is five percentage points (Appendix 4).

## 2.1 Type of milk usually consumed

Compared with the Australian average of 54% the proportion consuming whole milk was higher in the NT and Tasmania (64–65%) and lower in South Australia (40%). For reduced-fat milk the proportion was higher in the ACT (42%) and lower in the NT (19%) than the national average of 31%. The proportion who reported consuming skim milk was higher in South Australia (31%) and lower in Tasmania and the ACT (7–8%) than the overall average of 12%. On average 4.5% of the Australian population reported not consuming any milk.

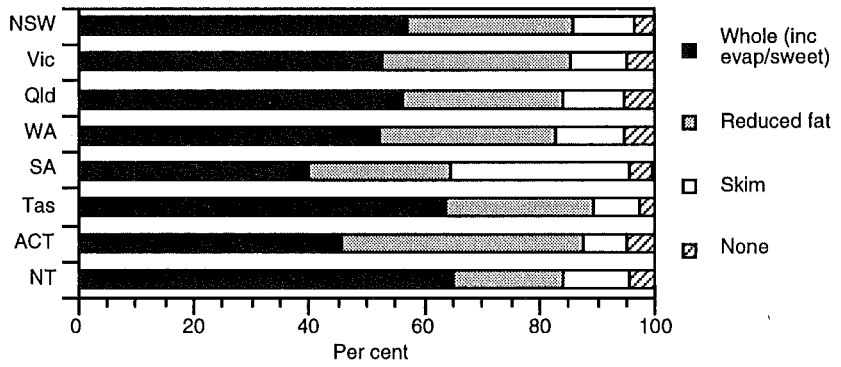


**Figure 2.1 Type of milk usually consumed**

## 2.2 Trimming of meat

Compared with the national average of 76% the proportion usually trimming their meat was 81% in the ACT and 70% in the NT. The proportion who reported never or rarely doing so was 6% in the ACT and 16% in Queensland compared with the national average of 11%. The proportion not consuming any meat was between 2% and 5% in all States and Territories.

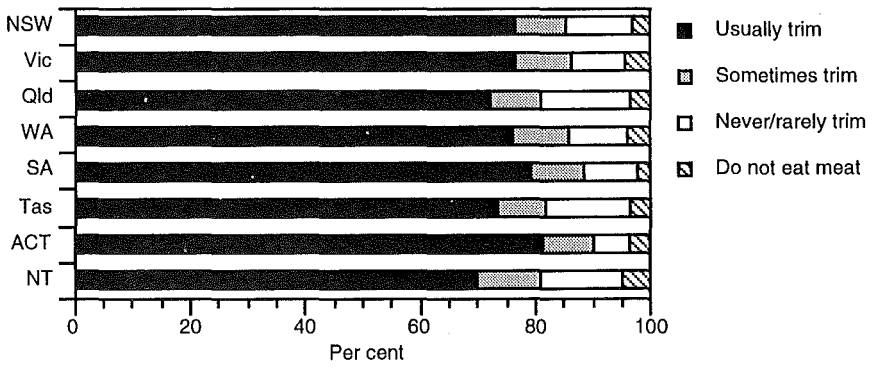


**Figure 2.2 Frequency of trimming meat**

## 2.3 Number of serves of vegetables usually consumed

The national average for the proportion consuming at least four serves of vegetables per day (the recommended intake) was 16%. The proportion was above the national average in both Western Australia and Tasmania (20%) and lower in South Australia, the ACT and the NT at 12% or less.

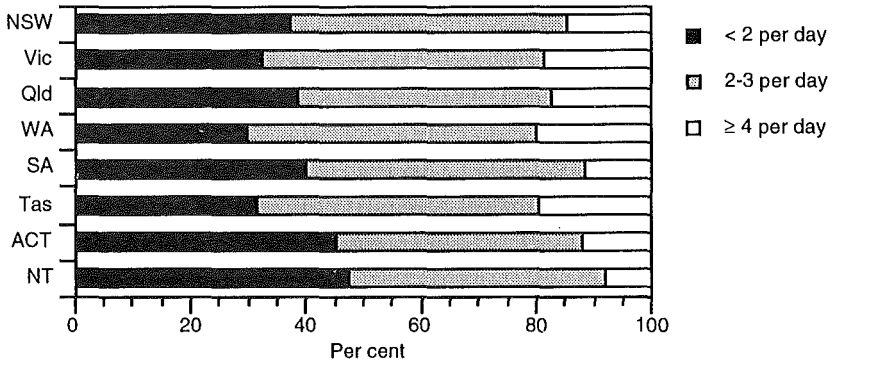


**Figure 2.3 Number of serves of vegetables usually consumed per day**

## 2.4 Number of serves of fruit usually consumed

The Australian average for the proportion of the population consuming at least two serves of fruit per day (the recommended intake) was 51% and ranged from 55% in Victoria to 39% in the NT. The proportion of the population meeting this recommendation was 45% or more in all States and Territories except the NT. The proportion not usually consuming any fruit was below the national average of 5.8% in Tasmania and the ACT.

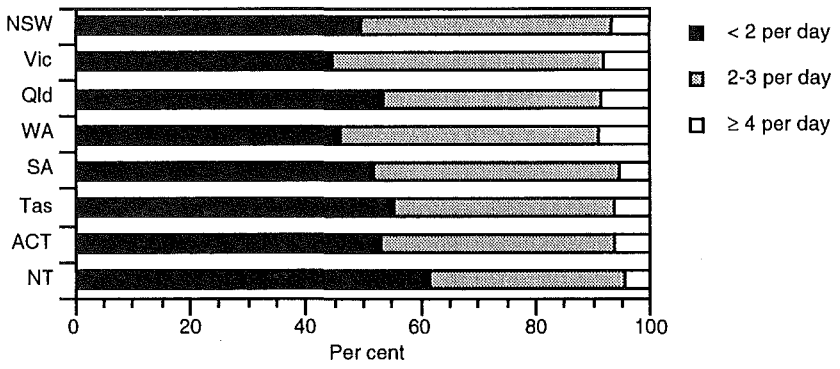


**Figure 2.3 Number of serves of fruit usually consumed per day**

## 2.5 Food security

The national average for the proportion of the population who reported having run out of food at some time during the last 12 months and not having enough money to buy food was 8.4%. The proportion was appreciably lower only in Tasmania (5%). The respective proportions in the ACT and NT were 7% and 11%.

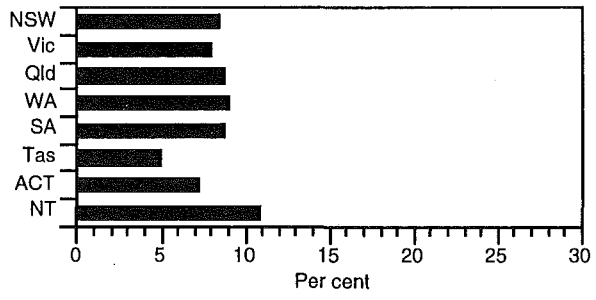


**Figure 2.5 Proportion reporting insufficient money to buy food**

## 2.6 Food habits index

The median score for the index was eight in all States and Territories except the NT. The proportion of scores ≤ 5 was above the national average of 11.5% in Queensland and the NT (16–17%). Compared with the national average of 26% the proportion of scores ≥ 9 ranged from 29% in South Australia to 14% in the NT.

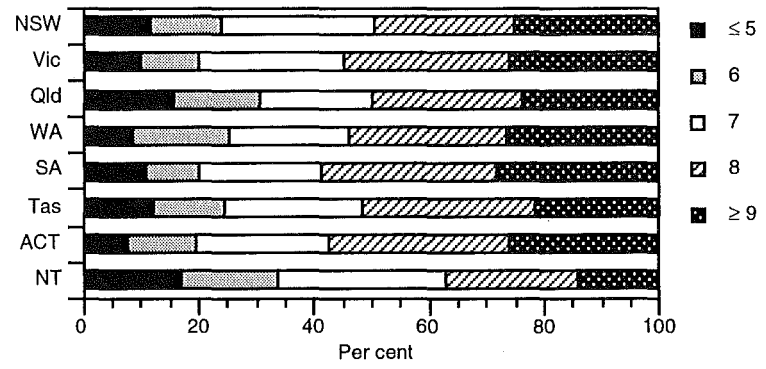


**Figure 2.6 Distribution of scores for the food habits index**

# 3 Differences by age group

In Figures 3.1–3.6 the data have been aggregated into six age categories based on the five year age groups available in the data set (Appendix 1). The number of respondents in the each age category was as follows:

| 18-24 years | 25-34 years | 35-44 years | 45-54 years | 55-64 years | ≥ 65 years |
|---|---|---|---|---|---|
| 599 | 1,136 | 1,232 | 915 | 600 | 960 |

The width of the 95% confidence interval for estimates of population proportions in the age groups with the smallest sample size is four percentage points or less as compared with three percentage points or less in the remaining age groups (Appendix 4).

## 3.1 Type of milk usually consumed

Compared with the national average of 54% the proportion consuming whole milk decreased with age from 63% in the youngest age group to 44% in those aged 55–64 years. Over the same age range the proportion consuming reduced-fat milk increased from 22% to 36% compared with the national average of 30%. The proportion not consuming any milk was between 3 and 5% for all age groups.

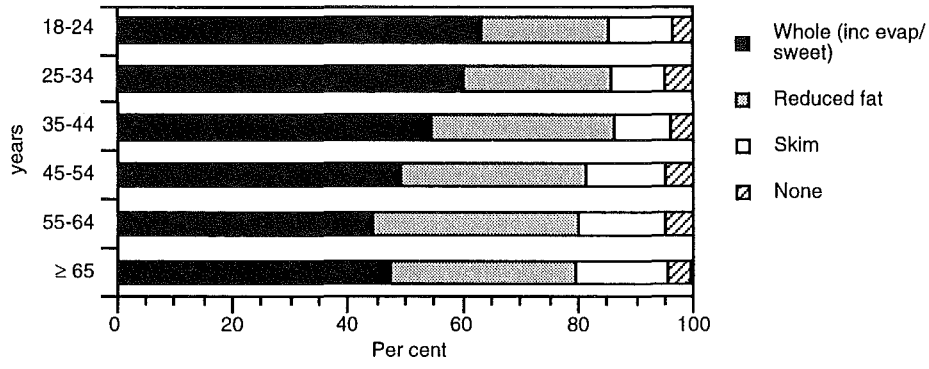


**Figure 3.1 Type of milk usually consumed**

## 3.2 Trimming of meat

Compared with the national average of 76% the proportion usually trimming the fat from their meat ranged from 69% in those aged 18–24 years to 81% in those aged ≥ 65 years. Over the same age range the proportion never or only rarely trimming their meat decreased from 14% to 10% compared with the national average of 11%. The proportion not eating any meat was above the national average only in those aged 25–34 years.

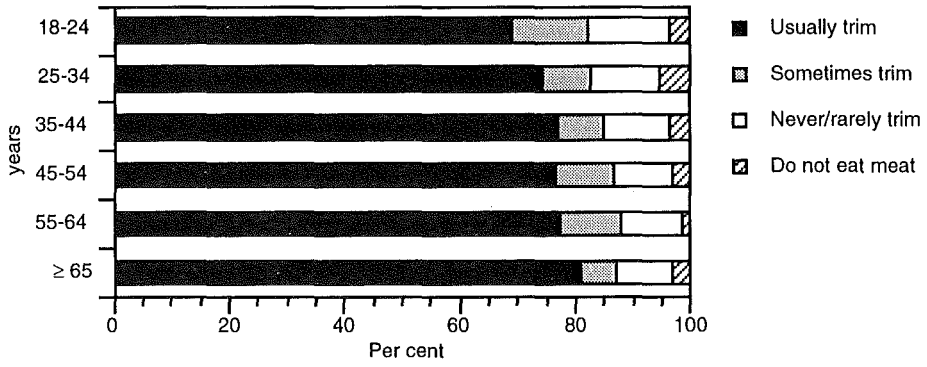


**Figure 3.2 Frequency of trimming meat**

## 3.3 Number of serves of vegetables usually consumed

The proportion of the population consuming four or more serves of vegetables per day increased from 9% of those aged 18–24 years to 22% of those aged ≥ 55 years while the proportion consuming less than two serves per day decreased from over 50% of those aged 18–24 years to around 25% of those aged ≥ 55 years. The respective national averages for these proportions were 16% and 36%.

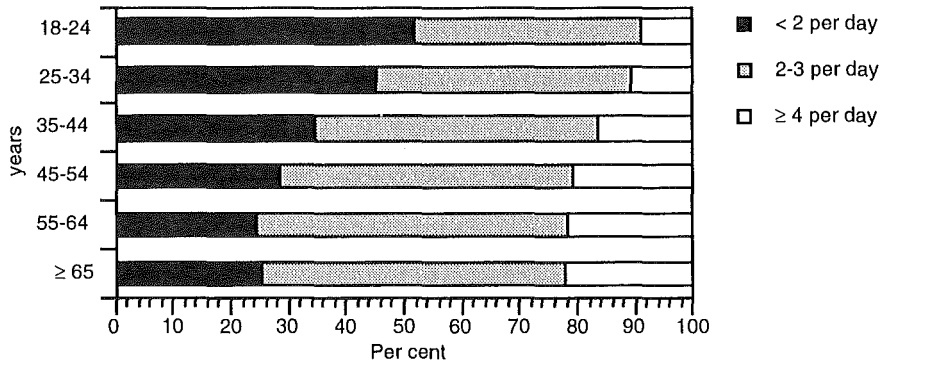


**Figure 3.3 Number of serves of vegetables usually consumed per day**

## 3.4 Number of serves of fruit usually consumed

Compared with the national average of 51% the proportion reporting usually consuming at least two serves of fruit per day increased steadily with age from 39% of those aged 18–24 years to 62% of those aged ≥ 65 years. The proportion not usually eating any fruit was between 4% and 7% in all age groups.

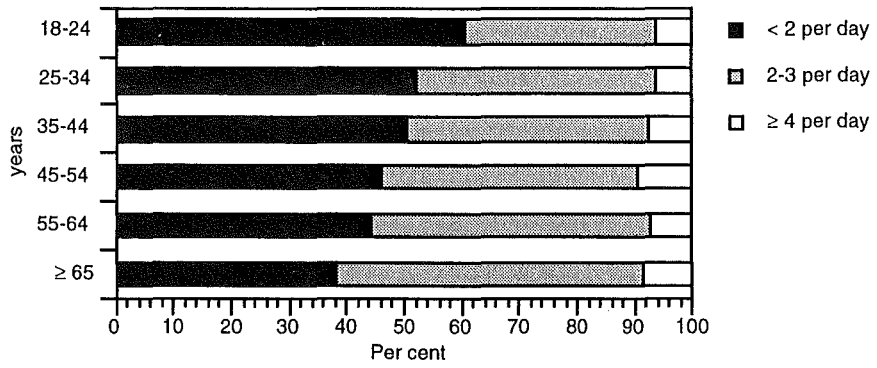


**Figure 3.4 Number of serves of fruit usually consumed per day**

## 3.5 Food security

Compared with the national average of 8.4% the proportion who reported running out of food at some time in the last 12 months and not having sufficient money to buy more was highest in those aged 18–24 years (15%) and decreased with age to 2% or less in those aged ≥ 55 years.

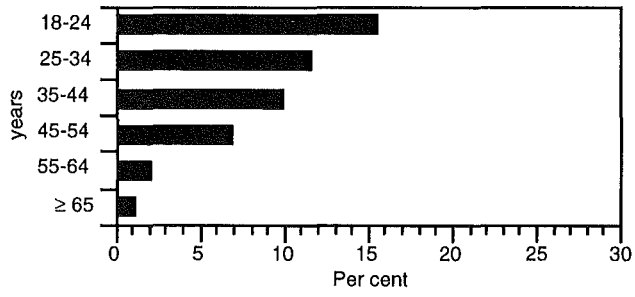


**Figure 3.5 Proportion reporting insufficient money to buy food**

## 3.6 Food habits index

Compared with the national average of 11.5% the proportion of the population with a score of five or less was highest in those aged 18–24 years (18%) and lowest in those aged ≥ 55 years (7%). Conversely the proportion of the population with a score ≥ 9 was only 16% in those aged 18–24 years but 35% in those aged ≥ 55 years. In general the proportion with a score of seven or less decreased with age and the proportion with a score of eight or above increased with age.

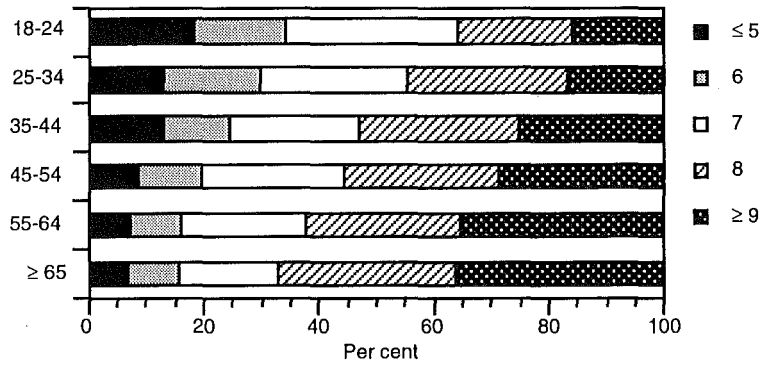


**Figure 3.6 Distribution of scores for the food habits index**

# 4 Differences by level of education

In Figures 4.1–4.6 level of education has been aggregated into three categories, from the more detailed data provided in the data set (Appendix 1), based on the highest educational qualification attained. The number in each of the above three categories was as follows:

| High school certificate | Trade or other certificate or diploma | Bachelor's degree or higher |
|---|---|---|
| 2,810 | 1,833 | 727 |

The width of the 95% confidence interval for the estimated population proportions in the group with a bachelor's degree or higher qualification is four percentage points or less (Appendix 4).

## 4.1 Type of milk usually consumed

Compared with the national average of 54% the proportion consuming whole milk was higher in those with a high school education only (57%) and lower in those with a bachelor's degree or higher qualification (45%). Over 6% of those with a bachelor's degree or higher reported not consuming any milk compared with the national average of 4.5%. The proportion consuming skim milk did not differ with education level.

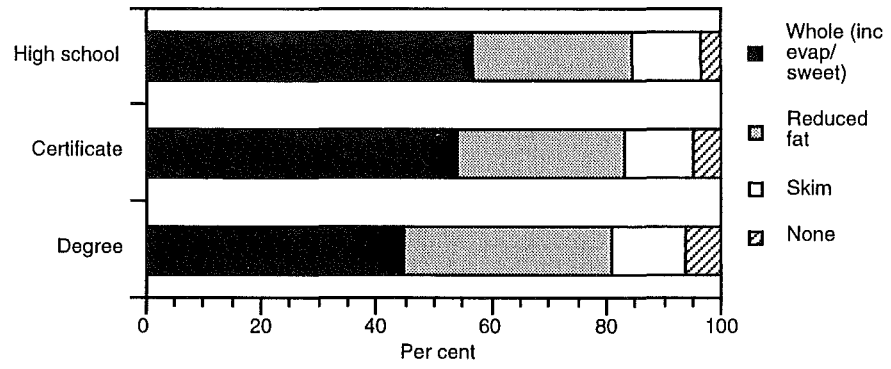


**Figure 4.1 Type of milk usually consumed**

## 4.2 Trimming of meat

The proportion usually trimming their meat was higher (81%) than the national average of 76% in those with a bachelor's degree or higher qualification. The proportion not eating any meat was between 3% and 5% in all groups.

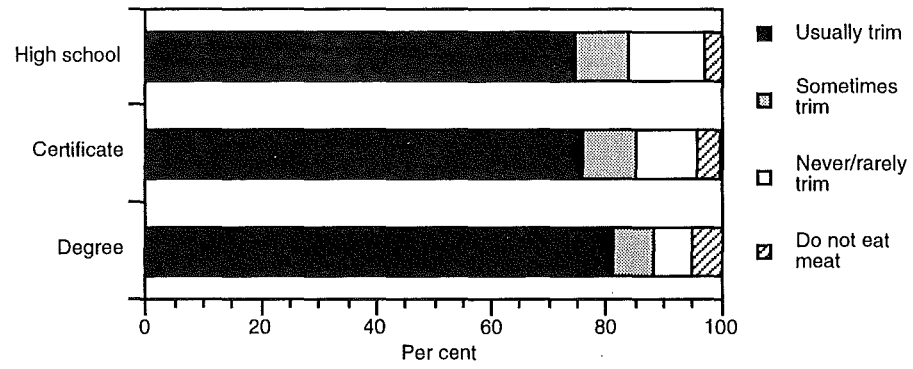


**Figure 4.2 Frequency of trimming meat**

## 4.3 Number of serves of vegetables usually consumed

Compared with the national average of 16% the proportion usually consuming four or more serves of vegetables per day was lowest in those with a bachelor's degree or higher qualification (12%).

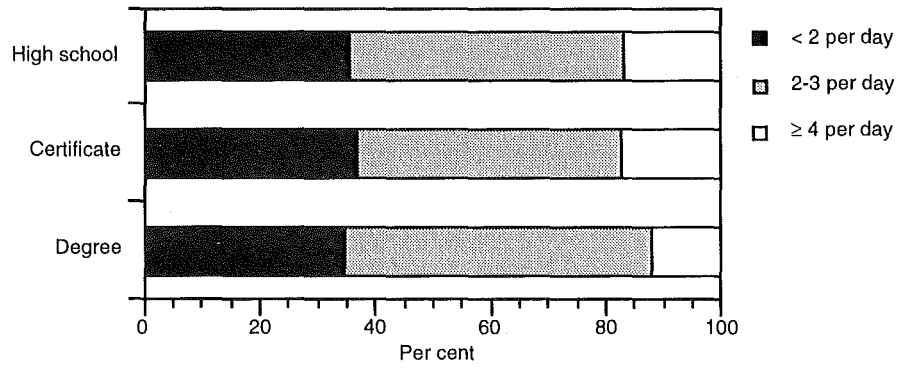


**Figure 4.3 Number of serves of vegetables usually consumed per day**

## 4.4 Number of serves of fruit usually consumed

The proportion usually consuming two or more serves of fruit per day was above the national average of 51% in those with a bachelor's degree or higher qualification (56%) and lower in those with a certificate level qualification (48%). The proportion not usually consuming any fruit ranged from 2% in those with a bachelor's degree or higher qualification to 7% in those with a certificate qualification .

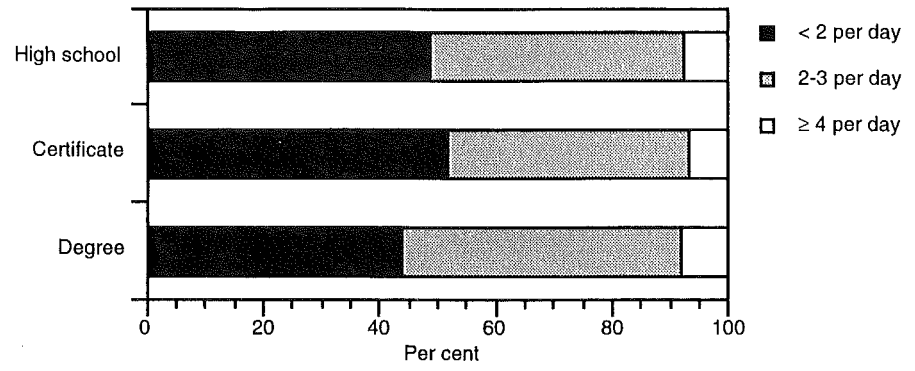


**Figure 4.4 Number of serves of fruit usually consumed per day**

## 4.5 Food security

Only for those with a bachelor's degree or higher qualification was the proportion, who reported having run out of food at some time in the last 12 months and not having money to buy more food, below the national average of 8.4%.

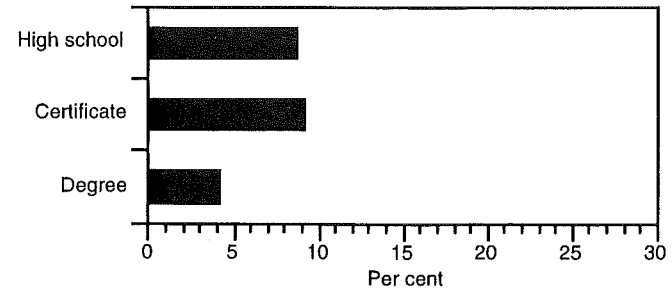


**Figure 4.5 Proportion reporting insufficient money to buy food**

## 4.6 Food habits index

Those who had obtained a bachelor's degree or higher qualification had the highest proportion with a score of ≥ 9 (30%). This group also had the lowest proportion with a score of five or less (~6%). There was no difference in the distribution of food index scores between those with a high school or a tertiary certificate qualification.

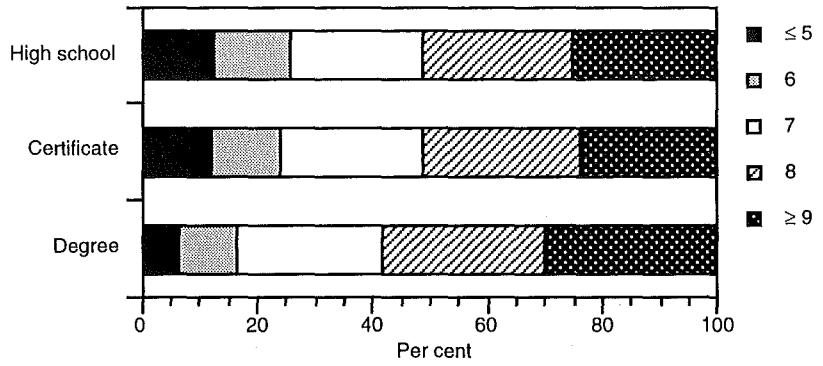


**Figure 4.6 Distribution of scores for the food habits index**

# 5 Differences by place of birth

Country of birth was available only as Australian born or overseas born in the PSM data set (Appendix 1). The number of Australian born and overseas born respondents was 4,023 and 1,399 respectively. With these sample sizes the width of the 95% confidence interval for all estimates of population proportions shown in Figures 5.1–5.6 is less than three percentage points (Appendix 4).

## 5.1 Type of milk usually consumed

Place of birth, categorised as born in Australia or overseas born, was not associated with any differences in the proportions usually consuming different types of milk.

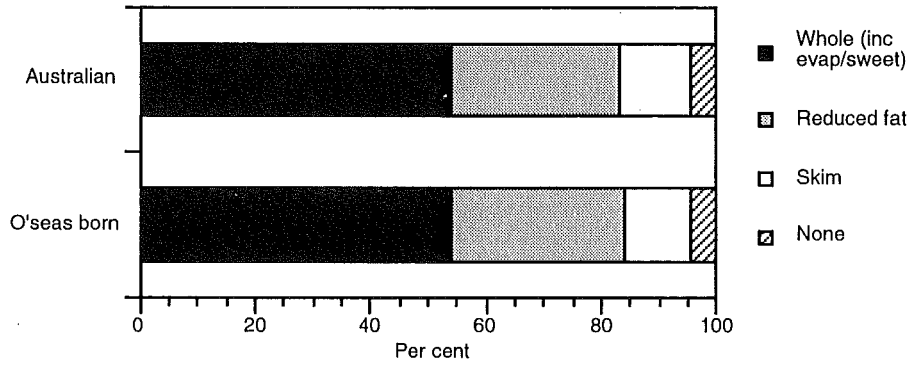


**Figure 5.1 Type of milk usually consumed**

## 5.2 Trimming of meat

The proportion of the overseas born who usually trimmed their meat (78%) was above the national average of 76%. The proportion of overseas born not eating any meat below the national average of 3.7%.

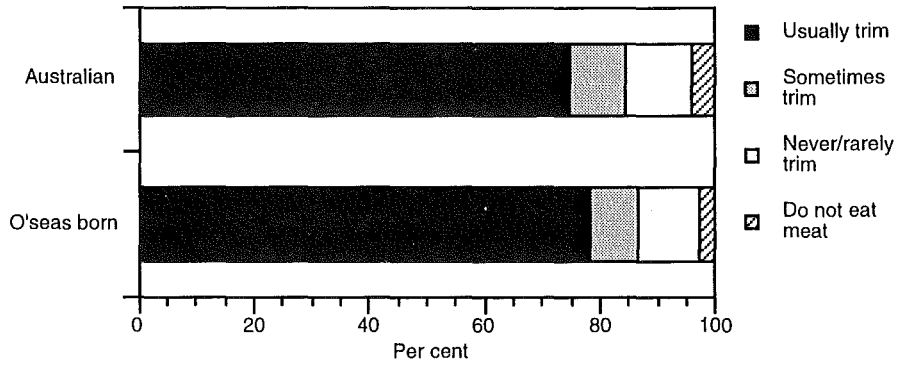


**Figure 5.2 Frequency of trimming meat**

## 5.3 Number of serves of vegetables usually consumed

The proportion of the Australian born population consuming four or more serves of vegetables per day (18%) was above, and that of the overseas born (13%) below, the national average of 16%.

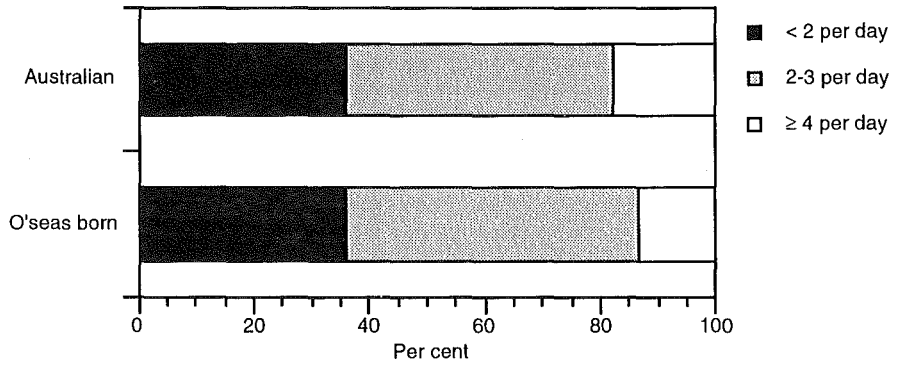


**Figure 5.3 Number of serves of vegetables usually consumed per day**

## 5.4 Number of serves of fruit usually consumed

The proportion usually consuming two or more serves of fruit per day was above the national average of 51% in the overseas born (56%) and lower in the Australian born (49%). The proportion not usually consuming any fruit was below the national average of 5.8% in the overseas born.

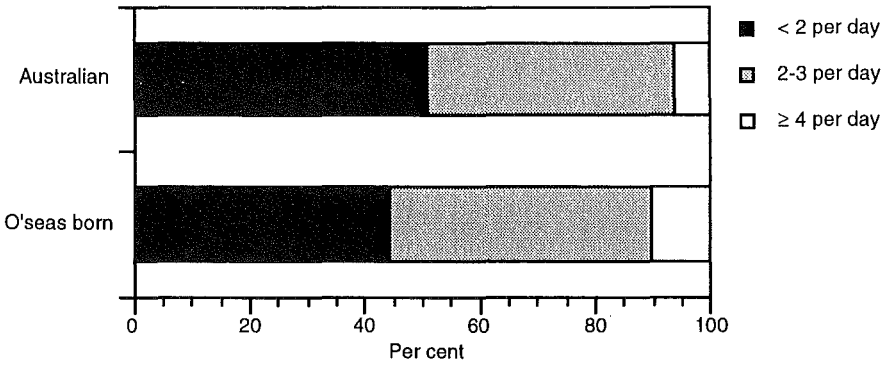


**Figure 5.4 Number of serves of fruit usually consumed per day**

## 5.5 Food security

The proportion reporting insufficient money to buy food at some time in the last 12 months was slightly below the national average of 8.4% in the overseas born.

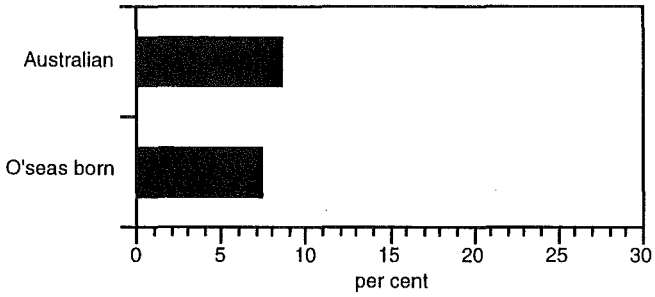


**Figure 5.5 Proportion reporting insufficient money to buy food**

## 5.6 Food habits index

Compared with the national average of 11.5% a smaller proportion of the overseas born population (9%) had a score of ≤ 5 on the food habits index than did the Australian born population (12%). Compared with the national average of 52% the overseas born population also had a higher proportion of scores ≥ 8 (56%).

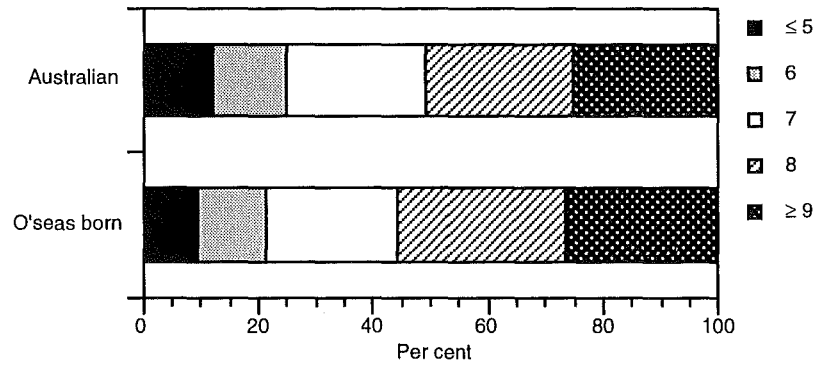


**Figure 5.6 Distribution of scores for the food habits index**

# 6 Differences by marital status

In Figures 6.1–6.6 marital status is grouped into three categories with the married category including *de facto* family arrangements. The number of respondents in each category was as follows:

| Never married | Married | Separated/divorced |
|---|---|---|
| 1,069 | 3,253 | 1,100 |

With these sample sizes the width of the 95% confidence interval for the estimates of the population proportions in all marital status groups is three percentage points or less (Appendix 4).

## 6.1 Type of milk usually consumed

The proportion usually consuming whole milk was higher (58%) than the national average of 54% in the never married group. No differences in milk consumption patterns were evident between those who were currently, or had previously been, married. No differences were observed with marital status in the proportion who did not consume any milk.

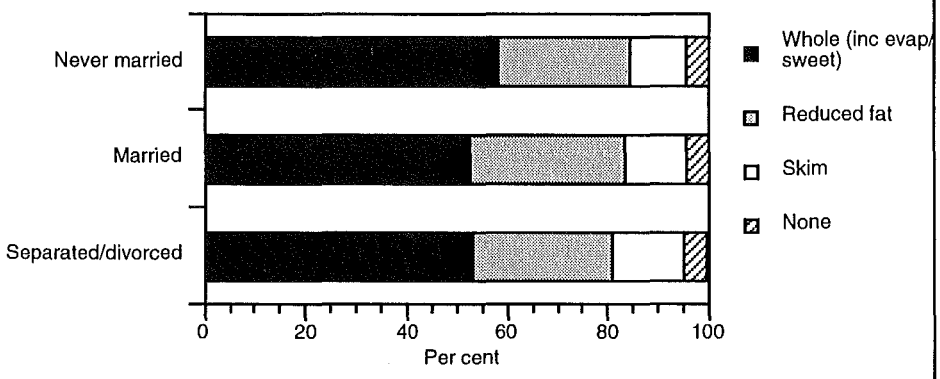


**Figure 6.1 Type of milk usually consumed**

## 6.2 Trimming of meat

The proportion who reported usually trimming their meat was above the national average of 76% in the married group (79%) and lower in those who had never married (69%). The proportion not eating any meat was above the national average of 3.7% only in the never married group.

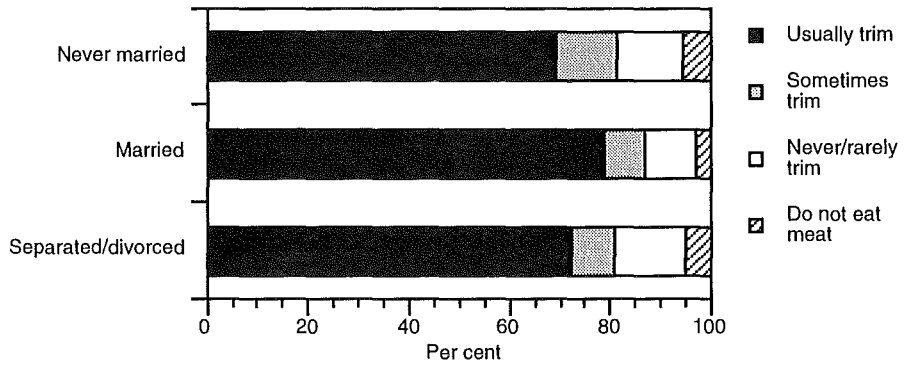


**Figure 6.2 frequency of trimming meat**

## 6.3 Number of serves of vegetables usually consumed

The proportion who usually consumed at least four serves of vegetables per day was lower than the national average of 16% in those who had never married (12%) and higher in those who were now, or had been, married (18%).

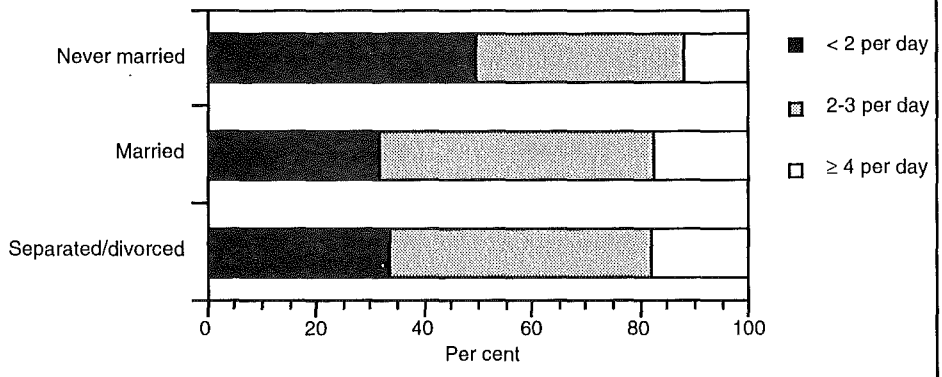


**Figure 6.3 Number of serves of vegetables usually consumed per day**

## 6.4 Number of serves of fruit usually consumed

The proportion usually consuming at least two serves of fruit per day in the never married group was 44% and well below the national average of 51%. The proportion not consuming any fruit did not differ with marital status.

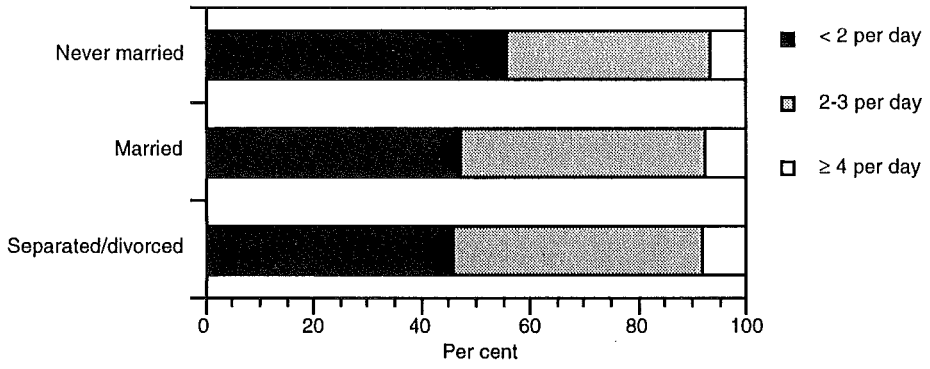


**Figure 6.4 Number of serves of fruit usually consumed per day**

## 6.5 Food security

The proportion reporting that they had run out food at some time in the last 12 months, and did not have any money to buy more, was below the national average of 8.4% in those who were currently married (6%) but 12–13% in those who were either not married or were separated or divorced.

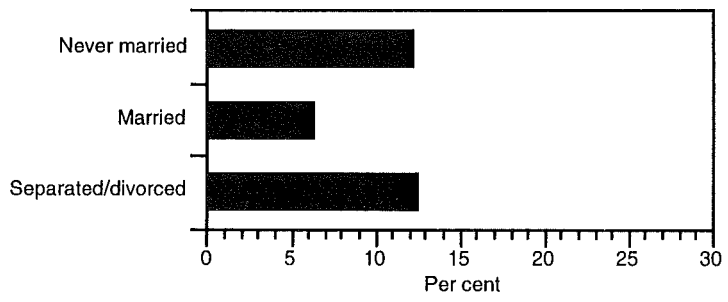


**Figure 6.5 Proportion reporting insufficient money to buy food**

## 6.6 Food habits index

Compared with national average figures of 26% and 11.5% respectively the never married group had a lower proportion with a score of nine or more (18%) and a higher proportion with a score of five or less (16%). The married group had the highest proportion (28%) with a score of ≥ 9.

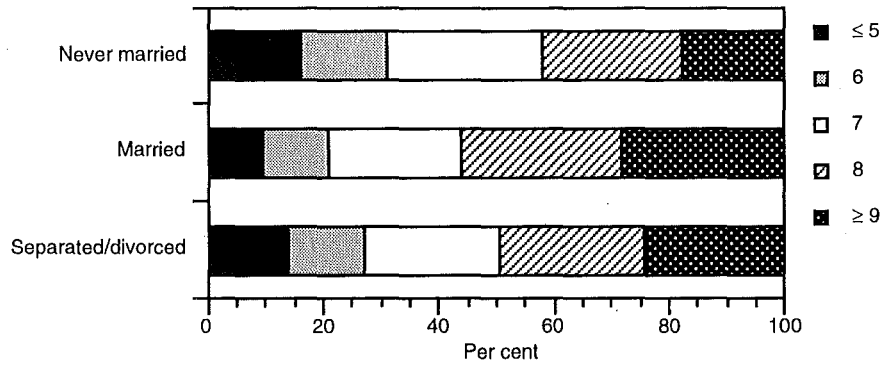


**Figure 6.6 Distribution of scores for the food habits index**

# 7 Differences by labour force status

Labour force status in Figures 7.1–7.6 is grouped by the four categories available in the PSM data set. The number in each category was as follows:

| Full-time | Part-time | Unemployed | Not in labour force |
|---|---|---|---|
| 2,253 | 900 | 278 | 1,991 |

The width of the 95% confidence interval for estimates of the population proportions in all labour force sub-groups is within three percentage points except in the unemployed group where it is may be as high as six percentage points for proportions close to 50% (Appendix 4).

## 7.1 Type of milk usually consumed

Compared with the national average of 54% the proportion consuming whole milk was higher (65%) in the unemployed and lower (46%) in those who were in part-time employment. The proportions for reduced-fat milk and skim milk both showed the reverse trend. The proportion not consuming any milk was above the national average in those in full-time employment (~6%) and lower in those in part-time employment (<3%).

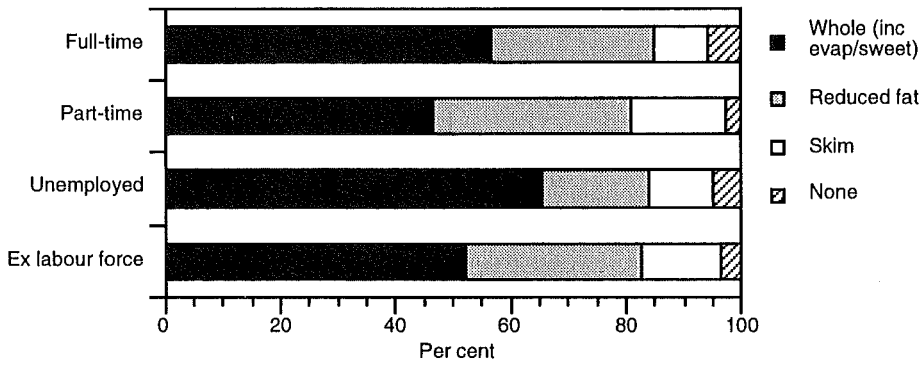


**Figure 7.1 Type of milk usually consumed**

## 7.2 Trimming of meat

The proportion usually trimming their meat was higher than the national average of 76% in those in part-time employment (79%) and lower in the unemployed (66%). The proportion not eating any meat was below the national average of 3.7% only in those not currently in the labour force.

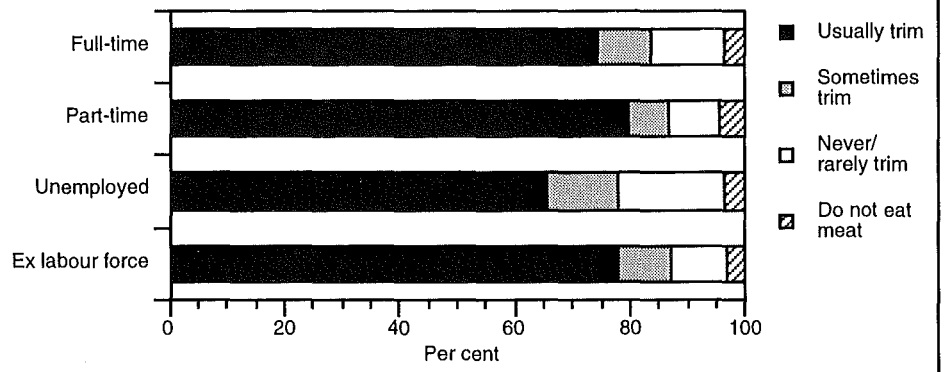


**Figure 7.2 Frequency of trimming meat**

## 7.3 Number of serves of vegetables usually consumed

The proportion usually consuming at least four serves of vegetables per day was higher than the national average of 16% in those not currently in the labour force (21%) and lower in those in full-time employment (13%).

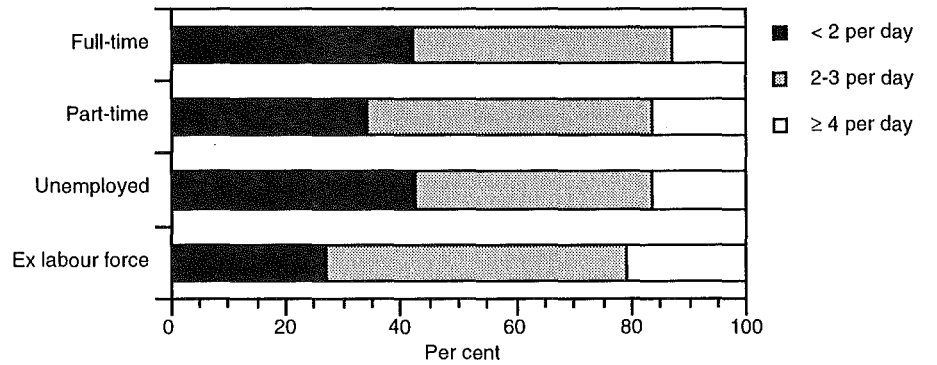


**Figure 7.3 Number of serves of vegetables usually consumed per day**

## 7.4 Number of serves of fruit usually consumed

The proportion usually consuming at least two serves of fruit per day was higher than the national average of 51% in those not currently in the labour force (57%) and lower in those in full-time employment or unemployed (46–47%). In the unemployed the proportion who reported not usually eating any fruit (~10%) was well above the national average of 5.8%.

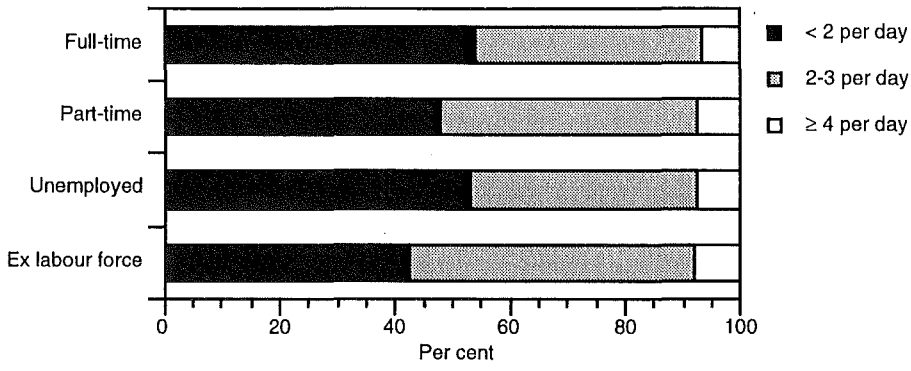


**Figure 7.4 Number of serves of fruit usually consumed per day**

## 7.5 Food security

The proportion who had run out of food at some time in the last 12 months and did not have any money to buy more was much higher in the unemployed (23%) than the national average of 8.4%.

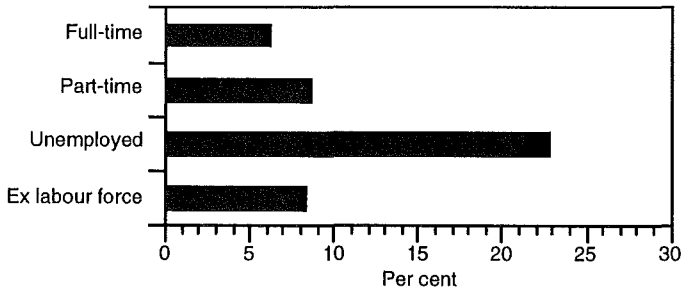


**Figure 7.5 Proportion reporting insufficient money to buy food**

## 7.6 Food habits index

The proportion with a score of five or less was above the national average of 11.5% in the unemployed (21%) and lower in those in part-time employment (9%). Over 40% of the unemployed had a score of ≤ 6. The proportion with a score of nine or more was above the national average of 26% in those in part-time employment and in those not currently in the labour force (31–32%).

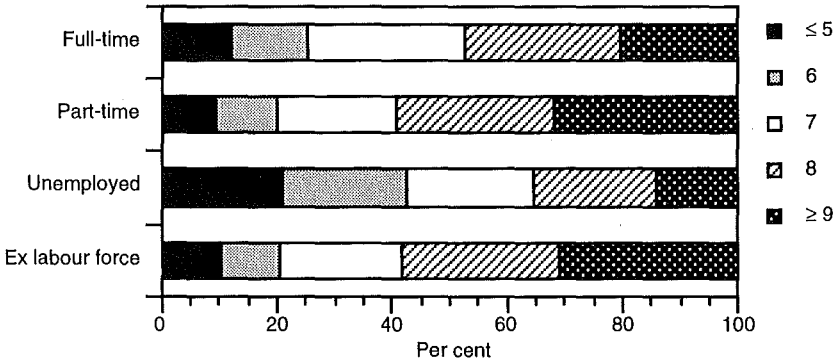


**Figure 7.5 Distribution of scores for the food habits index**

# 8 Differences by occupation

The four occupational categories in Figures 8.1–8.6 were derived by grouping the eight single digit ASCO (Australian Standard Classification of Occupations) categories provided in the PSM data set (Appendix 1). No occupational classification was available for 43% of the respondents. For those with an occupational classification the number in each category was as follows:

| Managers and professionals | Para-professionals and tradespersons | Clerks and salespersons | Plant and machine operators, drivers and labourers |
|---|---|---|---|
| 999 | 808 | 947 | 555 |

The width of the 95% confidence interval for estimates of the population proportions in all occupational sub-groups is four percentage points or less (Appendix 4.)

## 8.1 Type of milk usually consumed

The proportion usually consuming whole milk was higher than the national average of 54% among para-professionals and drivers and labourers (62–65%) and lower in managers and clerks and salespersons (47–48%). The proportions for reduced fat milk showed the reverse trend. The proportion not consuming any milk was higher (~7%) than the national average of 4.5% among para-professionals.

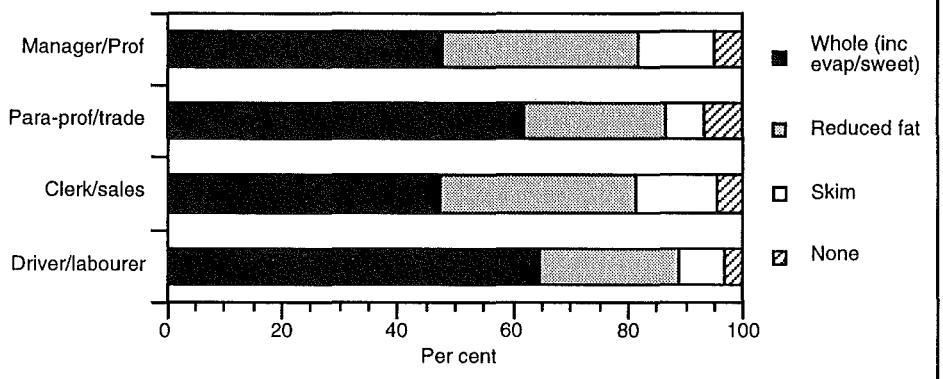


**Figure 8.1 Type of milk usually consumed**

## 8.2 Trimming of meat

The proportion who usually trimmed their meat of fat was above the national average of 76% among managers and professionals and clerks and salespersons (78%) and lowest among drivers and labourers (69%). The proportion not consuming any meat was between 3% and 5% in all groups.

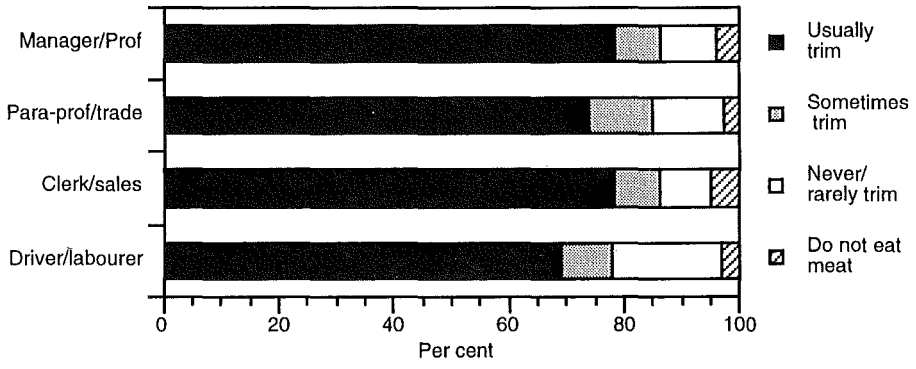


**Figure 8.2 Frequency of trimming meat**

## 8.3 Number of serves of vegetables usually consumed

Differences with occupational group, in the proportion usually consuming at least four serves of vegetables per day, were small. The proportion was lowest in the para-professional group (11%).

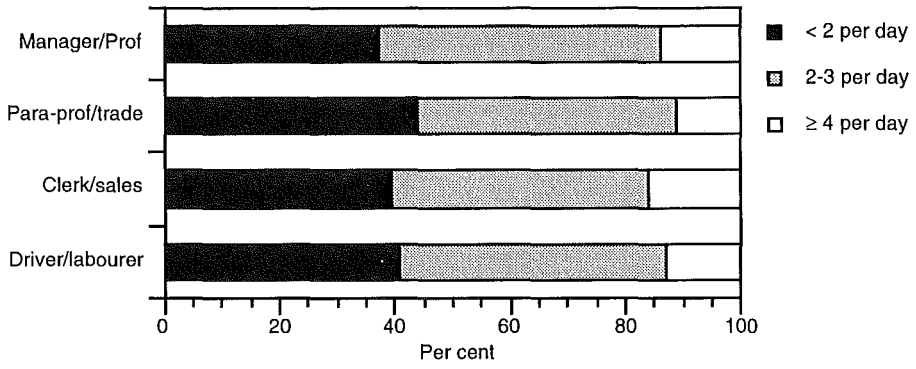


**Figure 8.3 Number of serves of vegetables usually consumed per day**

## 8.4 Number of serves of fruit usually consumed

The proportion usually consuming at least two serves of fruit per day did not differ between occupation groups. The proportion was lower than the national average of 51% in the para-professional group (44%). The proportion not usually consuming any fruit was highest among drivers and labourers.

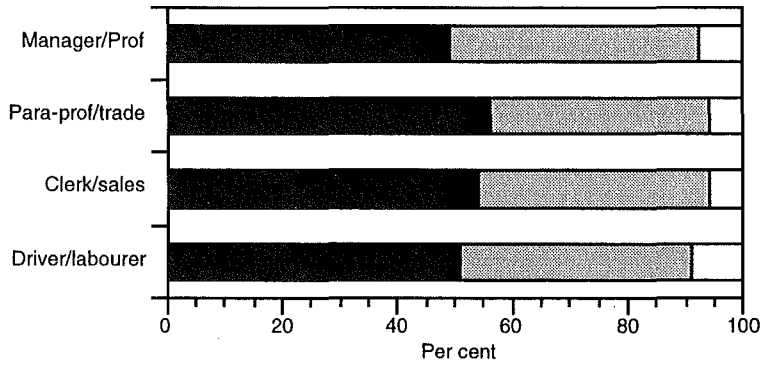


**Figure 8.4 Number of serves of fruit usually consumed**

## 8.5 Food security

The proportion who reported having run out of food at some time during the last 12 months, and not having enough money to buy any more food, was close to the national average of 8.4% in all occupation groups except managers and professionals in whom it was only around 3%.

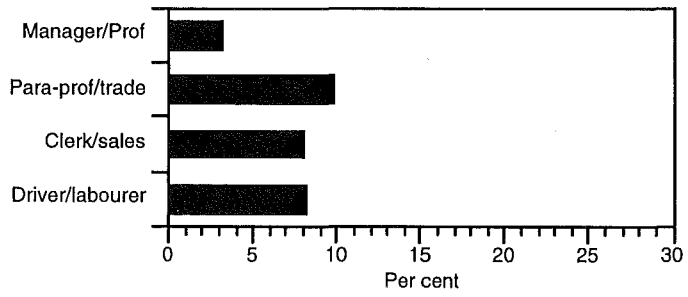


**Figure 85 Proportion reporting insufficient money to buy food**

## 8.6 Food habits index

The proportion of those with a score of ≤ 5 was higher than the national average of 11.5% among drivers and labourers (15%) and lower among managers and professionals (8%). The proportion of those with a score ≥ 9 was below the national average of 26% both in the para-professional group (14%) and in the driver/labourer group (17%).

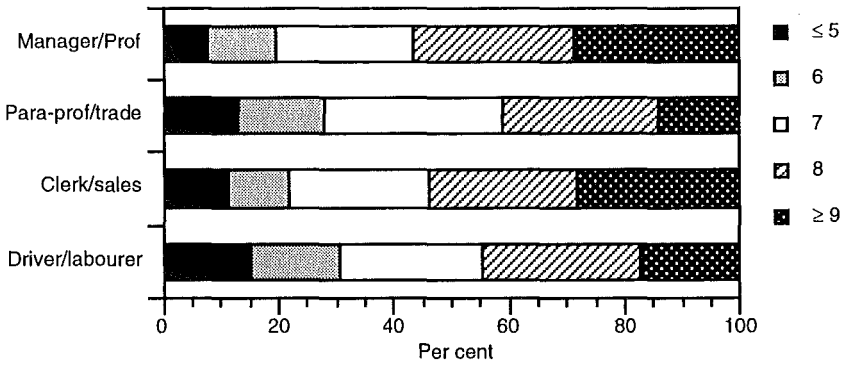


**Figure 8.6 Distribution of scores for the food habits index**

# 9 Differences by family composition

In Figures 9.1–9.6 households classified as related multiple family households and unrelated households in the PSM data set have been grouped together as 'other' households. The number in each of the five types of household was as follows:

| Married couple | Married couple and offspring | Single parent and offspring | Single person | Other related and unrelated multiple families |
|---|---|---|---|---|
| 1,310 | 2,016 | 449 | 1,120 | 527 |

For the single parent and the other household group the width of the 95% confidence interval for the estimated population proportions is four percentage points and in the remaining sub-groups it is three percentage points or less (Appendix 4).

## 9.1 Type of milk usually consumed

The proportion usually consuming whole milk was above the national average of 54% in single parent and other households (60–61%) and lower in married couple households with no dependants (45%). In married couple households the proportion consuming reduced fat (35%) and skim milk (16%) was higher than the national average of 30% and 12% respectively. Compared with the national average of 4.5% the proportion not usually consuming any milk was lowest in single parent households (<2%).

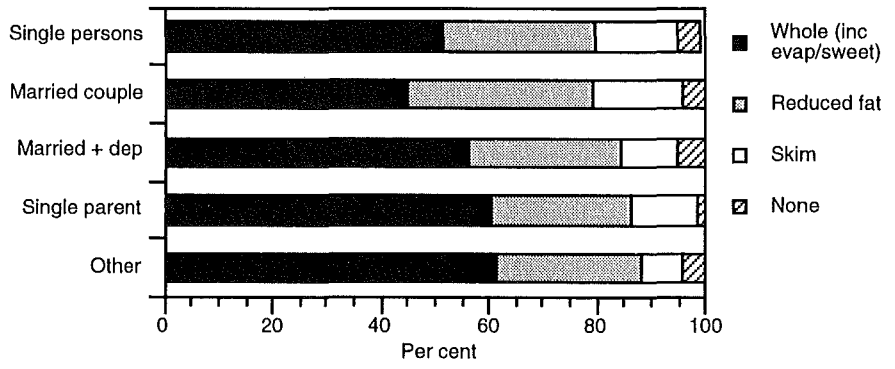


**Figure 9.1 Type of milk usually consumed**

## 9.2 Trimming of meat

The proportion usually trimming their meat was above the national average of 76% in married couple households (81%) and below the national average in single person and other households (69%). In single person households the proportion who never or rarely trimmed their meat (16%) was above the national average of 11.3%. The proportion not eating any meat was between 3% and 6% in all groups.

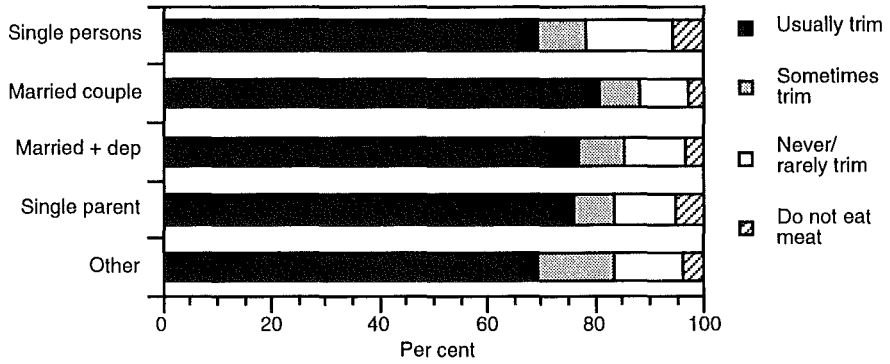


**Figure 9.2 Frequency of trimming meat**

## 9.3 Number of serves of vegetables usually consumed

The proportion usually consuming at least four serves of vegetables per day was higher than the national average of 16% in married couple households (19%) and below the national average in the 'other' household group (14%).

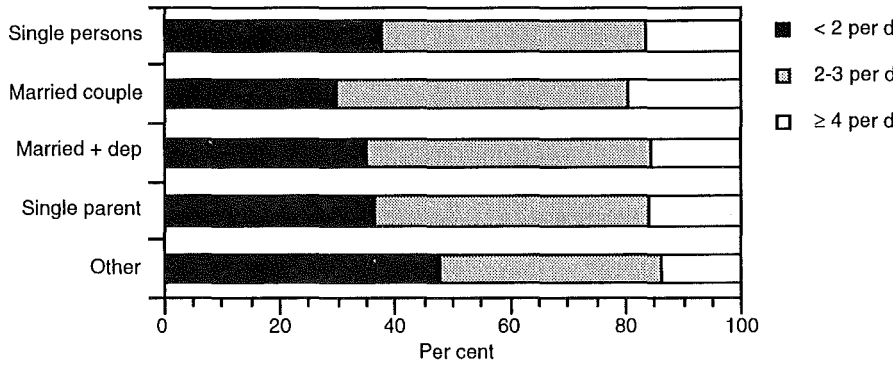


**Figure 9.3 Number of serves of vegetables usually consumed per day**

## 9.4 Number of serves of fruit usually consumed

The proportion usually consuming at least two serves of fruit per day was above the national average of 51% in married couple and single person households (55%) and below the national average in the other household group (44%). The latter group also had the highest proportion not usually consuming any fruit.

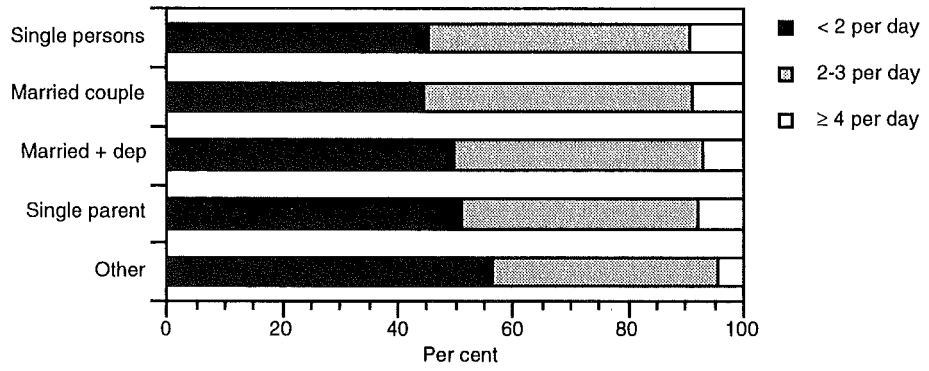


**Figure 9.4 Number of serves of fruit usually consumed per day**

## 9.5 Food security

Almost 1 in 4 single parent households (23%) reported having run out of food at some time during the last 12 months and not having sufficient money to buy any more. Relative to the national average of 8.4% the proportion was also higher (14%) in the other household group and well below the national average in married couple households (~3%).

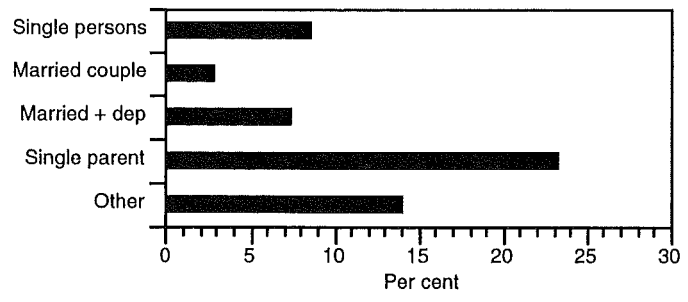


**Figure 9.5 Proportion reporting insufficient money to buy food**

## 9.6 Food habits index

Compared with the national average of 11.5% the proportion of scores ≤ 5 was twice as high in single parent and other households (17%) as in married couple households (7%). Just over a third (35%) of married couple households, but only 16% of other households had a score of eight or more compared with the national average of 26%.

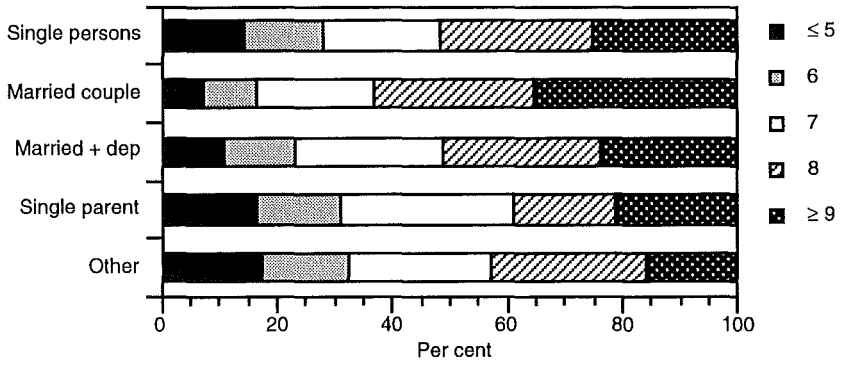


**Figure 9.6 Distribution of scores for the food habits index**

# 10 Differences by household income

In Figures 10.1–10.6 income is grouped by approximate quintiles of household income. The actual number of respondents in each quintile was as follows:

| Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 |
|---|---|---|---|---|
| 875 | 1,003 | 937 | 939 | 917 |

Information on household income was not available for 17% of respondents. The width of the 95% confidence interval for estimates of population proportions in all income groups is three percentage points or less (Appendix 4).

## 10.1 Type of milk usually consumed

The proportions consuming different kinds of milk, or no milk at all, showed no clear differences with quintile of household income. For whole milk the values ranged from 50% in the highest quintile of income to 58% in the second lowest quintile and for reduced-fat milk from 34% in the second highest quintile to 26% in the middle and second lowest quintile. The corresponding national figures were 54% and 30%. The proportion not usually consuming any milk ranged between 3% and 5% in all groups.

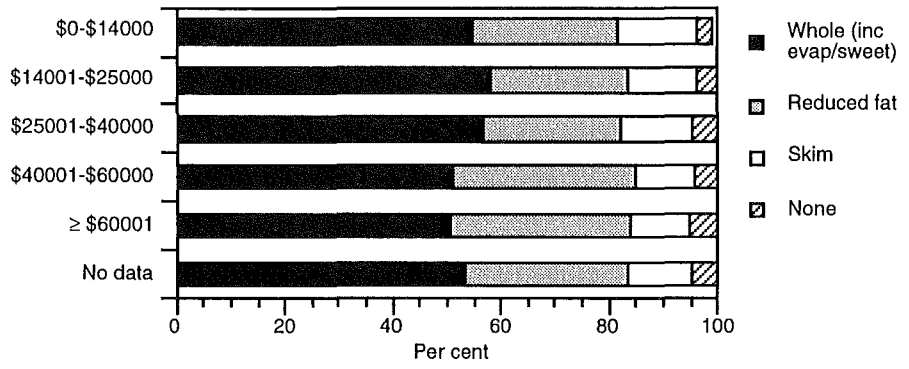


**Figure 10.1 Type of milk usually consumed**

## 10.2 Trimming of meat

The proportion usually trimming their meat ranged from 80% in the highest quintile of household income to 73% in the middle quintile and in those who did not respond to the question on household income. The proportion not eating meat was between 3% and 5% in all household income quintiles.

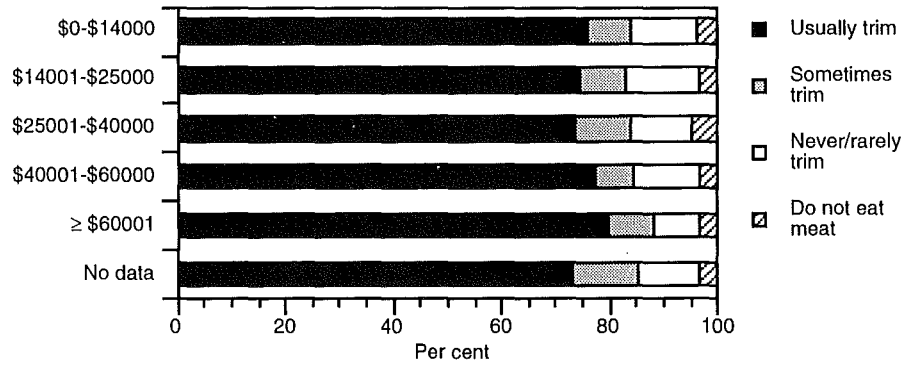


**Figure 10.2 Frequency of trimming meat**

## 10.3 Number of serves of vegetables usually consumed

The proportion of the population usually consuming at least four serves of vegetables per day was negatively related to quintile of household income. It was above the national average of 16% in the two lowest income quintiles (21%) and below the national average in the two highest quintiles (14%). The reverse trend was evident for the proportion usually consuming less than two serves per day.

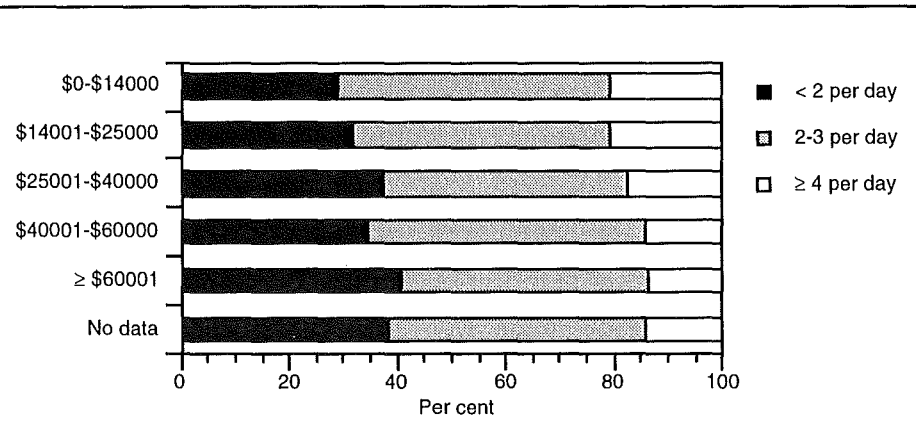


**Figure 10.3 Number of serves of vegetables usually consumed per day**

## 10.4 Number of serves of fruit usually consumed

The proportion usually consuming at least two serves of fruit per day did not differ appreciably with quintile of household income. As for vegetable intake the proportion meeting the recommended level of intake (≥ 2 serves per day) was negatively related to income quintile.

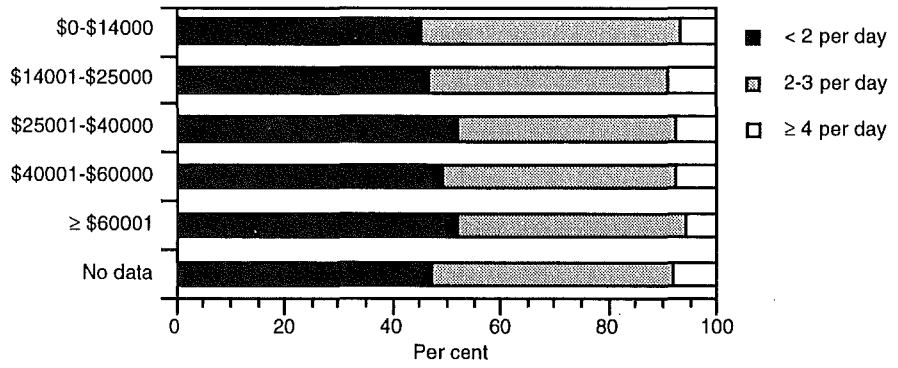


**Figure 10.4 Number of serves of fruit usually consumed per day**

## 10.5 Food security

Apart from those in the lowest quintile of household income the proportion reporting having run out of food at some time in the last 12 months, and having insufficient money to buy more, decreased steadily with increasing quintile of household income from 14% in the second lowest quintile to less than 3% in the highest quintile. These values compare with a national average of 8.4%.

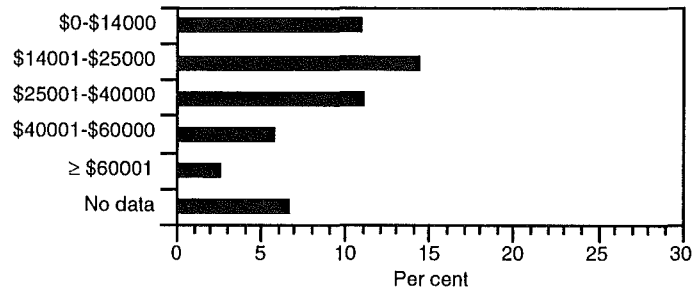


**Figure 10.5 Proportion reporting insufficient money to buy food**

## 10.6 Food habits index

Those in the highest quintile of household income had the lowest proportion of scores ≤ 5 (8%) and the highest proportion of scores of ≥ 8 (56%). Except for those in the lowest quintile of household income the proportion with scores ≤ 5 tended to decrease and the proportion with scores ≥ 8 to increase with increasing quintile of household income but the differences were 5% or less. The proportion with a score of nine or above (23–28%) was unrelated to quintile of household income.

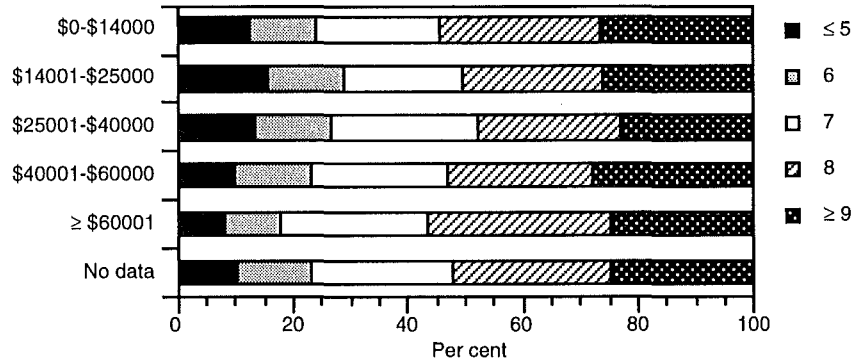


**Figure 10.6 Distribution of scores for the food habits index**

# 11 Differences by nature of household occupancy

Household occupancy was grouped into four categories in the PSM data set. One of these categories, that which included all other types of tenure, contained less than 2% of respondents and was, therefore, omitted from Figures 11.1–11.6. The number of respondents in each of the three main categories was as follows:

| Owned outright | Purchasing | Renting |
|---|---|---|
| 2,368 | 1,391 | 1,546 |

Based on these numbers the width of the 95% confidence interval for the population proportions in Figures 11.1–11.6 is three percentage points or less for all groups (Appendix 4).

## 11.1 Type of milk usually consumed

The proportion usually consuming whole milk was highest in those who rented their dwelling (65%) and well above the national average of 54%. The reverse trend was evident for both reduced-fat and skim milk. The proportion not consuming any milk was between 3% and 5% in all occupancy categories.

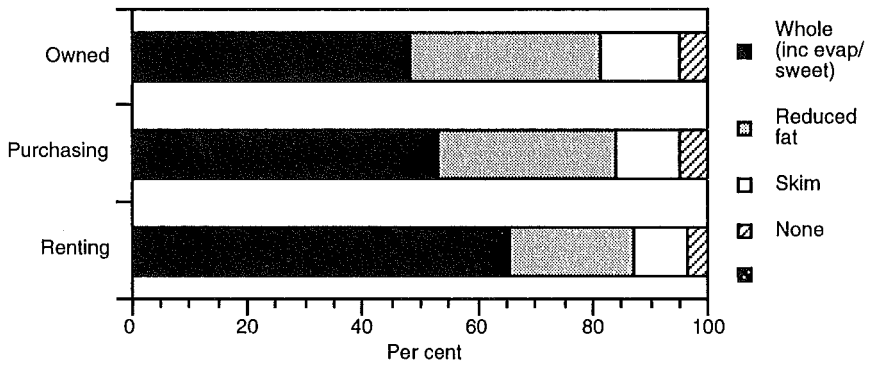


**Figure 11.1 Type of milk usually consumed**

## 11.2 Trimming of meat

The proportion usually trimming their meat was below the national average of 76% in those where the household dwelling was rented (70%) and this group also had the highest proportion who never or rarely trimmed their meat. The proportion not eating any meat was between 3% and 5% in all occupancy groups.

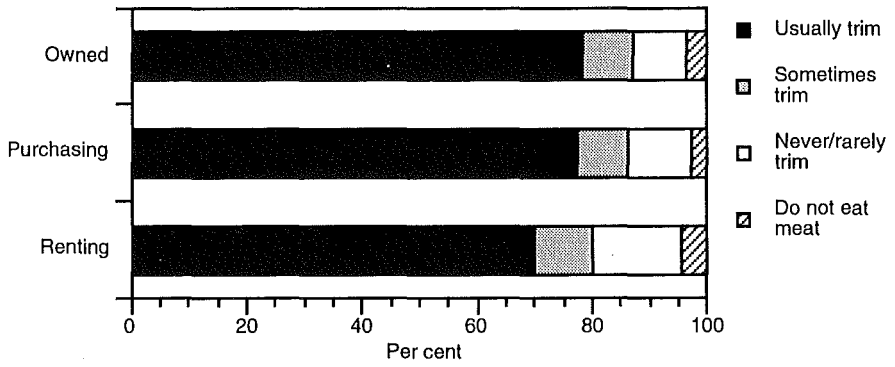


**Figure 11.2 Frequency of trimming meat**

## 11.3 Number of serves of vegetables usually consumed

The proportion usually consuming the recommended intake of ≥ 4 serves of vegetables per day was above the national average of 16% in those who owned their dwelling (20%) and below the national average in those who were renting (12%).

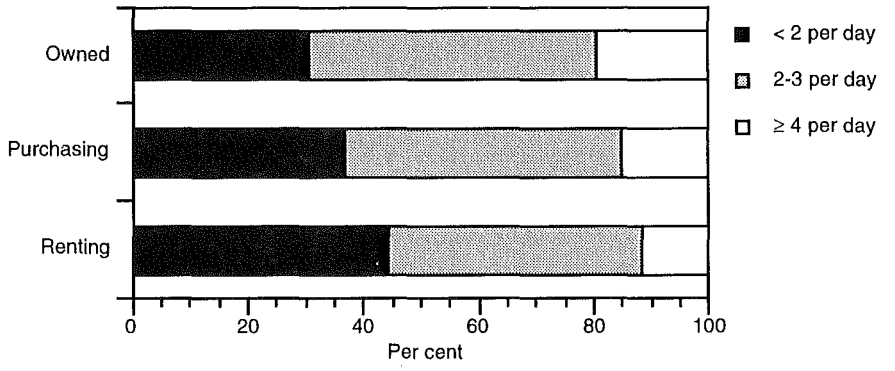


**Figure 11.3 Number of serves of vegetables usually consumed per day**

## 11.4 Number of serves of fruit usually consumed

The proportion usually consuming at least two serves of fruit per day was above the national average of 51% in those owning their dwelling (56%) and below the national average in both those purchasing and renting their dwelling (45–47%). The proportion not usually consuming any fruit was highest in those living in households where the dwelling was rented.

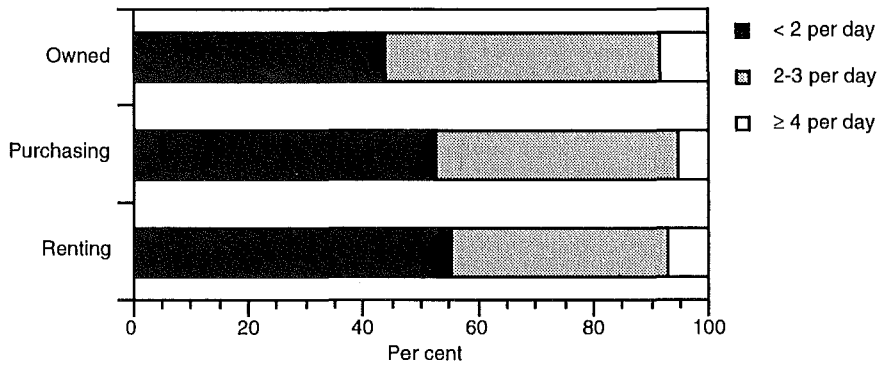


**Figure 11.4 Number of serves of fruit usually consumed per day**

## 11.5 Food security

Compared with the national average of 8.4% the proportion reporting that they had run out of food at some time during the last 12 months, and had insufficient money to buy more, was over 20% in those living in households renting their dwelling and less than 3% in those in owner households.

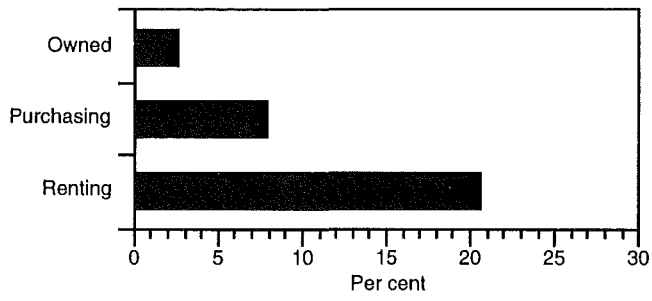


**Figure 11.5 Proportion reporting insufficient money to buy food**

## 11.6 Food habits index

The proportion with a score of ≤ 5 was well above the national average figure of 11.5% in those in households renting their dwelling and well below the national average in those owning their dwelling (~7%). Of those in renting households only 38% had a score of ≥ 8 compared with the national average figure of 52%. The corresponding proportions for a score of ≥ 9 were 16% and 26% respectively.

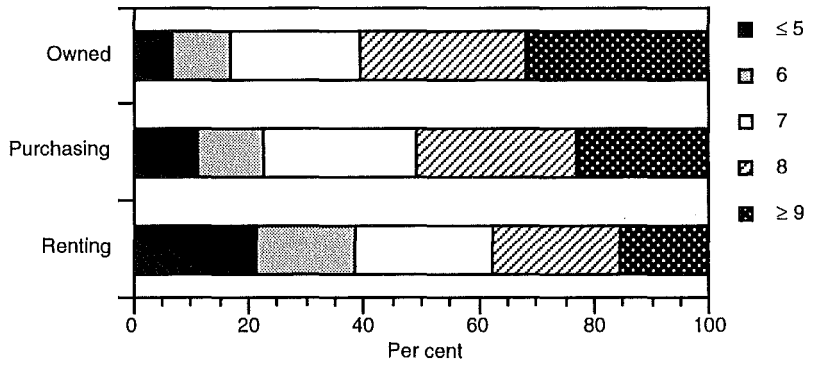


**Figure 11.6 Distribution of scores for the food habits index**

# 12 Differences by quintile of the SEIFA index of relative disadvantage

In Figures 12.1–12.6 data are grouped by quintile of the SEIFA index of relative social disadvantage for Australia. The index is designed to have an average value of 1000 across all collection districts in Australia and a standard deviation of 100 index points. The range of index values covered by each quintile is as follows:

| Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 |
|---|---|---|---|---|
| ≤932 | >932–989 | >989–1,035 | >1,035–1,080 | >1,080 |

The index of relative social disadvantage summarises variables related to the economic resources of households, education and occupation. A higher score on the index of relative disadvantage suggests that the area has characteristics such as fewer families of low income and fewer people with little training and in unskilled occupations (ABS 1994). The width of the 95% confidence interval for estimates of population proportions in all quintiles of the SEIFA index is three percentage points or less (Appendix 4).

## 12.1 Type of milk usually consumed

In the lowest SEIFA index quintile the proportion usually consuming whole milk (61%) was above the national average of 54% and below the national average in those in the highest index quintile (44%). Reduced-fat milk showed the reverse trend but with little difference between the first, second and third quintiles. The proportion not usually consuming any milk was unrelated to the index of relative socio-economic disadvantage.

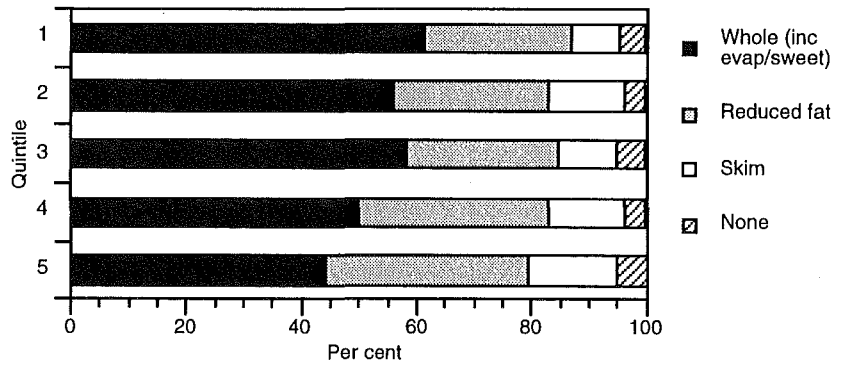


**Figure 12.1 type of milk usually consumed**

## 12.2 Frequency of trimming meat

The proportion usually trimming their meat was below the national average of 76% in the lowest quintile (73%) and above the national average in the highest quintile (81%) of the index of relative socio-economic disadvantage. The proportion not usually consuming any meat was above the national average of 3.7% only for those in the second highest quintile.

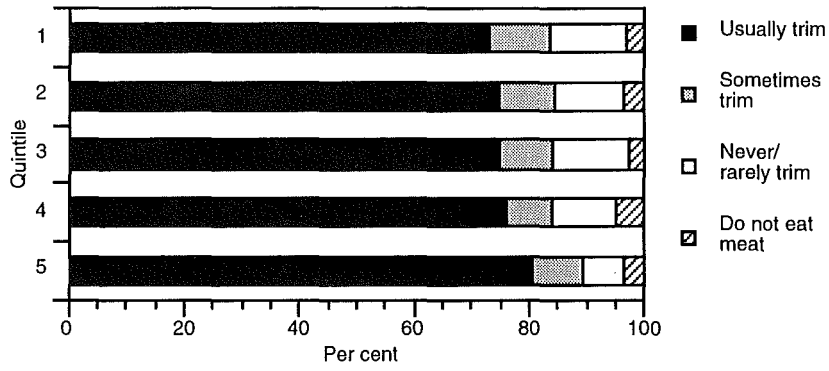


**Figure 12.2 Frequency of trimming meat**

## 12.3 Number of serves of vegetables usually consumed

The proportion usually consuming at least four serves of vegetables per day varied little with SEIFA index quintile. The proportion was above the national average of 16% only for those in the second lowest quintile (19%) of the index of relative socio-economic disadvantage.

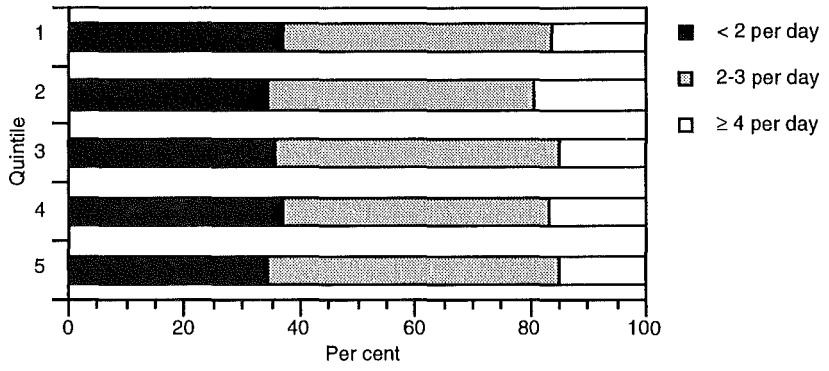


**Figure 11.3 Number of serves of vegetables usually consumed per day**

## 12.4 Number of serves of fruit usually consumed

The proportion usually consuming at least the recommended intake of two serves of fruit per day was above the national average of 51% in the second lowest quintile (54%) and in the highest quintile (53%) of the index relative socio-economic disadvantage. The proportion not usually consuming any fruit was above the national average in the middle quintile and below the national average in the highest quintile.

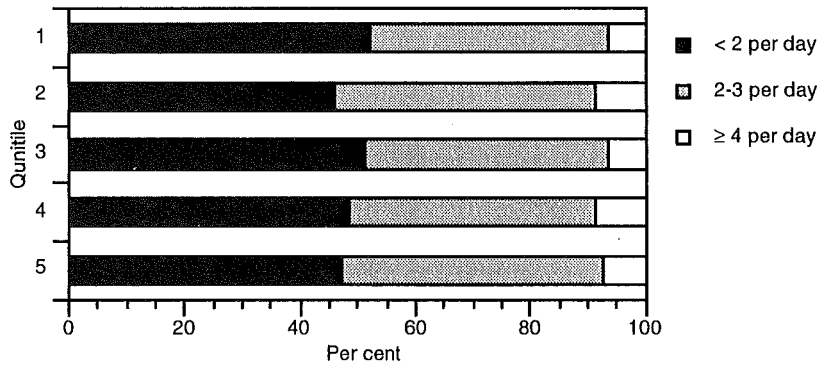


**Figure 12.4 Number of serves of fruit usually consumed**

## 12.5 Food security

The proportion reporting having run out of food at some time during the last 12 months and not having enough money to buy more was at or above the national average in quintiles one to three (9–12%) and lowest in the fifth quintile (<5%).

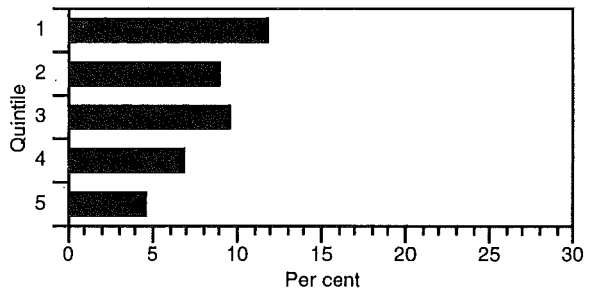


**Figure 12.5 Proportion reporting having insufficient money for food**

## 12.6 Food habits index

Only for the highest quintile of the SEIFA index was the proportion with a score of ≤ 5 (~8%) appreciably lower than the national average of 11.5%. The proportion with a score of ≥ 8 was 45% in the lowest quintile and 60% in the highest quintile. The proportion with a score ≥ 9 ranged from 20% in the lowest quintile to 33% in the highest quintile of the SEIFA index of relative socio-economic disadvantage.

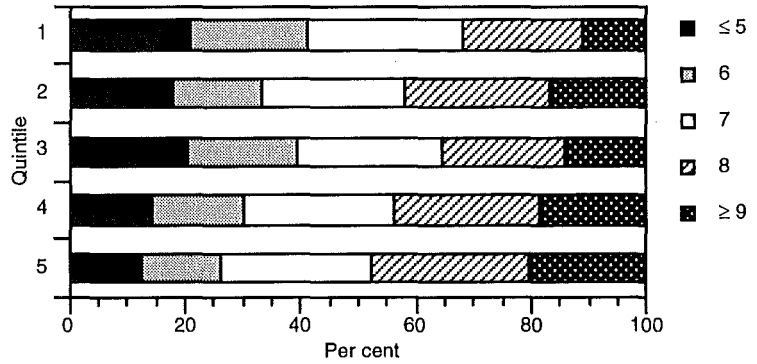


**Figure 12.6 Distribution of scores for the food habits index**

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Kennedy ET, Ohls J, Carlson S, Fleming K 1995. The Healthy Eating Index: design and applications. J Am Diet Assoc. 95: 1103–1105.

Lwanga SK, Lemeshow S 1991. Sample size determination in health studies. A practical manual. Geneva: World Health Organization, p. 25.

National Health and Medical Research Council 1992. Dietary Guidelines for Australians. Canberra: AGPS.

Wilson D, Wakefield M, Taylor A 1992. The South Australian Omnibus Survey. Health Promotion J Aust. 2: 47–49.

# Appendix 1

## Core output classifications for microdata set

### 1. Person characteristics

**Age:**

18-19
20-24 25-29
30-34 35-39
40-44 45-49
50-54 55-59
60-64 65-69
70-74 75+

**Sex:**

Male
Female

**Marital status:**

Never married
Married, de facto
Separated

**Birthplace:**

Born in Australia
Born outside Australia

**Highest education level completed:**

Still attending school
Secondary school certificate
Trade certificate/apprenticeship
Other certificate
Associate or undergraduate diploma
Bachelor's degree or higher
Other

**Income - Usual gross income received (output in approximate deciles)**

0% - 10%
11% - 20%
21% - 30%, etc.
Don't know/ not stated

**Employment status:**

wage or salary earner
Own business - with employees
Own business - without employees
Other employed
Not employed

**Labour force status:**

Employed - full-time
Employed - part-time
Unemployed - looking for work
Not in the labour force

**Occupation (1 digit ASCO):**

Managers and administrators
Professionals
Para-professionals
Tradespersons
Clerks
Sales and personal service workers
Plant/machine operators, and drivers
Labourers and related workers
Not stated

**Major activity for those persons not in the labour force:**

Home duties/caring for children
Voluntarily out of the workforce/retired
Studying
Recovering from injury or illness

Caring for aged/disabled/ill person
Voluntary work
Other

## 2. Household characteristics

**Number of persons aged ≥ 18 years in the household**

One
Two
Three
Four or more

**Age of eldest dependant**

0–4 years
5–9 years
10–14 years
15–19 years
20–24 years
Not applicable

**Household/family classification**

Married couple
Married couple and offspring
Single parent and offspring
Single person household
Related multiple family households
Unrelated households

## 3. Dwelling characteristics

**Dwelling structure**

Separate house
Semi detached/row or terrace house/town house/flat attached to house
Other flat/unit/apartment
Other dwelling structure

**Nature of occupancy**

Owned outright
Purchasing
Renting
Other dwelling tenure

## 4. Geography

**State/Territory**

New South Wales
Victoria
Queensland
South Australia
Western Australia
Tasmania
Northern Territory
Australian Capital Territory

## 5. Additional derived output items

**Household income in deciles**

0%–10%
11%–20%
21%–30% etc.
Don't know/not stated

**Number of employed persons in the household**

Nil
One
Two
Three or more

# Appendix 2

## Survey questions from 1995 National Nutrition Survey

1. How many serves of vegetables do you usually eat each day?

*(a 'serve' = 1/2 cup cooked vegetables or 1 cup of salad vegetables).*

1 serve or less

2-3 serves

4-5 serves

6 serves or more

Don't eat vegetables

2. How many serves of fruit do you usually eat each day?

*(a 'serve' = 1 medium piece or 2 small pieces of fruit or 1 cup of diced pieces).*

1 serve or less

2-3 serves

4-5 serves

6 serves or more

Don't eat fruit

3. How often is the meat you eat trimmed of fat either before or after cooking?

Never/rarely

Sometimes

Usually

Don't eat meat

4. What type of milk do you usually consume ?

Whole milk

Low/reduced fat

Skim

Evaporated/sweetened condensed

None of the above

Don't know

5. In the last 12 months, were there any times that you ran out of food and could not afford to buy more?

Yes

No

# Appendix 3

## Construction of food habits index

Each of the five questions was scored from 0–2 as shown below and the index derived, for each individual, from the sum of the scores.

1. Type of milk usually consumed:

| | |
|---|---|
| Whole milk and evaporated/condensed milk | 2 |
| Reduced-fat/skim milk | 1 |
| None of the above | 0 |

2. Trimming of meat:

| | |
|---|---|
| Usually trim | 2 |
| Sometimes trim | 1 |
| Never/rarely trim/don't eat meat | 0 |

3. Number of serves of vegetables per day:

| | |
|---|---|
| ≥ 4 reference serves per day | 2 |
| < 4 reference serves per day but not zero | 1 |
| Don't eat vegetables | 0 |

4. Number of serves of fruit per day:

| | |
|---|---|
| ≥ 2 reference serves per day | 2 |
| < 2 reference serves per day but not zero | 1 |
| Don't eat fruit | 0 |

5. Food security question:

| | |
|---|---|
| Positive response to question | 2 |
| Negative response to question | 0 |

Range of possible scores is 0–10.

Range of scores in the PSM data set was 2–10 with a median score of 8.

# Appendix 4

## Precision of population proportions

Sample sizes needed for a given level of precision for population proportions ranging between 5% and 95% and a confidence level of 95% (nineteen chances in twenty that the true values lies within the specified range).

| Population proportion | Width of the 95% confidence interval in percentage points on either side of the estimated population proportion | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| (percent) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 5 and 95 | 1,825 | 456 | 203 | 114 | 73 | 51 | 37 | 29 | 23 |
| 10 and 90 | 3,457 | 864 | 384 | 216 | 138 | 96 | 71 | 54 | 43 |
| 15 and 85 | 4,898 | 1,225 | 544 | 306 | 196 | 136 | 100 | 77 | 60 |
| 20 and 80 | 6,147 | 1,537 | 683 | 384 | 246 | 171 | 125 | 96 | 76 |
| 25 and 75 | 7,203 | 1,801 | 800 | 450 | 288 | 200 | 147 | 113 | 89 |
| 30 and 70 | 8,067 | 2,017 | 896 | 504 | 323 | 224 | 165 | 126 | 100 |
| 35 and 65 | 8,740 | 2,185 | 971 | 546 | 350 | 243 | 178 | 137 | 108 |
| 40 and 60 | 9,220 | 2,305 | 1,024 | 576 | 369 | 256 | 188 | 144 | 114 |
| 45 and 55 | 9,508 | 2,377 | 1,056 | 594 | 380 | 264 | 194 | 149 | 117 |
| 50 | 9,604 | 2,401 | 1,067 | 600 | 384 | 267 | 196 | 150 | 119 |

Source: Lwanga & Lemeshow 1991