Victorian Population Health Survey **2001**

Selected Findings

Victoria
The Place To Be

Victorian Population Health Survey 2001

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Foreword

The Department of Human Services' work in the area of Public Health focuses on improving the health and wellbeing of whole populations. The department is committed to addressing social inequalities and the underlying determinants of health, empowering families and communities, and using evidence-based approaches that ensure value for money.

The Health Surveillance and Evaluation Section of the department's Rural and Regional Health and Aged Care Services Division aims to provide relevant and accessible information on population health to a targeted audience of public health policy-makers and planners. This role involves implementing health surveillance strategies that facilitate the collection of data on health status and outcomes, risk factors and intervention outcomes. The Victorian Population Health Survey is one of several health surveillance strategies that the Health Surveillance and Evaluation Section uses to collect information about the health of the Victorian population.

The Victorian Population Health Survey program was established in 1998 to provide State and regional information about the health of Victorians and determinants of that health. The survey followed an established method to collect relevant, timely and valid health information to be applied to policy development and strategic planning. Interviews were conducted in the major non-English languages in Victoria to ensure people of culturally and linguistically diverse backgrounds were represented.

Attachments I and II contain papers that discuss the use of the survey to explore mediators of health inequalities—namely, social capital and social networks. Information on social ties and social networks was collected for the first time as part of the 2001 survey. The advantages of social ties and networks have been receiving increasing attention from health researchers in Australia, particularly from those interested in examining remedies for the health inequalities reported among population groups.

Attachment I examines the survey results on social networks by socioeconomic status, rural/urban areas, health status and social attitudes. These results represent the start of a process for exploring appropriate survey questions on social capital and social networks. Attachment II presents a government perspective—that is, how governments can improve prosperity and wellbeing outcomes for the population by improving levels of social capital and gaining a better understanding of the new discourse about trust, identity, belonging, reciprocity and mutuality.

DR C W BROOK
Executive Director
Rural and Regional Health and Aged Care Services

1 The Victorian Population Health Survey

1.1 Methods

The Victorian Population Health Survey 2001 followed a method developed over several years to collect relevant, timely and valid health information for policy-making, planning and decision-making. The survey team administered computer-assisted telephone interviewing (CATI) of a representative sample of persons aged 18 years and over who resided in private dwellings in Victoria. The Department of Human Services Ethics Committee approved the survey method and questionnaire content.

The department outsourced the fieldwork data collection to a market research organisation, which department staff supervised. All data were self-reported and stored directly in the CATI system.

Survey Design

Random digit dialling was used to generate a sample of telephone numbers that formed the household sample for CATI. All residential households with land-line telephone connections were considered to be in-scope for the survey. A telephonic mode of survey delivery excludes various population groups, such as the homeless or itinerant, those persons in hospitals or institutions, the frail and aged, and those person having disabilities who are unable to participate in an interview.

1.2 Stratification

Five rural and four metropolitan Department of Human Services regions cover Victoria. The survey sample included a total of 7494 households and was stratified by departmental region. The rural regions were oversampled because inequalities in health between urban and rural Victoria were a major interest.

Figure 1.1: Rural Regions, Victoria

Region	Number of Respondents
Barwon south west	979
Grampians	737
Loddon–Mallee	1 001
Hume	848
Gippsland	824

Figure 1.2: Urban Regions, Victoria

Region	Number of Respondents
Western metropolitan	753
Northern metropolitan	710
Eastern metropolitan	831
Southern metropolitan	811

1.3 Sampling Frame

The department generated an electronic listing of Victorian six-digit telephone exchange prefixes and localities to form the basis of the sampling frame. It mapped exchange localities to one of the nine departmental regions, then divided the sampling frame into two groups: (i) telephone numbers belonging to a block of 100 numbers without a prefix match in an electronic directory of Victorian household telephone numbers (referred to as 'empty blocks'); and (ii) telephone numbers belonging to blocks with one or more prefix matches in the directory.

Sample Generation

The 'no empty blocks' approach excluded from the sampling frame those blocks of 100 consecutive telephone numbers known to be less likely to result in private dwelling contact than other blocks of 100 consecutive telephone numbers. This approach maximised fieldwork efficiency and minimised costs. That is, blocks that were likely to be less productive than others were excluded, so as to maintain the fieldwork efficiency that would prevent the costs of pure random digit dialling from being prohibitive.

The department appended randomly generated suffixes to current eligible six-digit telephone number prefixes. It 'washed' these numbers against current electronic business listings to remove known business numbers. Matching the randomly generated telephone numbers to an electronic directory produced a file of matched telephone numbers, names and addresses. The department used that file to produce the primary approach letters.

Primary Approach Letter

Primary approach letters were mailed to all households where the randomly selected telephone number matched a listing in an electronic directory of Victorian household telephone numbers. A total of 13,262 primary approach letters were mailed. The letter informed the households that the department was conducting the Victorian Population Health Survey to collect information about health, lifestyles and wellbeing in the community, and outlined the importance of the survey. It also introduced market research company NCS Pearson Pty Ltd as the agency appointed to conduct the survey.

After contacting a household, an interviewer would select for interview the person (usually a resident) aged 18 years and over with the most recent birthday. Seventy-five per cent of the 7494 interviews conducted were from the matched sample. The proportion of interviews from the unmatched sample was higher in the metropolitan areas (33 per cent) than in the rural areas (19 per cent).

Call outcomes from the unmatched sample were characterised by:
• A lower proportion of interviews as eligible telephone numbers.
• A higher proportion of noncontacts from eligible telephone numbers.
• A higher refusal rate as a proportion of in-scope contacts.
• A higher proportion of numbers reaching the end of the call cycle without result.

Throughout the survey period, the department operated a 1800 number, which was identified in the primary approach letter. Individuals contacted about the survey could call this number for further information. The majority of calls received were to arrange an interview time or to verify the nature of the survey.

1.4 Data Collection

The interviewers achieved over two-thirds of completed interviews within the first three calls. This proportion is consistent with national experience on similar projects. A group of more experienced interviewers were chosen for refusal conversions to increase the participation of selected respondents in the survey. This effort ensured respondents were a more representative sample of the population.

1.5 Call Routine

The interviewers made up to six call attempts to establish contact with a household and up to a another nine call attempts to complete an interview where required. Further attempts were made only when there was a clear opportunity for interview at the end of the fifteenth call. Over two-thirds of interviews were achieved within the first three calls.

Figure 1.3: Completed Interviews, by Number of Calls
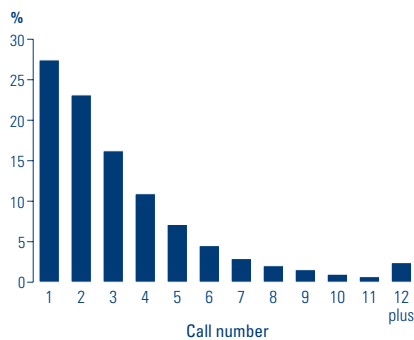
Call attempts were spread over different times of the day and different days of the week, and were controlled by a customised call algorithm in the survey management system. Except for engaged numbers at the first call attempt, a noncontact in any specific time block was automatically scheduled for call back in a different time block as per the call back routine. A scripted message was left at the first call and second call to an answering machine, encouraging respondents to contact the 1800 number. After establishing contact, interviewers could make calls, by appointment, outside the time block hours.

1.6 Interviewing in Languages other than English

The interviewing used six community languages. An external agency translated questionnaires into Mandarin, Cantonese, Vietnamese, Italian, Greek and Macedonian. CATI interviewers were recruited to undertake the interviews in these other languages as required. Respondents who received a primary approach letter, which was also translated into these languages, could nominate to be interviewed in their preferred language.

1.7 Fieldwork Period

The main survey interviewing was during August–November 2001 over 11 weeks. This followed two pilot tests of the questionnaire during June–July 2001, a debriefing of interviewers and the modification of the questionnaire as required.

1.8 Interview Length

The average interview length was 20.1 minutes. This is considered close to the maximum length for a telephone survey of this nature before response rates are jeopardised.

1.9 Participation

The participation rate, defined as the proportion of households where contact was made and an interview was then completed, was 69.3 per cent.

1.10 Weighting

The department's project team weighted the survey data to reflect (i) the probability of selection of the respondent within the household and (ii) the age/sex/geographic distribution of the population. Although a single respondent was randomly selected from within a household, the size of any household can vary upwards from one person. To account for this variation, the project team treated each respondent as representing the whole household, so his or her weight factor includes a multiplier of the number of persons in the household.

Further, a household may have more than one telephone line (that is, land lines used primarily for contact with the household), which would increase that household's probability of selection over those households with only one telephone line. To ensure the probability of contacting any household is the same, the project team divided the weight factor by the number of telephone lines connected to the household. The formula for this component is: n_{ah}/n_{pl}, where:

n_{ah} = the number of adults aged 18 years and over in the household.

n_{pl} = the number of telephone lines in the household.

Population Benchmark Components

Further to the selection weight component, the project team applied a population benchmark component to ensure the adjusted sample distribution matches the population distribution for the combined cross-cells of age group and gender by region (for example, males aged 18–24 years in Barwon south west). The categories used for each of the variables were:

- *Age groups:* 18–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years and 65 years and over

- *Sex:* Male and Female

- *Regions:* Barwon south west, Grampians, Loddon–Mallee, Hume, Gippsland, eastern metropolitan, northern metropolitan, western metropolitan and southern metropolitan.

The department's project team calculated the population benchmark component by dividing the population of each cross-cell by the sum of the selection weight components for all the respondents in the sample within that cross-cell. For each cross-cell, the formula for this component is:

$$pb\mathrm{mark}_i = N_i / \textstyle\sum sw_{ij}$$

where:

i = the ith cross-cell

j = the jth person in the cross-cell

N_i = the population of the ith cross-cell

$\sum sw_{ij}$ = the sum of selection weights for all respondents (1 through to j) in the ith cross-cell.

The project team assigned respondent records a weight factor (*pwt*) by multiplying the selection weight value (*sw*) by the population benchmark value (*pb*mark):

$$pwt_{ij} = sw_{ij} * pb\text{mark}$$

where:

i = the ith cross-cell

j = the jth person in the cross-cell.

1.11 Profile of Survey Respondents

Known population benchmarks for selected data items may be used to assess the representativeness of the sample. Table 1.1 shows the benchmark data and weighted and unweighted estimates obtained form the survey.

A comparison of benchmark and survey data indicates that:

• Females were more likely than males to participate in the survey.

• Persons younger than 65 years were less likely to participate than persons aged 65 years and over.

• Persons born in Australia were more likely to participate than those born overseas, perhaps as a result of those who do not speak English or any of the six languages offered for the interview.

• The survey included a higher proportion of persons not in the labour force and those having private health insurance.

Table 1.1: Profile of Respondents in the 2001 Victorian Population
Health Survey

Selected Characteristics	Benchmark Data (%)	Survey Outcome (%)	Survey Estimate Using Probability of Selection Weights (%)	95% Confidence Interval (%)
Sex i				
Male	48.8	39.9	48.8	(47.2–50.3)
Female	51.2	60.1	51.2	(49.7–52.8)
Age group i				
18–24 years	12.9	9.4	12.9	(11.7–14.0)
25–34 years	20.1	17.9	20.1	(18.8–21.4)
35–44 years	19.9	22.9	19.9	(18.8–21.0)
45–54 years	17.8	18.3	17.8	(16.6–19.1)
55–64 years	12.3	13.5	12.3	(11.4–13.3)
65 years and over	16.9	18.1	16.9	(15.8–18.0)
Marital status ii				
Married	56.9	53.8	57.6	(56.1–59.1)
Widowed	7.0	8.6	5.5*	(5.0–6.1)
Divorced	6.1	7.8	5.3*	(4.7–5.9)
Separated	3.3	4.3	2.5*	(2.1–2.9)
Never married	26.7	17.9	21.2	(19.9–22.6)
Living with a partner	n.a.	7.3	7.6	(6.8–8.4)
Country of birth iii				
Australia	68.2	79.8	73.4**	(72.7–74.1)
Labour force status iv				
Employed	59.6 (58.8–60.4)	55.6	57.5	(56.8–59.0)
Unemployed	3.8 (3.6–4.0)	3.4	3.4	(2.8–4.0)
Not in the labour force	36.6 (36.0–37.1)	41.0	39.1**	(37.6–40.6)
Private health insurance v				
Yes	44.8	48.2	50.6**	(49.1– 52.2)

i   Persons aged 18 years and over. Victorian Department of Infrastructure. Population Projections 2001. Melbourne: 2001.
ii Australian Bureau of Statistics 1996 Census. ('Never married' category is not directly comparable between the Census and the
    Victorian Population Health Survey 2001 because the latter collected the extra category of 'living with a partner'.
iii Australian Bureau of Statistics 2001 Census.
n.a. Not available.
iv Australian Bureau of Statistics. Labour Force, Victoria, August 2001. cat. no. 6202.2. Canberra: AusInfo, 2001.
    Persons aged 15 years and over.
v   Private Health Insurance Administration Council. www.phiac.gov.au. Melbourne: June 2001.
*   Survey estimate was significantly lower than benchmark estimate ($p < 0.05$).
** Survey estimate was significantly higher than benchmark estimate ($p < 0.05$).
Notes: 95 per cent confidence intervals are provided for benchmark data where available. The survey sample was allocated a
60 per cent/40 per cent rural/urban split respectively and selected benchmark characteristics are for the whole of Victoria.

2 Health and Lifestyle

This section provides descriptive output from the Victorian Population Health Survey 2001 for:

1. Fruit and vegetable intake
2. Physical activity
3. Smoking
4. Health care use (screening).

2.1 Fruit and Vegetable Intake

The consumption of fruit and vegetables has been identified as a risk factor in the development of a range of chronic diseases, including coronary heart disease, stroke and many forms of cancer. The Victorian Burden of Disease Study[1] estimates that 2.8 per cent of total disability-adjusted life years (DALYs) may be attributed to inadequate fruit and vegetable intake. This contribution exceeds that made by alcohol (2.1 per cent), illicit drugs (1.9 per cent), unsafe sex (0.8 per cent) and occupational hazards and exposures (1.7 per cent).

The Victorian Population Health Survey 2001 found that relatively few Victorians consume the seven daily serves of fruit and vegetables considered necessary to obtain optimal health benefits. Only 23.2 per cent of persons usually consumed four or more serves of vegetables daily, with females (29.0 per cent) more likely than males (17.2 per cent) to do so (Table 2.1).

Table 2.1: Daily Vegetable Consumption

Serves of Vegetables Eaten Each Day*	Males		Females		Persons	
	%	SE	%	SE	%	SE
One serve or less	34.1	0.011	20.6	0.008	27.2	0.007
Two to three serves	47.7	0.012	49.7	0.010	48.7	0.008
Four to five serves	13.4	0.008	24.2	0.008	18.9	0.006
Six or more serves	3.8	0.005	4.8	0.004	4.3	0.003
Don't eat vegetables	1.0	0.003	0.7	0.002	0.9	0.002

* A 'serve' is a half cup of cooked vegetables or a cup of salad vegetables.
SE = standard error.

Older persons were found to be the largest consumers of vegetables, with 25.8 per cent of males aged 65 years and over and 38.3 per cent of females in the same age group consuming four or more serves daily (Figure 2.1). Males aged 18–34 years, and females aged 18–24 years were the most likely to report a very low vegetable intake, with 41.3 per cent and 33.6 per cent respectively consuming one serve or less daily.

Fifty-six per cent of persons reported consuming two or more serves of fruit on a usual day, with females again more likely (63.0 per cent) than males (49.4 per cent) to consume this amount (Table 2.2).

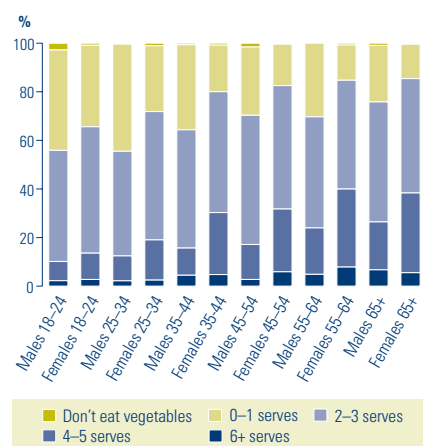Figure 2.1: Daily Vegetable Consumption, by Age and Sex

Legend: Don't eat vegetables, 0–1 serves, 2–3 serves, 4–5 serves, 6+ serves

Table 2.2: Daily Fruit Consumption

Serves of Fruit	Males		Females		Persons	
Eaten Each Day*	%	SE	%	SE	%	SE
One serve or less	44.7	0.012	33.5	0.009	38.9	0.008
Two to three serves	40.0	0.012	51.5	0.010	45.9	0.008
Four to five serves	7.1	0.006	9.3	0.006	8.2	0.004
Six or more serves	2.3	0.004	2.2	0.003	2.3	0.003
Don't eat fruit	5.9	0.005	3.5	0.004	4.7	0.003

* A 'serve' is one medium piece or two small pieces of fruit, or one cup of diced pieces.
SE = standard error.

While the variation in consumption among the age groups was found to be less for fruit than for vegetables, older persons again reported a higher consumption of fruit (Figure 2.2).

Persons in rural areas reported higher vegetable intake, with 28.3 per cent reporting consumption of four or more serves daily compared with 21.3 per cent of those persons living in urban Victoria (Table 2.3).

Table 2.3: Daily Vegetable Consumption, by Area of State

Serves of Vegetables	Urban		Rural	
Eaten Each Day*	%	SE	%	SE
One serve or less	28.0	0.009	25.1	0.007
Two to three serves	49.7	0.010	46.0	0.008
Four to five serves	17.2	0.007	23.5	0.007
Six or more serves	4.1	0.004	4.8	0.003
Don't eat vegetables	1.0	0.002	0.5	0.001

* A 'serve' is a half cup of cooked vegetables or a cup of salad vegetables.
SE = standard error.

Fruit intake was found to not vary as greatly between urban and rural Victoria, with 57.1 per cent and 54.1 per cent of persons in these areas respectively reporting eating two or more serves each day (Table 2.4).

Table 2.4: Daily Fruit Consumption, by Area of State

Serves of Fruit	Urban		Rural	
Eaten Each Day*	%	SE	%	SE
One serve or less	38.5	0.010	40.3	0.008
Two to three serves	46.2	0.010	44.9	0.008
Four to five serves	8.3	0.005	7.9	0.004
Six or more serves	2.6	0.004	1.3	0.002
Don't eat fruit	4.4	0.004	5.5	0.004

* A 'serve' is one medium piece or two small pieces of fruit, or one cup of diced pieces.
SE = standard error.

Figure 2.2: Daily Fruit Consumption, by Age

Figure 2.2: Daily Fruit Consumption, by Age
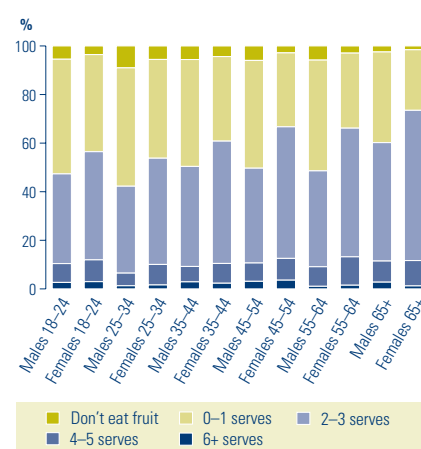
2.2 Physical Activity/Inactivity

Physical inactivity acts as a determinant of ill health, together with other significant risk factors such as obesity, high blood pressure and high blood cholesterol levels. The Victorian Burden of Disease Study[1] estimated that 6.6 per cent of total DALYs are attributable to physical inactivity, with two-thirds of this burden due to the increased risk of cardiovascular disease in inactive persons. Older persons are particularly subject to the risk posed by physical inactivity.

The National Physical Activity Guidelines[2] define 30 minutes of moderate exercise taken on most days as a sufficient level of activity to generate a range of health benefits. With 'most' generally interpreted to be five days each week, an activity needs to be at least 10 minutes at a time to be included in the daily total. The benefits of this level of activity include the reduced risk of developing cardiovascular disease, diabetes mellitus and colon cancer, as well as improvements in musculoskeletal and mental or psycho-social health.[3]

The Victorian Population Health Survey 2001 collected information on time spent walking (for more than 10 minutes at a time) for recreation or exercise. More than half of Victorian adults aged 18 years and over were found to be not sufficiently active for health benefits, with less than 40.0 per cent of persons having completed at least 150 minutes walking in the preceding week (Figure 2.3). Females aged 65 years and over were least likely to have achieved this level of activity, with just 30.0 per cent completing the specified 150 minutes of walking. In contrast, 43.5 per cent of males aged 65 years and over reported walking for this length of time—a larger proportion than for any other males except those aged 55–64 years.

Figure 2.3: Persons Walking for at least 150 Minutes in the Past Week, by Age and Sex

2.3 Alcohol Consumption

Alcohol is a risk factor for a large number of medical conditions and injuries, including stroke, cirrhosis and road traffic accidents. Further, excessive alcohol consumption has significant psycho-social and economic effects. In moderate amounts, however, alcohol consumption is recognised as yielding a health benefit, notably in protecting against cardiovascular disease.

Persons who had consumed alcohol in the past 12 months were asked about the frequency of consumption. Figure 2.4 shows the frequency of alcohol consumption by sex.

Figure 2.4: Frequency of Alcohol Consumption, by Sex

Persons were also asked about the volume of standard drinks consumed on a day on which they have alcoholic drinks. Figure 2.5 shows the level of alcohol consumption by sex.

Those persons who had never had an alcoholic drink or had not consumed any alcohol in the previous 12 months (16.8 per cent of persons aged 18 years and over) were categorised as abstainers. A significantly lower proportion of males aged 18 years and over (11.8 per cent) were categorised as abstainers, compared with females (21.6 per cent). This was evident in most age groups (Table 2.5).

Figure 2.5: Volume of Alcohol Consumption, by Sex

Table 2.5: Abstainers from Alcohol

Age Group	Males		Females	
	%	SE	%	SE
18–24 years	8.5	0.022	12.2	0.021
25–34 years	7.2	0.016	14.1	0.016
35–44 years	11.2	0.017	16.1	0.015
45–54 years	9.8	0.016	24.5	0.023
55–64 years	15.4	0.022	26.5	0.026
65 years and over	21.4	0.024	35.4	0.022
Total	11.8	0.008	21.6	0.008

SE = standard error.

Long-term risk is associated with regular daily patterns of drinking, defined by the amount of alcohol typically consumed each week. For males, long-term risk is associated with more than four standard drinks per day, or more than 28 standard drinks each week. For females, long-term risk is associated with more than two standard drinks each day, or more than 14 drinks each week.

Table 2.6 shows the proportions in each age group and sex who were categorised as drinking levels of alcohol associated with long-term health risk. In total, 4.6 per cent of males were categorised as such, compared with 3.2 per cent of females.

Table 2.6: Long-term Risk from Alcohol Consumption

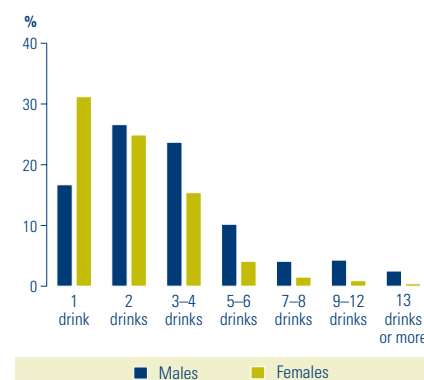| Age Group	Males		Females	
	%	SE	%	SE
18–24 years	3.2	0.013	6.4	0.017
25–34 years	5.2	0.012	3.7	0.010
35–44 years	5.6	0.011	2.3	0.005
45–54 years	4.6	0.012	3.2	0.008
55–64 years	4.4	0.011	3.4	0.015
65 years and over	3.8	0.012	1.3	0.006
Total	4.6	0.005	3.2	0.004

SE = standard error.
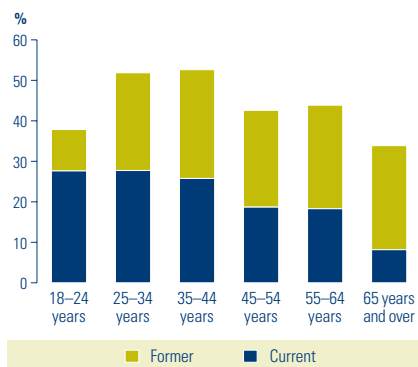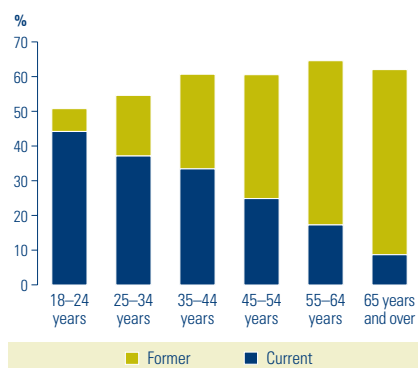
Figure 2.6: Smoking Status—Females, by Age

Figure 2.7: Smoking Status—Males, by Age

2.4 Smoking

Among recognised risk factors for disease, tobacco imposes the greatest burden on the health of Victorians, accounting for 9.8 per cent of total DALYs.[1] Over half of all persons aged 18 years and over (51.3 per cent) were found to have smoked tobacco products at some point in their lives, while approximately 24.5 per cent (or one in four persons) identified themselves as current smokers (Table 2.7).

Across all age groups, females were less likely to report having smoked at some time, with this divergence widening for the older age groups. Males were more likely to identify themselves as current smokers for every age group except those aged 55–64 years; males aged 18–24 years were found to be most likely to be current smokers (Figure 2.7). Among females, those aged 18–34 years were found to be most likely to be current smokers (Figure 2.6). For all persons, the proportion identifying themselves as current smokers was found to decline with increasing age.

Table 2.7: Smoking Status

	Males						Females					
	Current Smoker		Ex-smoker*		Nonsmoker		Current smoker		Ex-smoker*		Nonsmoker	
Age Group	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
18–24 years	44.2	0.036	6.6	0.016	49.2	0.036	27.6	0.027	10.2	0.018	62.2	0.030
25–34 years	37.0	0.028	17.4	0.023	45.6	0.029	27.6	0.020	24.0	0.019	48.3	0.022
35–44 years	33.4	0.023	27.2	0.021	39.4	0.024	25.8	0.018	26.9	0.017	47.4	0.020
45–54 years	24.8	0.024	35.5	0.028	39.8	0.028	18.6	0.018	23.8	0.021	57.6	0.024
55–64 years	17.2	0.022	47.1	0.031	35.7	0.030	18.3	0.024	25.6	0.026	56.1	0.030
65 years and over	8.7	0.016	53.3	0.029	37.9	0.029	8.2	0.013	25.6	0.021	66.2	0.022
Total	28.3	0.011	30.4	0.011	41.4	0.012	20.9	0.008	23.3	0.008	55.8	0.010

* Ex-smokers are those persons who have smoked 100 cigarettes or the equivalent amount of tobacco in their lifetime.
SE = standard error.

2.5 Health Care Use (Screening)

The Victorian Population Health Survey 2001 collected information on various check-ups or tests undertaken (screening) within the previous two-year period—specifically, (i) a blood pressure test, (ii) a cholesterol test, (iii) a blood glucose test, (iv) a bowel examination, (v) a skin examination, (vi) a mammogram, (vii) a pap smear test, (viii) a prostate check and (ix) a dental check-up. Such procedures are vital to the early detection of a range of health conditions, facilitating more effective treatment and ultimately more acceptable outcomes.

Blood Pressure Checks

It is recommended that all adults have their blood pressure checked regularly, primarily to identify high blood pressure or hypertension. Over one in four persons (26.4 per cent) reported being told by a doctor at some time that they had high blood pressure.

In total, 78.8 per cent of persons were found to have had their blood pressure checked in the past two years. Those aged 50 years and over were found to be more likely than others to have had the test recently, with 93.0 per cent of males and 93.7 per cent of females in this age group having done so (Figure 2.8). In those persons aged 18 years to less than 50 years, females were found to be more likely than males to have had their blood pressure checked.

Cholesterol Screening

Given that elevated blood cholesterol is an important risk factor for coronary artery disease, all adults are advised to have their blood cholesterol levels checked occasionally (every two to five years).[4]

In total, 45.8 per cent of persons reported having had a cholesterol check in the past two years. Screening was again found to be higher for those aged 50 years and over than for others, with 77.3 per cent of males and 68.1 per cent of females in this age group having undergone a recent cholesterol check (Figure 2.9). Among those aged under 50 years, males were more likely than females to have had a cholesterol check.

Blood Sugar Test

Blood glucose tests are primarily used to detect the development of, or a predisposition to the development of, diabetes mellitus. While population screening is generally not considered justified, it is recommended that at-risk individuals have their blood glucose levels periodically checked.[5] These at-risk groups include those persons aged over 55 years, overweight persons, those with a first-degree relative with diabetes, and women with previous gestational diabetes.

In total, 44.8 per cent of persons reported having had a test for diabetes or high blood sugar levels in the past two years. The proportion to have undergone the procedure was highest for males aged 50 years and over, followed by females of the same age group (Figure 2.10). Males aged 18 years to less than 50 years were least likely to have had the blood glucose test.

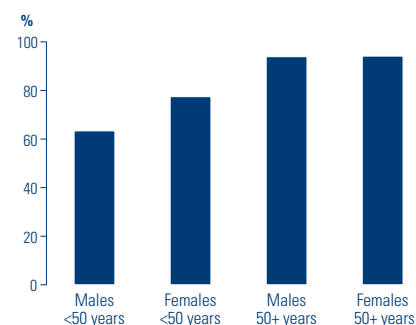Figure 2.8: Blood Pressure Checks in Past Two Years, by Age and Sex

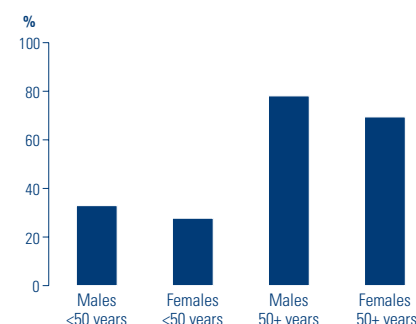Figure 2.9: Cholesterol Checks in Past Two Years, by Age and Sex

Figure 2.10: Glucose Checks in Past Two Years, by Age and Sex
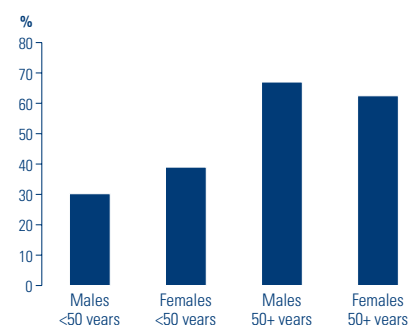
Bowel Examination

Bowel examinations are used to detect bowel or colorectal cancer, and may take the form of an x-ray of the bowel (barium enema), an examination of the lower bowel via a rigid or flexible tube (sigmoidoscopy or colonoscopy) or an examination of faecal samples (faecal occult blood test). Commonwealth Government guidelines recommend a faecal occult blood test every two years for asymptomatic individuals aged 50 years and over, as well as a flexible sigmoidoscopy every five years.[6]

In total, 14.5 per cent of persons aged 18 years and over reported having had a bowel examination in the past two years (Table 2.8). There was no significant difference between the proportions of males and females having had a bowel examination.

Table 2.8: Bowel Examinations in Past Two Years

| | Age Group | | | | | |
| | 18–49 Years | | 50 Years and over | | Total | |
	%	SE	%	SE	%	SE
Males	9.1	0.009	28.3	0.017	16.0	0.009
Females	8.0	0.007	20.7	0.013	13.0	0.007
Persons	8.5	0.006	24.2	0.011	14.5	0.006

SE = standard error.

Skin Examination

Each Australian should be regularly checking his or her skin surface with the help of a mirror or family member. To check every new season is an easy way of remembering.[7] Such checks are particularly important for those aged 50 years and over.

In total, 24.5 per cent of persons reported having had a skin examination in the past two years, with males aged 50 years and over found to be most likely to have done so (35.8 per cent) (Figure 2.11). Among females aged 50 years and over, 30.3 per cent reported having had a skin examination.

Figure 2.11: Skin Checks in Past Two Years, by Age and Sex

Mammogram

Females age 50–69 years are the target group for breast cancer screening. Over 70 per cent of breast cancer occurs in women aged 50 years and over. Women in the target age group are advised to have a mammogram once every two years, to detect abnormalities that may indicate breast cancer.[8] In total, 72.6 per cent of females aged 50 years and over were found to have undergone a mammogram in the past two years (Table 2.9).

Pap Smear Test

All women who have ever been sexually active are advised to have pap smears every two years until they are at least 70 years old.[9] In total, 61.5 per cent of females reported having had a pap smear test in the past two years. Females aged 18 years to less than 50 years were more likely than older females to have done so (Table 2.9).

Table 2.9: Pap Smear and Mammogram Test in Past Two Years

	Females					
	18–49 Years		50 Years and over		18 Years and over	
Test	%	SE	%	SE	%	SE
Mammogram	17.0	0.010	72.6	0.014	38.0	0.010
Pap smear test	68.4	0.012	51.1	0.016	61.5	0.010

SE = standard error.

Prostate Check

While mass prostate cancer screening of asymptomatic males is not currently recommended in Australia, procedures including the digital rectal examination and the prostate specific antigen blood test may be suggested to indicate problems with the prostate gland in males aged 50 years and over. In total, 52.8 per cent of males aged 50 years and over reported having had a prostate check (including blood tests) in the past two years (Table 2.10).

Table 2.10: Prostate Check in Past Two Years

	Males					
	18–49 Years		50 Years and over		18 Years and over	
	%	SE	%	SE	%	SE
Prostate check	10.2	0.009	52.8	0.019	25.5	0.010

SE = standard error.

Dental Check

All age groups are recommended to have regular dental checks (at least every two years) to maintain healthy teeth and gums.[10] In total, 63.4 per cent of persons reported having had a dental check in the past two years, with females more likely than males to have accessed the service. Fewer persons aged 50 years and over than younger persons reported having had a dental check (Figure 2.12).

Figure 2.12: Dental Checks in Past Two Years, by Age and Sex
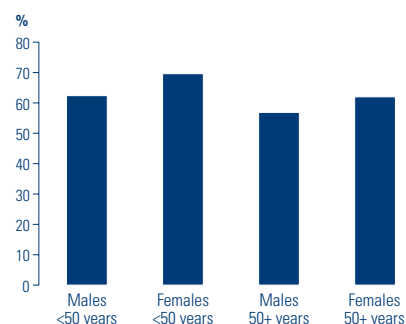
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1. Vos ET, Begg SJ. The Victorian burden of disease study. Melbourne: Department of Human Services Victoria, 1999.

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3 Self-reported Health

3.1 Introduction

Self-reported health status is a measure commonly used in surveys as an indicator of general health and wellbeing. It refers to physical and mental health as experienced by an individual according to the individual's values and has been found to be a strong indicator of mortality and health care use.[1]

Respondents to the Victorian Population Health Survey 2001 were asked to rate their general health as *excellent, very good, good, fair* or *poor.* Persons likely to be experiencing poorer health, such as the frail and aged, those in hospitals and institutions, and the homeless were not in scope for the survey.

3.2 Survey results

Of all persons aged 18 years and over, 48.3 per cent rated their health as *excellent* or *very good,* and 33.8 per cent considered their health to be *good* (Figure 3.1). A further 14.6 per cent reported *fair* health and 3.3 per cent reported *poor* health.

The level of health status was found to decline with age, although a large proportion (74.7 per cent) of those aged 65 years and over rated their health as *good* or better (Figure 3.2).

Similar proportions of males and females rated their health as *good* or better (Table 3.1). A higher proportion of older females (65 years and over) than of older males (26.7 per cent and 23.5 per cent respectively) rated their health as *fair* or *poor* (Figures 3.3 and 3.4). Males aged 45–54 years and 25–34 years reported the highest proportions of excellent health (17.8 per cent and 16.4 per cent respectively) (Figure 3.3). Females in these age groups also reported the highest proportions of excellent health (17.2 per cent and 17.0 per cent respectively) (Figure 3.4).

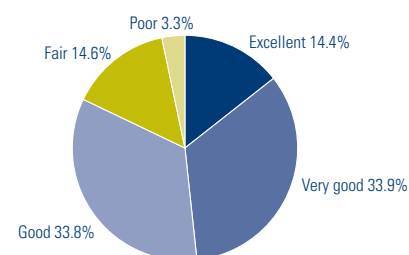Figure 3.1: Self-reported Health— Persons Aged 18 Years and over

Figure 3.2: Self-reported Health, by Age

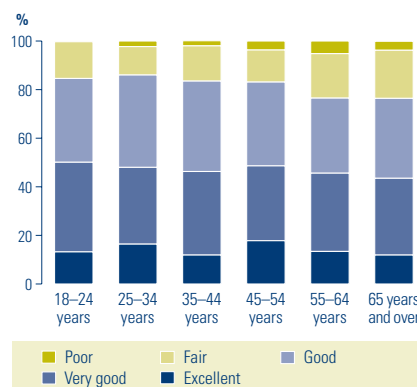Figure 3.3: Self-reported Health— Males, by Age

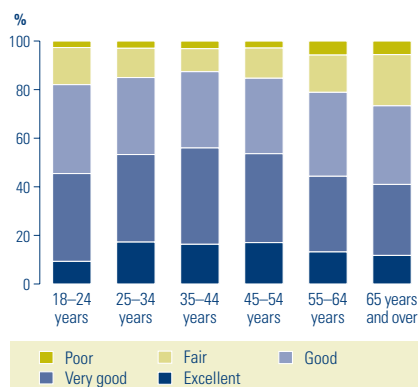Figure 3.4: Self-reported Health— Females, by Age

Table 3.1: Self-reported Health, by Selected Variables

	Self-reported Health									
	Excellent		Very Good		Good		Fair		Poor	
	%	SE	%	SE	%	SE	%	SE	%	SE
Males										
18–24 years	13.2	0.024	36.9	0.035	34.5	0.035	15.1	0.026	0.3	0.002
25–34 years	16.4	0.022	31.6	0.026	38.0	0.029	11.7	0.019	2.3	0.007
35–44 years	11.9	0.016	34.4	0.023	37.2	0.024	14.5	0.017	2.1	0.006
45–54 years	17.8	0.023	30.8	0.026	34.5	0.027	13.2	0.019	3.7	0.011
55–64 years	13.4	0.019	32.2	0.029	30.9	0.029	18.3	0.023	5.2	0.013
65 years and over	11.9	0.018	31.6	0.027	32.9	0.028	19.8	0.023	3.7	0.010
Total males	14.2	0.009	32.8	0.011	35.1	0.012	15.0	0.009	2.8	0.004
Females										
18–24 years	9.3	0.019	36.1	0.031	36.6	0.030	15.3	0.023	2.7	0.011
25–34 years	17.2	0.018	36.0	0.021	31.7	0.021	12.0	0.014	3.0	0.007
35–44 years	16.3	0.015	39.6	0.020	31.4	0.019	9.5	0.011	3.1	0.008
45–54 years	17.0	0.018	36.6	0.024	31.1	0.023	12.4	0.015	2.9	0.009
55–64 years	13.2	0.018	31.1	0.027	34.6	0.030	15.3	0.022	5.8	0.014
65 years and over	11.7	0.015	29.2	0.021	32.4	0.022	21.1	0.019	5.6	0.010
Total females	14.5	0.007	35.0	0.010	32.6	0.010	14.1	0.007	3.8	0.004
Area of State										
Urban	14.7	0.007	32.8	0.010	34.7	0.010	14.4	0.007	3.3	0.003
Rural	13.4	0.006	36.9	0.008	31.4	0.008	14.9	0.006	3.4	0.003
Employment status										
Employed	15.7	0.008	36.5	0.010	35.3	0.010	11.0	0.007	1.5	0.003
Unemployed	16.5	0.035	27.1	0.041	32.9	0.041	18.9	0.035	4.6	0.016
Not in the labour force	12.3	0.008	30.8	0.011	31.7	0.011	19.3	0.010	5.8	0.006
Smoking status										
Smoker	10.9	0.010	30.3	0.015	37.3	0.016	16.6	0.011	5.0	0.007
Nonsmoker	15.5	0.006	35.1	0.008	32.7	0.008	13.9	0.006	2.8	0.003
Marital status										
Married	14.6	0.007	34.3	0.010	34.3	0.010	13.8	0.007	3.0	0.004
Living with a partner	13.0	0.019	33.6	0.026	33.9	0.026	17.8	0.023	1.8	0.006
Widowed	13.3	0.019	31.2	0.026	33.3	0.025	16.8	0.020	5.4	0.011
Divorced	18.2	0.026	30.6	0.026	30.3	0.027	15.6	0.018	5.3	0.011
Separated	17.1	0.029	37.4	0.036	23.9	0.031	13.1	0.025	8.6	0.025
Never married	13.4	0.013	34.3	0.018	34.3	0.018	15.0	0.013	3.0	0.006
Country of birth										
Australia	14.0	0.006	36.4	0.009	32.6	0.008	14.0	0.006	2.9	0.003
Overseas	15.4	0.012	27.1	0.014	37.0	0.016	16.2	0.012	4.3	0.006
Household income per year										
Less than $20,000	9.7	0.009	27.4	0.014	30.7	0.015	25.7	0.014	6.6	0.008
$20,000 to less than $60,000	14.1	0.009	36.0	0.012	34.9	0.012	12.0	0.008	3.0	0.004
$60,000 or more	19.0	0.012	38.7	0.015	31.2	0.015	9.7	0.009	1.4	0.004

SE = standard error.

Poorer self-reported health *(fair* or *poor)* was found to be associated with being unemployed or not in the labour force, being a current smoker and residing in households with lower incomes (Table 3.1).

Table 3.2 shows the self-reported health status of persons in each of the departmental regions.

Table 3.2: Self-reported Health, by Departmental Region

Region	Self-reported health					
	Excellent/Very Good		Good		Fair/Poor	
	%	SE	%	SE	%	SE
Barwon south west	49.4	0.018	32.8	0.017	17.7	0.013
Grampians	49.7	0.020	30.7	0.019	19.7	0.016
Loddon–Mallee	51.6	0.018	30.8	0.016	17.7	0.013
Hume	51.5	0.019	30.6	0.018	17.9	0.015
Gippsland	49.6	0.019	31.3	0.018	19.1	0.015
Western metropolitan	45.5	0.021	34.3	0.020	20.1	0.017
Northern metropolitan	43.9	0.021	35.4	0.020	20.7	0.017
Eastern metropolitan	50.7	0.019	33.1	0.018	16.2	0.014
Southern metropolitan	48.5	0.019	35.8	0.019	15.7	0.014

SE = standard error.

Reference

1. Miilunpalo S, Vuori I, Oja P. Self rated health as a health measure: the predictive value of self-reported health status on the use of physician services and on mortality in the working age population. J Clin Epid 1997;50(5):517–28.

4 Asthma Prevalence

4.1 Introduction

Asthma is a common, chronic disorder affecting the airways of the lungs. Narrowing of these air passages (caused by the inflammation and swelling of the airway lining and the overproduction of mucus) in response to certain triggers results in airway constriction and difficulty in breathing. This difficulty may be reversed either spontaneously or with treatment. The disease affects all age groups but particularly young persons, and ranges in severity from intermittent mild symptoms to a severe, incapacitating and life-threatening disorder.[1]

In 1999, asthma was designated as one of six national health priority areas, being recognised as one of Australia's most serious chronic health problems. In 2000, 159 deaths from asthma were reported in Australia.[2] In Victoria, the condition is responsible for an estimated 2.3 per cent and 2.9 per cent of the total Victorian disease burden in males and females respectively.[3]

Asthma prevalence may be measured according to different definitions of the condition. Self-reported measures, such as that collected by the survey, typically report prevalence in Australia at around 27 per cent in children and 17–29 per cent in adults.[4] These measures are quite different from objective measures of lung function, which typically observe the prevalence of current or persistent asthma (wheezing episodes with abnormal airway function between episodes) at 9–11 per cent in children and 5–6 per cent in adults.[4]

Figure 4.1: Asthma Prevalence in Persons Aged 18 Years and over
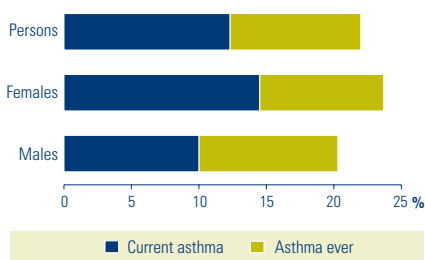
4.2 Survey Results

Respondents were asked whether a doctor had ever told them that they have asthma and, if so, whether they still get asthma. Those persons who responded 'yes' to the first question are referred to as the population with *asthma ever.* Those persons who responded 'yes' to the follow-up question about still getting asthma are referred to as the population with *current asthma.*

An estimated 22.0 per cent of persons aged 18 years and over reported having had asthma ever and 12.3 per cent reported currently having asthma (Figure 4.1).

Asthma Ever

Younger age groups were found to be most likely to have been diagnosed with asthma at some time in their lives, with 35.1 per cent of persons aged 18–24 years having been told by a doctor they had the condition (Table 4.1).

Overall, 23.7 per cent of females and 20.2 per cent of males reported having been diagnosed with asthma in the past (Table 4.1). Asthma prevalence was found to be higher among females in most age groups, and significantly different in the age groups of 25–34 years and 65 years and over (Figure 4.2).

Figure 4.2: Prevalence of Asthma Ever
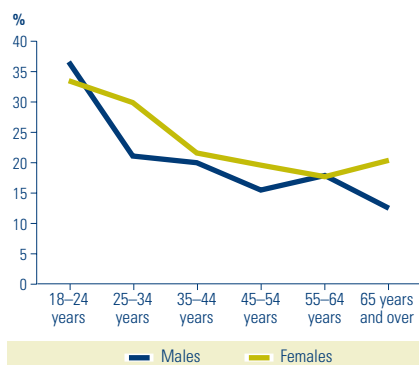
Figure 4.3: Prevalence of Current Asthma
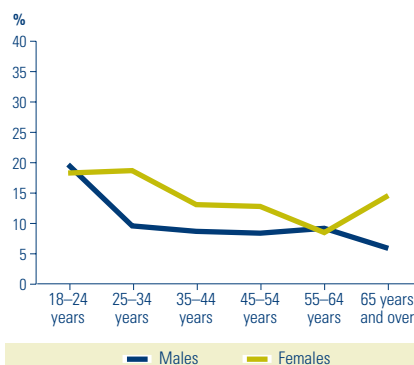
Current asthma

Ten per cent of males and 14.5 per cent of females aged 18 years and over reported currently having asthma (Table 4.2). Females were found to have significantly higher current asthma prevalence rates than males in the age groups of 25–34 years and 65 years and over (Figure 4.3).

Table 4.1: Prevalence of Asthma Ever, by Age and Sex

Age Group	Males		Females		Persons	
	%	SE	%	SE	%	SE
18–24 years	36.6	0.035	33.5	0.030	35.1	0.023
25–34 years	21.1	0.023	29.9	0.021	25.5	0.016
35–44 years	20.0	0.020	21.6	0.016	20.8	0.013
45–54 years	15.5	0.021	19.6	0.020	17.6	0.014
55–64 years	17.9	0.025	17.7	0.022	17.8	0.017
65 years and over	12.5	0.019	20.4	0.018	17.0	0.013
Total	20.2	0.010	23.7	0.009	22.0	0.006

SE = standard error.

Table 4.2: Prevalence of Current Asthma, by Age and Sex

Age Group	Males		Females		Persons	
	%	SE	%	SE	%	SE
18–24 years	19.7	0.030	18.3	0.025	19.0	0.020
25–34 years	9.6	0.016	18.7	0.017	14.2	0.012
35–44 years	8.7	0.014	13.1	0.013	10.9	0.010
45–54 years	8.4	0.016	12.8	0.017	10.7	0.012
55–64 years	9.2	0.017	8.5	0.014	8.9	0.011
65 years and over	5.9	0.012	14.6	0.017	10.8	0.011
Total	10.0	0.007	14.5	0.007	12.3	0.005

SE = standard error.

4.3 Past Asthma and Risk Factors

After adjusting for age and sex (Table 4.3), those persons more likely to report having been diagnosed with asthma in the past were born in Australia, unemployed, having lower education levels and residing in households with lower incomes.

Table 4.3: Doctor-diagnosed Asthma in the Past and Risk Factors

	p Value	Odds Ratio	95% Confidence Interval
Area of State			
Urban	0.928	1.01	0.89–1.14
Rural*	..	1.00	..
Country of birth			
Australia	<0.001	1.44	1.18–1.74
Overseas*	..	1.00	..
Education level			
Primary	0.031	1.19	1.02–1.40
Secondary	0.902	1.03	0.68–1.56
Tertiary*	..	1.00	..
Occupation			
Professional*	..	1.00	..
Nonprofessional	0.063	1.17	0.99–1.38
Other	0.704	0.95	0.73–1.23
Employment status			
Employed*	..	1.00	..
Unemployed	0.004	1.79	1.20–2.66
Not in the labour force	0.260	1.11	0.92–1.34
Smoking status			
Smoker	0.288	1.11	0.92–1.33
Ex-smoker	0.061	1.19	0.99–1.43
Nonsmoker*	..	1.00	..
Private health insurance			
Yes*	..	1.00	..
No	0.800	1.02	0.87–1.19
Household income per year			
Less than $20,000	0.001	1.53	1.20–1.94
From $20,000 to less than $60,000	0.419	1.08	0.89–1.32
$60,000 or more*	..	1.00	..
Dwelling ownership			
Owned*	..	1.00	..
Rented	0.223	1.12	0.93–1.35

* The reference group, where the odds ratio is equal to 1.00 by definition.
.. Not applicable.

4.4 Current Asthma by Departmental Region

Current asthma prevalence varied from a low of 11.1 per cent (95 per cent confidence interval of 5.5–16.8 per cent) in the western metropolitan region to a high of 14.1 per cent (95 per cent confidence interval of 7.0–21.2 per cent) in the northern metropolitan region (Table 4.4).

Table 4.4: Prevalence of Current Asthma, by Departmental Region

Region	Sex	%	95% Confidence Interval
Victoria	Males	10.0	8.6–11.4
	Females	14.5	13.1–15.9
	Persons	12.3	11.3–13.3
Barwon south west	Males	11.1	2.8–19.4
	Females	15.0	7.0–22.9
	Persons	13.1	7.3–18.8
Grampians	Males	12.6	2.7–23.1
	Females	14.3	5.7–22.9
	Persons	13.5	6.8–20.1
Loddon–Mallee	Males	9.1	1.8–16.6
	Females	15.3	7.5–23.2
	Persons	12.3	6.9–17.7
Hume	Males	8.3	0.7–16.3
	Females	15.6	7.2–24.0
	Persons	12.0	6.3–17.7
Gippsland	Males	9.0	2.0–16.7
	Females	15.8	6.9–24.7
	Persons	12.4	6.5–18.3
Western metropolitan	Males	6.9	1.1–13.6
	Females	15.1	6.5–23.9
	Persons	11.1	5.5–16.7
Northern metropolitan	Males	13.2	3.5–23.6
	Females	15.0	5.8–24.4
	Persons	14.1	7.0–21.2
Eastern metropolitan	Males	9.0	0.9–17.0
	Females	13.2	5.8–20.8
	Persons	11.2	5.7–16.7
Southern metropolitan	Males	10.2	1.9–18.4
	Females	14.3	6.1–22.6
	Persons	12.3	6.5–18.1

Figure 4.4: Prevalence of Current Asthma, by Departmental Region
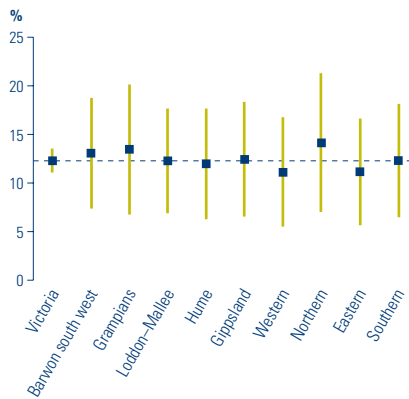
There were no significant regional differences in the prevalence rates for current asthma (Figure 4.4). The power of the survey to detect significant differences is limited at the regional level, however, given the sample size and the low prevalence of asthma in each of the departmental regions.

References

1. Australian Institute of Health and Welfare. National health priority areas. Canberra: AusInfo, 1999.

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3. Vos ET, Begg SJ. The Victorian burden of disease study. Melbourne: Department of Human Services Victoria, 1999.

4. Woolcock AJ, Marks GB, Keena VA. The burden of asthma in Australia. Elec Med J Aus 2001: http://www.mja.com.au/public/issues/175_03_060801/woolcock/woolcock.html.

5 Diabetes Prevalence

5.1 Introduction

Diabetes mellitus is a common, chronic condition characterised by high blood glucose (sugar) levels. The two main types of diabetes are type 1 (insulin-dependent) diabetes mellitus and type 2 (non-insulin-dependent) diabetes mellitus. A third form is gestational diabetes, which is a condition that affects women during pregnancy.

Type 1 diabetes develops when the pancreas fails to effectively produce the hormone insulin, which stimulates the body's cells to use glucose as energy. Persons having type 1 diabetes require insulin injections to regulate their blood sugar levels. This disease occurs most frequently in those aged under 30 years and may be referred to as juvenile-onset diabetes.

Type 2 diabetes usually occurs in adults who are overweight or have a family history of the condition, and it accounts for around 85 per cent of all cases of diabetes. Caused by the body becoming resistant to high insulin levels in the blood, it may be controlled with appropriate diet and exercise.

Left untreated, diabetes can cause kidney, eye and nerve damage, heart disease, stroke and impotence.

5.2 Survey Results

Excluding females diagnosed with diabetes only during pregnancy, 5.7 per cent of persons aged 18 years and over reported having been told by a doctor that they have diabetes or high sugar levels in their blood or urine (Table 5.1). The reported prevalence of diagnosed type 2 diabetes for persons aged 18 years and over was 4.1 per cent.

Figure 5.1: Doctor-diagnosed Diabetes

Table 5.1: Type of Diabetes

	Males		Females		Persons	
	%	SE	%	SE	%	SE
Type 1	0.6	0.001	0.4	0.001	0.5	0.001
Type 2	4.7	0.005	3.4	0.004	4.1	0.003
Total	6.6	0.006	4.8	0.004	5.7	0.003

Note: Total includes 'other' and 'don't know'.
SE = standard error.

The prevalence of diabetes was found to increase with age for persons aged 18 years and over in Victoria (Figure 5.1). Males aged 65 years and over reported the highest prevalence rate of 17.2 per cent, compared with a rate of 11.3 per cent for females in the same age group.

Gestational Diabetes

Gestational diabetes occurs during pregnancy in about 3–8 per cent of females (in Australia) not previously diagnosed with diabetes[1] and it is a marker of a greater risk of developing type 2 diabetes later in life.[2] Of females aged 18 years and over in Victoria, 2.8 per cent (95 per cent confidence interval of 2.3–3.1 per cent) reported having been diagnosed with diabetes during pregnancy.

Diabetes Screening

Survey respondents were also asked whether they had had a check or test for diabetes or high blood sugar levels in the past two years. Of all persons aged 18 years and over, 44.8 per cent reported having had a test, with a higher proportion of females (47.4 per cent) than males (42.0 per cent) reporting having undertaken the test in the past two years (Table 5.2).

Figure 5.2: Diabetes Check in Past Two Years
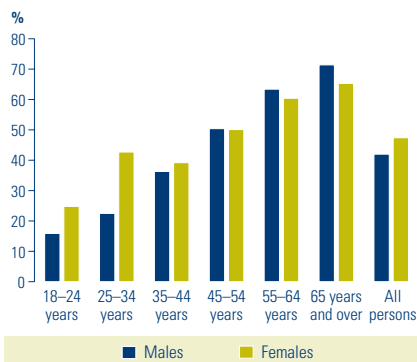
Table 5.2: Test for Diabetes or High Blood Sugar Levels in Past Two Years

	%	SE
Males	42.0	0.012
Females	47.4	0.010
Persons	44.8	0.008

SE = standard error.

The proportion of persons reporting having a screening test for diabetes in the past two years increased with age (Figure 5.2).

5.3 Factors Influencing Doctor-diagnosed Diabetes

After adjusting for differences in age and sex (Table 5.3), those persons more likely to report having been diagnosed with diabetes or high sugar levels in their blood/urine were those residing in households with lower incomes, speaking a language other than English at home, not in the labour force, having lower education levels and without private health insurance.

5.4 Diabetes by Departmental Region

Table 5.4 (page 28) shows the age–sex standardised prevalence rates for diabetes for each of the departmental regions in Victoria. The rate varied from 4.7 per cent (95 per cent confidence interval of 1.9–7.7 per cent) in the southern metropolitan region to 7.7 per cent (95 per cent confidence interval of 2.9–12.7 per cent) in the Grampians region.

Figure 5.3: Doctor-diagnosed Diabetes, by Departmental Region—All Persons Aged 18 Years and over

There were no significant regional differences in the diabetes prevalence rates (Figure 5.3). The power of the survey to detect significant differences is limited at the regional level, however, given the sample size and the low prevalence of diabetes in each of the departmental regions.

Table 5.3: Doctor-diagnosed Diabetes

	p Value	Odds Ratio	95% Confidence Interval
Area of State			
Urban*	..	1.00	..
Rural	0.277	1.13	0.90–1.42
Country of birth			
Australia*	..	1.00	..
Overseas	0.057	1.32	0.99–1.76
Education level			
Primary	0.001	2.26	1.41–3.62
Secondary	0.030	1.41	1.03–1.92
Tertiary*	..	1.00	..
Occupation			
Professional*	..	1.00	..
Nonprofessional	0.906	0.98	0.74–1.31
Other	0.617	1.11	0.73–1.70
Speak a language other than English at home			
Yes	0.002	1.70	1.22–2.39
No*	..	1.00	..
Employment status			
Employed*	..	1.00	..
Unemployed	0.258	1.61	0.71–3.68
Not in the labour force	<0.001	2.09	1.49–2.94
Smoking status			
Smoker*	..	1.00	..
Ex-smoker	0.337	1.21	0.82–1.77
Nonsmoker	0.555	0.90	0.62–1.29
Private health insurance			
Yes*	..	1.00	..
No	0.001	1.58	1.22–2.06
Household income per year			
Less than $20,000	<0.001	3.18	1.99–5.08
From $20,000 to less than $60,000	0.017	1.78	1.11–2.85
Greater than $60,000*	..	1.00	..
Dwelling ownership			
Owned	0.214	1.25	0.88–1.76
Rented*	..	1.00	..

* The reference group, where the odds ratio is equal to 1.00 by definition.

.. Not applicable.

Table 5.4: Doctor-diagnosed Diabetes, by Departmental Region

Region	Sex	%	95% Confidence Interval
Victoria	Males	6.6	5.4–7.8
	Females	4.8	4.0–5.6
	Persons	5.7	4.9–6.5
Barwon south west	Males	6.2	1.6–11.3
	Females	7.0	2.4–11.9
	Persons	6.6	3.1–10.2
Grampians	Males	10.3	2.4–19.3
	Females	5.2	1.6–9.9
	Persons	7.7	2.9–12.7
Loddon–Mallee	Males	4.7	1.1–8.8
	Females	4.9	1.8–8.3
	Persons	4.8	2.2–7.5
Hume	Males	7.0	2.4–12.7
	Females	4.5	1.1–7.3
	Persons	5.7	2.6–9.5
Gippsland	Males	6.7	1.5–12.5
	Females	6.4	1.8–11.4
	Persons	6.5	2.9–10.4
Western metropolitan	Males	6.5	1.5–8.7
	Females	5.4	1.2–10.2
	Persons	6.0	2.2–9.9
Northern metropolitan	Males	8.1	1.6–15.8
	Females	4.8	1.2–8.9
	Persons	6.4	2.3–10.8
Eastern metropolitan	Males	7.1	1.4–14.3
	Females	4.3	0.7–8.2
	Persons	5.6	1.9–9.7
Southern metropolitan	Males	5.4	1.3–9.9
	Females	4.0	0.9–7.4
	Persons	4.7	1.9–7.7

References

1. Australian Institute of Health and Welfare. Australia's health 2002. Canberra: AusInfo, 2002.

2. Better Health Channel. Diabetes explained. www.betterhealth.vic.gov.au. Melbourne: Department of Human Services Victoria, accessed 31 July 2002.

6 Psychological Distress

6.1 Introduction

Mental health problems and mental illness are a major cause of poor health in Australia. Almost one in five adults (18 per cent) experience a mental disorder at some time in their lives.[1] Depression is the number one cause of the burden of disease in Victoria and the fourth cause Australia-wide.[2, 3] The World Health Organisation and the World Bank estimate that the burden of disease associated with depression is increasing globally and will become the major cause of the disease burden in the next 20 years.[3] In recognition of the importance of these issues, mental health has been designated a national health priority area for Australia and is the subject of a National Strategy and Action Plan.[4]

Given the significance of mental health issues in Victoria, the Victorian Population Health Survey 2001 included a measure of psychological distress. The Kessler 10 (K10) psychological distress measure is a set of 10 questions designed to measure a respondent's psychological distress over the previous four-week period. The K10 cannot be used to determine major mental illnesses (such as psychoses) but has been validated as a simple measure of anxiety, depression and worry (psychological distress).[5]

6.2 Methods

The K10 questions cover the major domains of anxiety, depression and worry (such as nervousness, hopelessness, restlessness, depression, sadness and worthlessness). Each question has a scale of five responses which have been assigned the following values: *all of the time* (5), *most of the time* (4), *some of the time* (3), *a little of the time* (2), *none of the time* (1). The K10 score is the sum of the values of responses and ranges from 10 (indicating no distress) to 50 (indicating severe distress).

The scores obtained when practitioners use the K10 questions as a screening tool are qualified here in the following manner: (i) persons who score in the range 10–19 are likely to be well; (ii) persons who score in the range 20–24 are likely to have a mild mental disorder; (iii) persons who score in the range 25–29 are likely to have a moderate mental disorder; and (iv) persons who score in the range 30–50 are likely to have a severe mental disorder (personal communication, Professor Gavin Andrews, Clinical Research Unit for Anxiety and Depression, University of New South Wales at St Vincents Hospital, 7 August 2002).

When used as a screening tool, the K10 needs to be followed by a diagnostic interview to confirm the presence or absence of a mental disorder. Practitioners should make a clinical judgement as to whether a person needs treatment. The higher the K10 score, the higher is the likelihood that the person suffers from a mental disorder. Scores usually decline with effective treatment. For patients whose scores remain above 24 after treatment, they should be reviewed and a specialist referral should be considered.

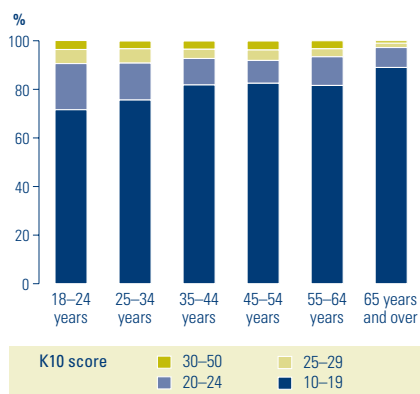## Figure 6.1: K10 Scores—Persons Aged 18 Years and over
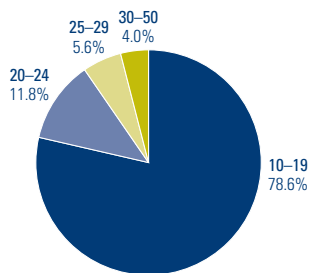
6.3 Survey Results

Four per cent of persons aged 18 years and over scored highly on the K10 scale and were categorised as likely to have a severe mental disorder (Figure 6.1). Over three-quarters of respondents (78.6 per cent) had low K10 scores and were categorised as likely to be well. A further 11.8 per cent were categorised as likely to have a mild mental disorder and 5.6 per cent as likely to have a moderate mental disorder.
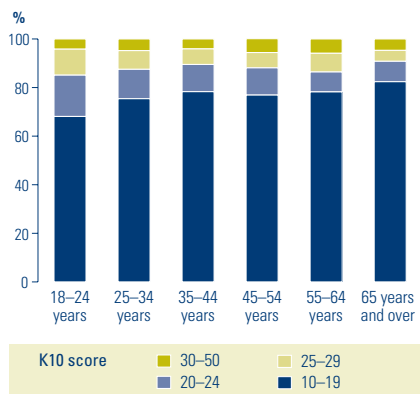
For both males and females, persons in the older age groups were found to be less likely to be categorised in the higher groupings of the K10 psychological distress scale (Figures 6.2 and 6.3).

Higher levels of psychological distress were associated with living in urban areas, being unemployed, being separated, having been born overseas and residing in households with lower incomes (Table 6.1). An association was also found between self-rated health status and level of psychological distress, with higher proportions of persons who reported their health as good or better categorised as having lower levels of psychological distress (as measured by the K10) (Figure 6.4). The survey also collected information on past diagnosis of depression or anxiety. Of persons aged 18 years and over, 16.7 per cent (95 per cent confidence interval of 15.6–17.9 per cent) had been told by a doctor that they had experienced depression or anxiety (Table 6.1). Persons who had been doctor-diagnosed as having depression or anxiety in the past were found to be more likely to have higher levels of psychological distress (Table 1).

Figure 6.2: K10 Score—Males, by Age

6.4 Use of Mental Health Services

The survey also included a question on the use of mental health services, specifically: 'In the past 12 months, have you used a mental health service provided by a counsellor, community centre, psychologist or psychiatrist?'. An estimated 4.7 per cent (95 per cent confidence interval of 4.1–5.3 per cent) of persons aged 18 years and over reported having used a service delivered by a mental health service provider (on behalf of themselves or someone else, such as a family member) in the past 12 months. This figure incorporates all levels of service use, from only one visit to a private psychologist to time spent in a mental health inpatient service. It is therefore a measure of service contact rather than service use.

Figure 6.3: K10 Score— Females, by Age

Table 6.1: K10 Score for Selected Variables

| | K10 Score | | | | | | | |
| | 10–19 | | 20–24 | | 25–29 | | 30–50 | |
	%	SE	%	SE	%	SE	%	SE
Males								
18–24 years	71.6	0.033	19.0	0.029	5.8	0.018	3.7	0.016
25–34 years	75.6	0.025	15.2	0.021	5.9	0.014	3.2	0.010
35–44 years	81.8	0.019	10.9	0.016	3.8	0.009	3.4	0.008
45–54 years	82.5	0.022	9.4	0.016	4.3	0.013	3.7	0.011
55–64 years	81.6	0.025	11.8	0.021	3.3	0.011	3.3	0.010
65 years and over	89.0	0.018	8.2	0.016	1.8	0.008	1.0	0.004
All males	80.4	0.010	12.3	0.008	4.2	0.005	3.1	0.004
Females								
18–24 years	68.1	0.029	17.0	0.023	10.7	0.020	4.2	0.012
25–34 years	75.4	0.019	12.1	0.015	7.7	0.012	4.8	0.009
35–44 years	78.3	0.016	11.2	0.012	6.4	0.010	4.1	0.008
45–54 years	76.9	0.021	11.2	0.015	6.3	0.013	5.7	0.012
55–64 years	78.2	0.027	8.2	0.016	7.7	0.017	5.9	0.018
65 years and over	82.4	0.018	8.4	0.012	4.5	0.010	4.7	0.011
All females	77.0	0.009	11.2	0.006	6.9	0.005	4.9	0.005
Area of State								
Urban	77.6	0.009	12.1	0.007	6.1	0.005	4.2	0.004
Rural	81.4	0.006	10.8	0.005	4.3	0.003	3.5	0.003
Employment status								
Employed	80.7	0.008	11.6	0.007	4.9	0.005	2.8	0.004
Unemployed	62.1	0.043	19.7	0.035	8.8	0.027	9.4	0.025
Not in the labour force	77.1	0.010	11.3	0.008	6.4	0.006	5.2	0.005
Marital status								
Married	82.6	0.008	9.4	0.006	4.7	0.005	3.3	0.004
Living with a partner	77.4	0.023	14.1	0.019	4.6	0.011	4.0	0.011
Widowed	83.5	0.019	9.1	0.015	3.8	0.010	3.6	0.010
Divorced	71.4	0.027	11.2	0.017	8.1	0.014	9.3	0.021
Separated	59.8	0.037	17.7	0.028	13.9	0.030	8.5	0.019
Never married	70.9	0.017	17.5	0.014	7.3	0.010	4.3	0.008
Country of birth								
Australia	79.6	0.007	11.5	0.006	5.1	0.004	3.8	0.004
Overseas	75.9	0.014	12.5	0.011	6.9	0.008	4.6	0.007
Persons told by a doctor that they have depression or anxiety								
Yes	51.7	0.018	18.9	0.014	14.0	0.013	15.4	0.014
No	84.0	0.007	10.3	0.005	3.9	0.004	1.7	0.002
Household income per year								
Less than $20,000	72.9	0.014	12.4	0.010	7.9	0.009	6.9	0.008
$20,000 to less than $60,000	79.5	0.010	11.9	0.008	5.2	0.006	3.3	0.005
$60,000 or more	84.6	0.012	10.0	0.010	4.2	0.007	1.2	0.003

SE = standard error.

Figure 6.4: Self-rated Health and K10 Scores

Figure 6.4: Self-rated Health and K10 Scores

K10 score: 30–50, 25–29, 20–24, 10–19
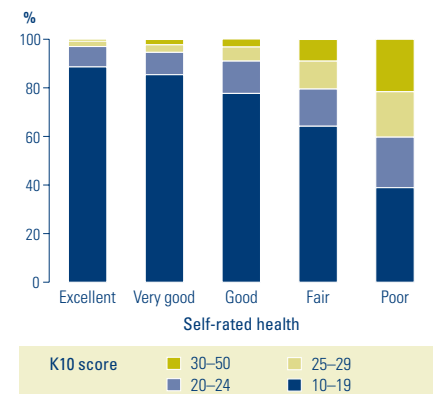
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1. Australian Bureau of Statistics. National survey of mental health and wellbeing of adults, 1997. Canberra: AusInfo, 1999.

2. Vos ET, Begg SJ. The Victorian burden of disease study. Melbourne: Department of Human Services Victoria, 1999.

3. Mathers C, Vos T, Stevenson C. The burden of injury and disease in Australia. Canberra: Australian Institute of Health and Welfare, 1999.

4. Australian Institute of Health and Welfare. First report on national health priority areas. Canberra: AusInfo, 1996.

5. Andrews G, Slade T. Interpreting scores on the Kessler psychological distress scale (K10). Aus NZ J Public Health 2001;25(6):494–7.

7 Access to Care and Propensity to Seek Care

7.1 Introduction

The concept of access to primary health care can be viewed in a variety of ways, but can be broadly defined as *the timely use of personal health services to achieve the best possible health outcomes.* This definition accounts for barriers to receiving care, as well as for the quality of care provided. Using this definition, we can ask whether access problems can explain the relatively poorer health outcomes of some specific population groups.

The Victorian Population Health Survey 2001 included questions on perceived access to health care and propensity to seek care.[1] Respondents were asked to rate their experience of accessing medical care when required as *extremely difficult, very difficult, somewhat difficult, not too difficult* or *not at all difficult.* The survey also collected information on the propensity of persons to consult a doctor in response to a range of health conditions, specifically (i) weight loss, (ii) shortness of breath, (iii) chest pain when exercising, (iv) loss of consciousness, fainting or passing out, and (v) bleeding other than nosebleeds.

7.2 Survey Results: Access to Care

Most persons (87.0 per cent) characterised their experience of getting medical care when needed as either *not at all difficult* or *not too difficult* (Figure 7.1).

Persons living in rural regions were significantly more likely to report difficulty when accessing medical care, with 16.9 per cent (95 per cent confidence interval of 15.7–18.1 per cent) of these respondents describing getting care as *somewhat difficult, very difficult* or *extremely difficult,* compared with 11.5 per cent (95 per cent confidence interval of 10.3–12.8 per cent) of persons in urban regions.

Almost one-quarter of persons in rural regions reported 'doctor being too busy, not available' or 'long waiting times' as a difficulty in getting medical care when needed (Table 7.1). 'Service too far away' was the next most frequently reported difficulty, with a higher proportion of rural residents than urban residents reporting this difficulty. Less than 2 per cent of persons identified the 'cost of service' or 'transport difficulties' as a difficulty in getting medical care when needed.

Figure 7.1: Level of Difficulty Getting Medical Care when Needed
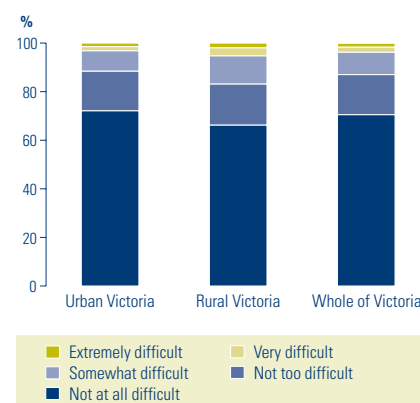
Table 7.1: Difficulties Experienced in Getting Medical Care when Needed

| | Area of State | | | | | |
| | Urban | | Rural | | Victoria | |
Difficulties	%	SE	%	SE	%	SE
Not at all difficult	72.1	0.009	66.2	0.008	70.5	0.007
Doctor too busy, not available/ long waiting time	19.8	0.008	24.8	0.007	21.2	0.006
Service too far away	3.0	0.004	6.9	0.004	4.1	0.003
Cost of service	1.9	0.003	1.2	0.002	1.7	0.002
Other	4.9	0.004	4.9	0.004	4.9	0.003

Note: One or more response may be given.
SE = standard error.

Figure 7.2: Propensity to Seek Care for Selected Conditions
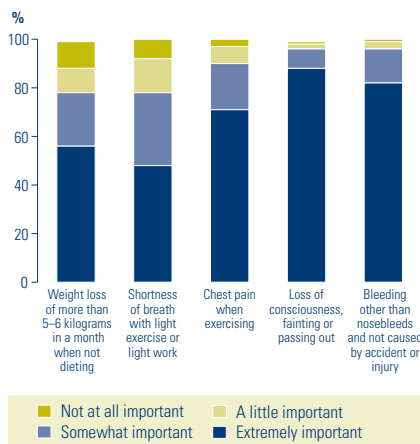
7.3 Survey Results: Propensity to Seek Care

Sixty-three per cent of persons answered *extremely important* or *somewhat important* to all of the scenarios related to propensity to seek care. A further 22.0 per cent answered *extremely important* or *somewhat important* to any four out of five of the scenarios (Figure 7.2).

Of the five conditions presented, respondents were most likely to identify loss of consciousness, fainting or passing out, and bleeding other than nosebleeds and not caused by accident or injury as a *somewhat* or *extremely important* reason to see a doctor. Less than 5 per cent of persons rated it only *a little* or *not at all important* to consult a doctor in these cases. Considered less urgent was weight loss of more than 5–6 kilograms in a month when not dieting and shortness of breath with light exercise or light work, for which more than 20 per cent of persons rated seeing a doctor as being *a little important* or *not at all important*.

Propensity to Seek Care by Gender

For most conditions, females were found to be more likely than males to consider seeing a doctor to be *somewhat* or *extremely important* (Table 7.2). For the more serious conditions of loss of consciousness, fainting or passing out, and bleeding other than nosebleeds and not caused by accident or injury, both males and females rated similar levels of importance for seeing a doctor.

7.4 Summary

People may decline to seek primary health care for various reasons, such as geographic location and transport difficulties. Those who seek medical care later in the course of their disease might have missed the opportunity for their illness to be managed in the primary care setting, leading to unnecessary hospitalisation.

Survey data will be assessed against the Victorian Admitted Episodes Database in detail to identify the relationships between access to primary health care, propensity to seek care and the hospitalisation rates for ambulatory care-sensitive conditions in Victoria.

Table 7.2: Propensity to Seek Care for Selected Conditions, by Sex and Level of Importance

| Selected Conditions | Level of Importance of Seeing a Doctor | | | | | | | |
| | Extremely Important | | Somewhat Important | | A Little Important | | Not at All Important | |
	%	SE	%	SE	%	SE	%	SE
Weight loss of more than 5–6 kilograms in a month when not dieting								
Males	53.0	0.012	22.3	0.010	11.5	0.008	13.2	0.008
Females	59.8	0.010	22.5	0.008	9.5	0.006	8.3	0.006
Shortness of breath with light exercise or light work								
Males	46.1	0.012	30.4	0.011	13.8	0.008	9.6	0.007
Females	50.2	0.010	28.8	0.009	14.1	0.007	7.0	0.005
Chest pain when exercising								
Males	67.2	0.011	21.9	0.010	7.1	0.006	3.9	0.005
Females	74.7	0.009	16.9	0.008	6.3	0.005	2.1	0.003
Loss of consciousness, fainting or passing out								
Males	87.8	0.008	8.3	0.007	2.3	0.004	1.5	0.003
Females	88.8	0.006	8.4	0.006	2.1	0.003	0.7	0.002
Bleeding other than nosebleeds and not caused by accident or injury								
Males	78.2	0.010	16.5	0.009	3.4	0.004	1.9	0.003
Females	85.0	0.007	11.8	0.006	2.3	0.003	0.9	0.002

SE = standard error.

Reference

1. Bindman AB. Preventable hospitalizations and access to health care. JAMA 1995;274(4):305–311.

Appendix

Victorian Population Health Survey 2001
Data Items

Demographics

Age

Sex

Marital status

Country of birth

Main language spoken at home

Country of birth of mother

Country of birth of father

Highest level of education

Employment status

Main field of occupation

Household income

Housing tenure

Whether has private health insurance

Indigenous status

Area of State (departmental region)

Silent telephone number status

Health Care Use

Whether had blood pressure check in past two years

Whether had cholesterol check in past two years

Whether had a test for diabetes or high blood sugar levels in past two years

Whether had a bowel examination in past two years

Whether had a skin examination in past two years

Whether had a mammogram test in past two years

Whether had a pap smear test in past two years

Whether had a prostate check in past two years

Whether had a dental check in past two years

Use of, and level of satisfaction with:
• Public hospital
• Community health centre
• Meals on Wheels
• Home nursing
• Kindergarten
• Maternal and child health centre
• Mental health service

Health Service Issues

Access to care

Difficulty getting medical care when needed

Types of difficulty experienced getting access to medical care

Propensity to seek care

Level of importance in seeing a doctor if had weight loss of more than 5–6 kilograms when not dieting

Level of importance in seeing a doctor if had shortness of breath with light exercise or work

Level of importance in seeing a doctor if had chest pain when exercising

Level of importance in seeing a doctor if had loss of consciousness, fainting or passing out

Level of importance in seeing a doctor if had bleeding other than nosebleeds and not caused by accident or injury

Nutrition

Number of serves of vegetables eaten each day

Number of serves of fruit eaten each day

Alcohol

Whether had an alcoholic drink of any kind in past 12 months

Frequency of having an alcoholic drink of any kind

Amount of standard drinks consumed when drinking

Smoking

Smoking status

Frequency of smoking

Attitudes to smoking

View on smoking in gaming areas

View on smoking in public bars

View on smoking in nightclubs

Asthma

Asthma status

Blood Pressure

High blood pressure status

Management of high blood pressure

Diabetes

Diabetes status

Type of diabetes

Social Capital Measures

Social networks and support structures

Social and community participation

Civic involvement and empowerment

Trust in people and social institutions

Tolerance of diversity

Physical Activity

Whether walked continuously for at least 10 minutes in past week

Amount of time spent walking continuously in past week

Whether did any vigorous physical activity in past week

Amount of time spent doing vigorous activity

Self-reported Health Status

Kessler 10 Measure of Psychological Distress

Health Conditions

Arthritis

Heart disease

Stroke

Cancer

Osteoporosis

Depression or anxiety

Gastroenteritis

Attachment I

Exploring Mediators of Health Inequalities Using the Victorian Population Health Survey 2001

Jeanette Pope, Adrian Serraglio and Loretta Vaughan

Abstract

This paper describes data on social networks. The data were collected for the first time in 2001 as part of the Victorian Population Health Survey, which is an annual survey that collects information about the health of the Victorian population. The social networks are examined by socioeconomic status, rural/urban areas, health status and social attitudes. These results represent the beginnings of a process exploring appropriate survey questions on social capital and networks, and they are a work in progress. The 2002 survey will collect similar information.

This paper also describes difficulties that have been encountered in measuring network effects at the population level.

Introduction

The advantages of social ties and networks have been receiving increasing attention by health researchers in Australia, particularly by those interested in examining remedies for the reported health inequalities among population groups.[1, 2] Little is known about the relative contribution of various factors to health inequalities, but aspects of social structure, such as those related to social ties and social exchange, are likely to make some contribution.

Background to the Survey's Measurement of Social Networks

Social networks are thought to have an influence on health through at least three mechanisms (Figure 1): the provision of resources and advantages (social capital); the wellbeing effects of social support; and the influence on behaviours (such as peer effects on smoking).[3] All three factors are likely to be important mediators of health inequalities.[3] The Victorian Population Health Survey 2001 focused on social capital effects because the others are difficult to measure using a relatively short health survey.

Social capital is defined as the resources, advantages and benefits that individuals accrue through the groups to which they belong.[4, 5] Individuals can obtain advantages and resources through formal economic market processes or through informal social networks and ties. The combination of these two types of resource determines a person's standard of living (or socioeconomic status), which has been strongly associated with health status. It has been argued that productive networks benefit not only individuals but also the groups, communities and societies in which the ties occur.[6] It has also been argued that

social capital at this level is a function of the social structure, not of the individual actors in a social structure.[6] Indicators created from social surveys (of individual actors) therefore may not be the best mechanism for describing social structure.[4]

Figure 1: A Conceptual Model for How Networks May Mediate Health
(Adapted from Berkman and Glass 2000)[1]

Socioeconomic conditions	*condition the extent, shape and nature of*	**social networks**	*that provide opportunities for*	**social support, social capital and social influence,**	*which have an impact on health through behavioural, psychological and physiological pathways, leading to*	**health outcomes.**

A description of the economic system provides an example. Indicators that describe economic phenomena (unemployment, gross domestic product, expenditure and so on) are different from survey descriptors of individuals' structural location within the economic system (income, educational level and so on).

Researchers are attempting to develop appropriate indicators of social structure, but at this early stage we chose to focus on the individual properties of social networks and their outcomes, which are building blocks of social capital and can be accounted for by the surveyed individuals. We included, however, some social attitude questions as outcome measures in the survey.

There are no validated measures of social capital largely because the processes of social exchange are complex. A full appreciation of the concept requires an understanding of (1) the social ties or networks that represent the potential source of social capital (the mechanism) and (2) the benefits that are accrued through them (the outcomes).

The Victorian Population Health Survey attempted to measure and distinguish these two elements for three reasons. First, social networks are not a surrogate measure of social capital. Networks are a *potential source* of social capital, but it is necessary to show that the networks are also productive. Some people may have small networks that provide them with many resources (that is, highly productive networks) and others may have large networks that provide them with few resources. Second, these two aspects should be separated to avoid the criticism that social capital is tautological when the outcomes are included in the measure of social capital.[7] An example is where low social capital is said to lead to high crime, yet high crime is used as a social capital indicator. Finally, the two aspects are separated to ensure other important pathways between social networks and health (such as social support and social influence) can be distinguished (Figure 1).

Survey Method

The 2001 survey followed an established method developed over several years to collect relevant, timely and valid health information to apply to policy development and strategic planning. Computer-assisted telephone interviewing (CATI) was used for a representative sample of persons aged 18 years and over who resided in private dwellings in Victoria.

The survey team used random digit dialling to generate a sample of telephone numbers that formed the household CATI sample. All residential households in Victoria with landline telephone connections were considered to be in scope for the survey. The survey sample included 7494 households, which were stratified by Department of Human Services region. (Victoria has five rural and four urban regions.) The data were weighted to adjust for the probability of selection and known age/sex/area population benchmarks.

Measuring Networks

Nineteen questions relating to social capital were adapted for the survey from Bullen and Onyx's study of five communities in New South Wales.[8] The survey measured social networks using questions about informal social contacts (friends, family, neighbours) and membership or involvement with local organisations (sporting clubs, associations, community groups, working bees) (Table 1). Three questions examined the productive nature of networks by examining the capacity of individuals to draw resources from their networks (such as childcare) in an emergency. The main focus of the social networks questions, however, was on the size and type of networks.

Measuring Outcomes

Two health outcome measures were used in the survey: a measure of self-rated health and the Kessler 10 (K10) measure of psychological distress. The self-rated measure asked people to rate their health as *poor, fair, good* or *very good* and was used as a surrogate measure of physical health. This measure has been found in a large number of settings to be a good predictor of mortality and the onset of disability.[9] The K10 measure, derived from a set of 10 questions, is a suitable outcome measure for people with anxiety and depressive disorders.[10] Each of the 10 questions has a scale of five responses (*all of the time, most of the time, some of the time, a little of the time, none of the time*) and the K10 score is the sum of the 10 responses. The scores obtained when practitioners use the K10 questions as a screening tool are qualified here in the following manner: (i) persons who score in the range 10–19 are likely to be well; (ii) persons who score in the range 20–24 are likely to have a mild mental disorder; (iii) persons who score in the range 25–29 are likely to have a moderate mental disorder; and (iv) persons who score in the range 30–50 are likely to have a severe mental disorder (personal communication, Professor Gavin Andrews, Clinical Research Unit for Anxiety and Depression, University of New South Wales at St Vincents Hospital, 7 August 2002).

Table 1: Survey Questions and Response Categories—Victorian Population Health Survey 2001

Survey Questions	Response Categories							
	Yes, Definitely		Sometimes		Not Often		No, Not at All	
	%	SE	%	SE	%	SE	%	SE
* Can you get help from friends when you need it?	79.7	0.006	14.9	0.006	2.5	0.002	2.9	0.003
* Can you get help from family members when you need it?	81.8	0.006	10.8	0.005	3.1	0.003	4.3	0.003
* Can you get help from neighbours when you need it?	50.7	0.008	27.3	0.007	9.1	0.005	12.9	0.005
* If you were caring for a child and needed to go out for a while, would you ask a neighbour for help?	30.1	0.007	16.5	0.006	9.1	0.005	44.3	0.008
* Do you have contact with your neighbours on a weekly basis?	50.2	0.008	22.0	0.007	9.3	0.005	18.5	0.006
* When you go shopping in your local area are you likely to run into friends and acquaintances?	49.4	0.008	32.2	0.007	10.1	0.005	8.3	0.005
* In the past six months have you done a favour for a sick neighbour?	56.7	0.008	3.8	0.003	7.1	0.004	32.4	0.007
* Over the weekend do you sometimes have lunch/dinner with other people outside your household?	41.2	0.008	36.5	0.007	12.7	0.005	9.6	0.005
* Do you attend a management committee or organising committee for any local group or organisation?	15.3	0.005	5.9	0.004	3.2	0.003	75.5	0.007
* In the past three years have you ever taken part in a local community project or working bee?	57.1	0.008	26.4	0.007	11.1	0.005	5.3	0.003
* Have you ever picked up other people's rubbish in a public place?	47.7	0.008	26.5	0.007	7.9	0.004	18.0	0.006
* Have you attended a local community event in the past six months (e.g. church fête, school concert, craft exhibition)?	44.6	0.008	13.8	0.005	5.3	0.004	36.3	0.008
* Do you feel there are opportunities to have a real say on issues that are important to you?	36.1	0.007	34.2	0.007	14.9	0.006	14.7	0.006
* If you disagree with what everyone else agreed on, would you feel free to speak out?	67.1	0.007	22.1	0.006	5.3	0.003	5.5	0.004
Do you feel safe walking down your street after dark?	55.2	0.008	17.5	0.006	5.9	0.004	21.4	0.006
Do you agree that most people can be trusted?	28.0	0.007	43.5	0.008	12.0	0.005	16.5	0.006
Do you enjoy living among people of different lifestyles?	69.5	0.007	22.0	0.007	2.9	0.002	5.6	0.004
Do you think that multiculturalism makes life in your area better?	57.0	0.008	28.7	0.007	5.6	0.004	8.7	0.004
* Do you help out a local group as a volunteer?	21.2	0.006	10.8	0.005	4.5	0.003	63.5	0.007
* Do you feel valued by society?	42.1	0.008	36.6	0.008	9.0	0.005	12.4	0.005
	Response Categories							
	Many, at Least 10		Five or More		Less than Five		None at All	
	%	SE	%	SE	%	SE	%	SE
* In the past week how many conversations have you had with friends?	54.2	0.008	26.9	0.007	17.0	0.006	1.9	0.002
* How many people did you talk to yesterday?	48.6	0.008	29.6	0.007	21.0	0.006	0.8	0.001
	Response categories							
	Yes, Very Active		Sometimes Active		Not Very Active		No, Not at All Active	
	%	SE	%	SE	%	SE	%	SE
* To what extent are you an active member of a local organisation or club (e.g. sport, craft, social club)?	26.9%	0.007	21.3%	0.006	7.8%	0.004	44.0%	0.008

* Questions used in the social network scoring.

SE = standard error.

Figure 2: Distribution of Network Scores—Population Aged 18 Years and over
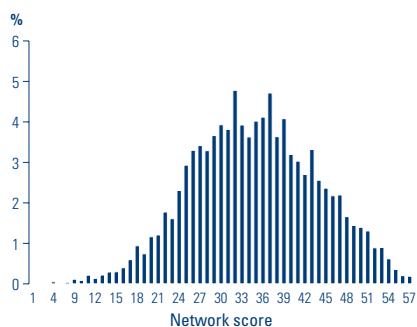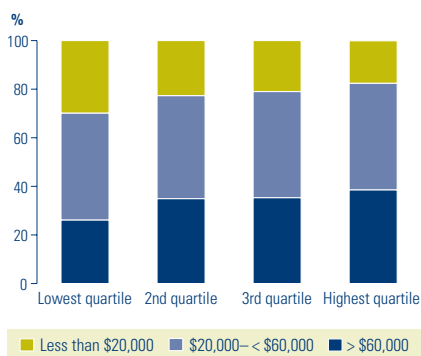

Four attitudinal outcomes were used. Two were 'tolerance' measures derived from the questions 'Do you enjoy living among persons of different lifestyles?' and 'Does multiculturalism make life in your area better?'. The other two were the perception of safety, derived from the question 'Do you feel safe walking down the street after dark?', and a measure of social inclusion, derived from the question 'Do you feel valued by society?'.

Scoring Survey Questions

Each of the 19 questions relating to social capital had four possible responses, which were used to develop one index of total networks (Table 2). A total network score was then calculated for each respondent by summing his or her 19 question scores. The minimum possible score was 0, the maximum was 57 and the mean was 34.9 (95 per cent confidence interval of 34.6–35.1). Higher scores represent an increase in social networks. The distribution of scores across the population is shown in Figure 2.

Scores were divided into quartiles for analysis (quartile 1: less than 28; quartile 2: from 28 to less than or equal to 34; quartile 3: from 35 to less than or equal to 41; quartile 4: greater than 41) where quartile 1 represented those with the least networks and quartile 4 represented those with the most networks.
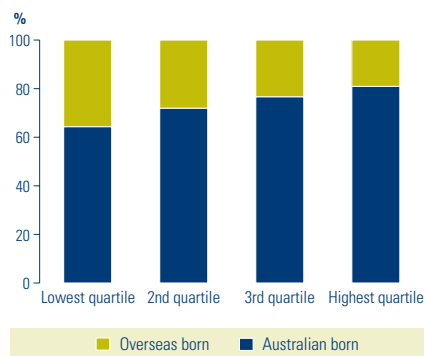
Figure 3: Network Quartiles, by Household Income

Less than $20,000 $20,000–< $60,000   > $60,000

Survey Results

The results of the survey are summarised in Tables 1 and 2.

Networks and Socioeconomic Status

The socioeconomic gradient across network quartiles was measured by household income (Figure 3). Those on low incomes were more likely to have low network scores and those with the highest incomes were more likely to have high network scores. The unemployed and those not in the labour force had lower network scores than those of the employed (Table 2).

Networks and Country of Birth

People born in Australia had higher network scores than those born overseas (Figure 4).
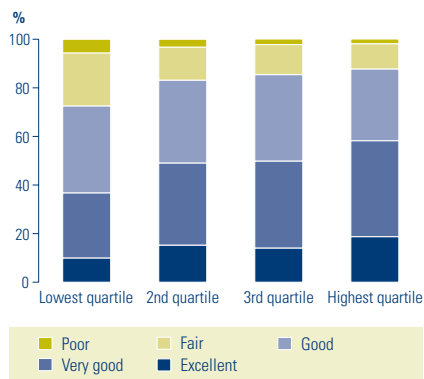
Figure 4: Network Quartiles, by Country of Birth

Overseas born   Australian born

Table 2: Network Scores

	Network Score							
	Highest Quartile		2nd Quartile		3rd Quartile		Lowest Quartile	
	%	SE	%	SE	%	SE	%	SE
Household income per year								
Less than $20,000	17.5	0.011	21.0	0.012	22.7	0.014	29.9	0.016
$20,000 to less than $60,000	43.9	0.015	43.7	0.016	42.4	0.017	44.0	0.018
$60,000 or more	38.5	0.015	35.3	0.016	34.9	0.017	26.1	0.017
Labour force status								
Employed	62.5	0.014	58.5	0.015	58.8	0.016	50.5	0.016
Unemployed	1.7	0.004	2.8	0.005	3.5	0.007	5.5	0.008
Not in the labour force	35.7	0.014	38.7	0.015	37.6	0.016	44.0	0.016
Country of birth								
Australia	80.9	0.013	76.6	0.013	71.9	0.015	64.3	0.016
Overseas	19.1	0.013	23.4	0.013	28.1	0.015	35.7	0.016
Self-rated health								
Excellent	18.7	0.012	14.0	0.010	15.2	0.012	9.9	0.010
Very good	39.5	0.014	35.8	0.014	33.8	0.015	26.8	0.014
Good	29.5	0.014	35.6	0.015	34.1	0.016	35.8	0.016
Fair	10.4	0.009	12.4	0.010	13.6	0.011	21.8	0.013
Poor	2.0	0.004	2.3	0.004	3.3	0.006	5.7	0.007
Level of psychological distress								
None	68.6	0.015	76.0	0.014	82.7	0.011	87.1	0.010
Mild	15.4	0.012	14.2	0.012	9.5	0.009	8.0	0.007
Moderate	7.8	0.008	6.4	0.009	5.0	0.007	3.2	0.005
Severe	8.2	0.009	3.3	0.006	2.7	0.005	1.7	0.004
Enjoyment of living among people of different lifestyles								
No, not at all	1.7	0.003	3.8	0.005	5.4	0.007	11.4	0.010
Not often	1.9	0.004	2.2	0.003	2.1	0.004	5.6	0.007
Sometimes	16.5	0.011	19.8	0.012	25.0	0.014	26.7	0.014
Yes, definitely	79.9	0.012	74.2	0.013	67.6	0.015	56.4	0.016
Belief that multiculturalism makes life in area better								
No, not at all	5.2	0.005	8.3	0.008	6.6	0.007	14.4	0.011
Not often	4.5	0.006	5.1	0.007	6.0	0.008	6.9	0.009
Sometimes	26.6	0.013	27.2	0.013	31.6	0.015	29.7	0.015
Yes, definitely	63.7	0.014	59.4	0.015	55.8	0.016	49.1	0.016
Feeling safe walking down the street after dark								
No, not at all	12.9	0.010	18.4	0.011	23.5	0.014	30.8	0.015
Not often	4.6	0.005	5.6	0.007	5.7	0.007	7.5	0.009
Sometimes	17.2	0.011	16.9	0.012	18.0	0.013	17.7	0.013
Yes, definitely	65.2	0.014	59.0	0.015	52.7	0.016	43.9	0.016
Feeling valued by society								
No, not at all	3.0	0.005	7.3	0.008	14.2	0.011	25.3	0.014
Not often	3.4	0.006	7.4	0.008	10.2	0.010	14.8	0.012
Sometimes	33.5	0.014	37.7	0.014	41.1	0.016	33.9	0.015
Yes, definitely	60.1	0.015	47.6	0.015	34.5	0.015	26.0	0.014

SE = standard error.

Figure 5: Networks Quartiles, by Self-rated Health Status

Legend: Poor, Fair, Good, Very good, Excellent

Figure 6: Network Quartiles, by Level of Psychological Distress

Legend: Severe, Moderate, Mild, None

Networks and Health Status

Network scores were associated with health gradients, as measured by self-reported health (Figure 5) and the K10 measure of psychological distress (Figure 6). Those respondents with fewer networks were more likely to report their health as *fair* or *poor,* while those with higher network scores were more likely to report their health as *good* to *excellent* (Figure 5). Similarly, those with fewer networks were more likely to be categorised as experiencing some level of psychological distress, while those with higher network scores were more likely to be categorised as having no psychological distress (Figure 6).
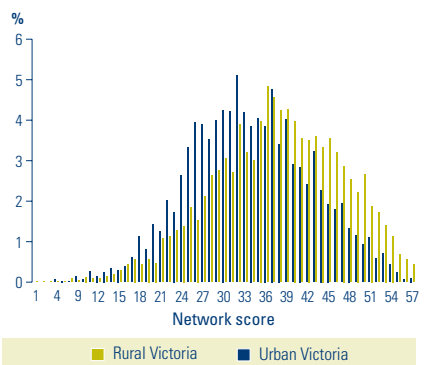
Networks and Rural/Metropolitan Areas

Rural residents had higher network scores than those of urban residents (Figure 7). The mean network score was 33.9 in metropolitan areas (95 per cent confidence interval of 33.5–34.2) and 37.6 for rural areas (95 per cent confidence interval of 37.3–37.9). While this difference in mean scores is statistically significant, it is unclear how this difference may be qualified in a practical sense.

Networks and Attitudes to the Places where People Live

Those respondents with lower network scores were less tolerant of diversity in the places where they live. They were more likely to report that they did not enjoy living among people of different lifestyles (Table 1) and that multiculturalism did not make life in their area better (Figure 8).

Networks and Attitudes to Safety

Those respondents with lower network scores were more likely to report that they did not feel safe walking down the street after dark (Figure 9).

Networks and Feelings of Social Inclusion

Those respondents with lower network scores were more likely to report that they did not feel valued by society (Figure 10).

Figure 7: Distribution of Network Scores in Urban and Rural Victoria

Legend: Rural Victoria, Urban Victoria

Figure 8: Network Quartiles, by Belief that Multiculturalism Makes Life Better

Legend: No, not at all; Not often; Sometimes; Yes, definitely
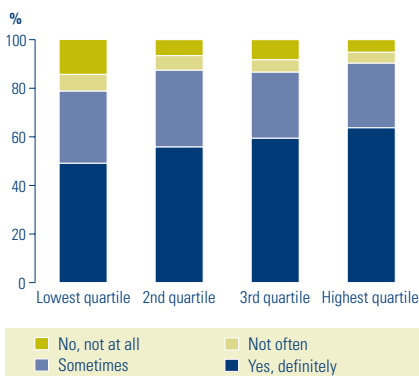
Figure 9: Network Quartiles, by Sense of Feeling Safe Walking down the Street after Dark

Legend: No, not at all; Not often; Sometimes; Yes, definitely
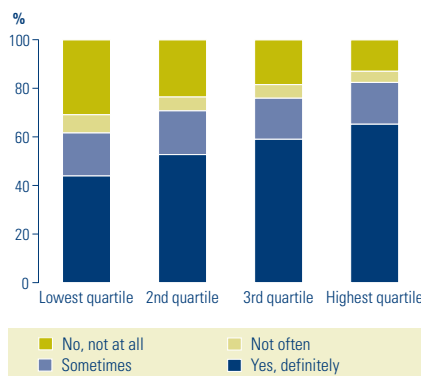
Discussion

Social networks in the Victorian Population Health Survey 2001 were defined as contact with family, friends, neighbours, local organisations, clubs and community projects. Social networks relate to health because they are potential sources of social support (psychological wellbeing), material resources and advantages (social capital), and social influence (health behaviours).

The survey results showed that lower social network scores were associated with:
• Having lower socioeconomic status.
• Being born overseas.
• Living in urban areas.
• Self-reporting worse health status (both physical and psychological) .
• Having more negative attitudes about the area in which the person lives.
• Feeling less safe walking in the streets after dark.
• Feeling less valued by society.

These findings support Berkman and Glass's model (adapted in Figure 1), which suggests a relationship between socioeconomic factors, networks and health.[3] Socioeconomic factors may affect the extent and nature of networks, which in turn affect opportunities to increase material and psychological wellbeing and therefore health. Further modelling will be required to determine the importance of networks in the relationship between socioeconomic status and health, and to elucidate the pathways that may be operating (social capital, social support, social influence and so on).

Several limitations have become apparent in the process of examining these data, leading to improvements in the questions for the 2002 survey. The first limitation was that the 2001 survey largely measured potential sources of social capital (the networks) but did not adequately examine the benefits that those networks bestow on individuals (the outcomes). Some communities may be highly bound or networked (for example, Indigenous communities have strong kinship ties), but their networks may have a limited capacity to improve an individual's standard of living or life chances. Questions measuring network capacities have been developed for the 2002 survey. These will help to differentiate the types of network that may be important in social capital and therefore in community-building initiatives.

Further consideration also needs to be given to the process of network scoring, particularly to determine what network scores equate to in the real world. The development of meaningful indicators of social structure from social surveys will also need to be given more thought, particularly in ascertaining how attitudinal outcomes relate to real social structures. It will be necessary to draw on this type of research in other fields (such as the fear of crime as researched in criminology and sociology) to understand the results from these questions.

Figure 10: Network Quartiles, by Sense of Feeling Valued by Society

Legend:
No, not at all
Sometimes
Not often
Yes, definitely
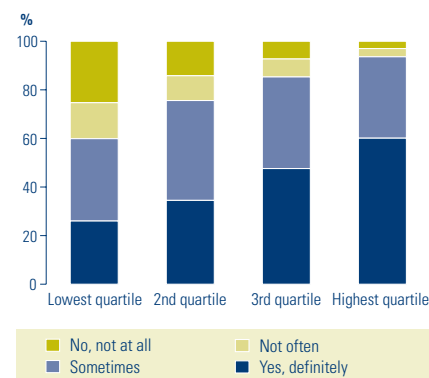
The purpose of population health surveillance is to provide time series information on health status and the determinants of population health to those who plan or implement prevention and control measures.[11] The critical role of surveillance output is that it provides information for action. This role requires clear and well-defined concepts that have been carefully explored for technical validity and reliability, as well as from a practical perspective. Social capital concepts are in their infancy; the theory and measurement of social capital are not advanced enough for current population surveillance systems to generate simple, clear indicators.

This description of our experiences with the collection of population-based data on social networks is intended to stimulate discussion about the design of social capital questions in health surveys and about the utility of information generated from those questions. The aim is an improved understanding of the determinants of inequalities in health, so they may become the focus of targeted public health interventions.

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Jeanette Pope AssocDipAppSci (OHS) BHlthSci (Hons) is a Public Health Trainee at the Department of Human Services. Adrian Serraglio BSc is a Senior Project Officer with the Victorian Population Health Surveys, Health Surveillance and Evaluation Section, Department of Human Services. Loretta Vaughan BAppSc MPH is Manager of the Victorian Population Health Surveys.

Contact: Loretta Vaughan
Tel. 03 9637 4286, Fax 03 9637 4763
Email loretta.vaughan@dhs.vic.gov.au

Attachment II

Capitals and Indicators—Signposts to the Future
David Adams

Introduction

While the words are a little dense and still need translating, the idea of *interdependent capitals* was one of the more important international policy developments over the past decade. This view of policy claims that the key drivers of societal prosperity and wellbeing (the types of outcome that people seek in life and therefore that interest governments) are increasingly linked to how the four capitals interact. The four capitals are:

- Economic capital (about how wealth is created).
- Human capital (about how learning and skills are acquired through life).
- Social capital (about the quality of our relations with others).
- Natural capital (about the sustainability of our environment).

The challenge for all governments is to simultaneously promote all four capitals and leverage the links between them. While the days of acting on the supremacy of economic policy and compensating the losers (externalities) are over, the new policy mix is still emerging and being expressed in ideas such as public–private partnerships, the triple bottom line, corporate citizenship, sustainability and community building. This is the modern policy turf of both governments and business.

Making sense of these interdependencies is going to take some time. The causal chains are not obvious and often missing, but there are correlations and associations that can no longer be ignored. We are still relying on new research to help us understand the nature of relationships among the capitals. Some relationships are known—for example, the link between investments in education and the productivity of nations. Similarly, the links between creativity in the arts and innovation in industry have helped spawn many new industry clusters. The basics of life are usually linked to all four capitals. Good water quality, for example, is good for industry, good for the environment and good for people.

But there are many other relationships to be sorted. These include the basic risks of viewing social capital through a normative lens when much of the power of social capital historically has been mobilised for the purposes of exclusion and oppression. Social capital has grabbed most attention recently, with the Organisation for Economic Cooperation and Development (OECD) probably still out in front with thinking about the interdependence issue. Putman, of the well-known 'Bowling alone' story,[1] was quite impressed with the Victorian Population Health Survey design. He noted that few other governments are seriously dealing with the social capital issues in the manner of Victoria (personal communication, Professor Putnam, Kennedy School of Government, October 2001).

Victoria is grappling with the issues because there is increasing evidence that governments can improve prosperity and wellbeing outcomes by better leveraging social capital; similarly, governments can make a mess of social capital if they do not understand how fragile it can be. But we still do not properly understand the new discourse: a discourse about trust, identity, belonging, reciprocity and mutuality. From the language of markets we have moved to the language of communities and families. Yet many of the cultures, structures and processes are still embedded in the culture of markets and hierarchies.

Three major indicator developments have accelerated the importance of social capital thinking. First, we are observing a steady flow of social capital data. We can now measure social capital; more accurately, we can measure the sites where social capital is created and expressed (such as the many forms of networks) and the effects of social capital (for example, levels of trust). The evidence base is building, helping us understand the nature and forms of social capital, and the conditions under which particular forms seem to grow and change.

Second, the availability of international benchmarks has generated interest in understanding why social capital may vary so much between nations and regions, and whether and how such variations can be explained. Nations in general and governments in particular have a tendency to want to perform better than competitors, including in generating levels of trust in public institutions, for example.

Third, the interdependence of the four capitals has led to a rush to develop composite measures of wellbeing. These compete with the more traditional economic measures such as gross domestic product. In Australia, we have the work of the Australia Institute (the Genuine Progress Indicator) and the Australian Bureau of Statistics *(Measuring Australia's Progress),* for example. Composite measures ostensibly are better indicators of overall progress and may provide a simpler method of measuring the pulse of a nation or a State (although State-level composite indicators are relatively underdeveloped).

Governments are also searching for new planning tools to guide a more balanced approach to thinking about the future. In Victoria, the themes of caring, innovation and sustainability are germane to the Growing Victoria Together strategy, with lifelong learning shaping society's future wellbeing. We have the four capitals—caring (social capital), innovation (economic capital), sustainability (natural capital) and lifelong learning (human capital)—as the focus of our thinking about the future. The Growing Victoria Together strategy's 32 measures of progress try to capture the essence of the four capitals and their interdependencies. Many are social capital measures—for example, the number of people to whom Victorians can turn in a crisis.

In Victoria, the community building pilots are examples of how the Government is tentatively heading towards a possible new paradigm of balancing the capitals, much as the Australian Assistance Plan (AAP) was a 'new' paradigm in the 1970s. The AAP turned out to be a candle in the wind, but now we have social capital knowledge that we did not have then. We know, for example, that community building is not primarily about social policy; it is about *all* policy and it is about the ways in which local communities can choose to shape the drivers of their futures.

Governments are most interested in questions such as the following: what does the 'new' knowledge about social capital tell us about the drivers of wellbeing? To what extent are these drivers amenable to influence from the levers of government (for example, regulatory and fiscal levers)? What are costs and benefits of resetting the levers?

Much of the social capital research misses these crucial questions. The literature either operates at the level of broad social commentary or at the micro research end of the scale. The community building projects and research such as the Victorian Population Health Survey are thus important, because they examine those areas of social capital that are linked to the responsibilities and influencing capacities of a State Government. They build the evidence base.

Social capital issues are all around us but often we do not identify them as such. The high level of fare evasion on public transport in Victoria and the ongoing public liability insurance issue are examples of social capital policy issues. They are both about the conditions under which people choose to comply with rules and the conditions under which rules (insurance rules) can threaten sites of social capital (such as recreational activities).

The interdependence of the four capitals has profound implications for governance. The Western artefacts called 'departments' and 'programs', for example, were constructed in an era when we believed that instrumentalities were the best way in which to organise and deliver government services such as health, education and tourism.

Some other forms of organising may be more appropriate to a policy world of interdependence. Some of our best thinkers are turning their minds to this matter. Edgar has come up with the 'patchwork nation',[2] while Botsman and Latham[3] speak of the 'enabling state'. 'Place management' is another expression of this search for new organising principles that are better suited to people's life courses, given that those life courses increasingly look like perpetually twisted trajectories (in and out of work and caring, for example) rather than following linear and chronological stages.

Measuring the twists and turns of social capital and the links with health status, for example, will help generate the new knowledge base for better ways of organising and delivering services. Indicators of social capital may turn out to be as important to public policy in the next decade as measures of productivity were in the past 20 years. Many of us await the day when our evening news shows the human, social and natural capital indexes of our nation, not just the share market indexes.

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Dr David Adams BA(Hons) BSW MA MPubPol PhD is Director of Policy Development and Research in the Department of the Premier and Cabinet (Victoria) and Visiting Fellow at the National Centre for Development Studies, Australian National University.

Contact: Tel. 03 9651 5264, Fax 03 9651 5115, Email david.adams@dpc.gov.au