THE UNIVERSITY OF MELBOURNE

Department of Rural Health

Seymour
Crossroads II
A repeated population health study 2016-2018

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EXECUTIVE SUMMARY

The Crossroads II study is a population health study that repeats the original Crossroads I study undertaken in 2001-2003. Like the previous study, Crossroads II aimed to identify the health of residents of Seymour as well as their service use, access to services and rates of undiagnosed disease. Crossroads II was undertaken in partnership with nine local health services and local governments, namely Seymour Health, Goulburn Valley Health, Primary Care Connect, Benalla Health, Cobram District Health, Goulburn Valley Primary Care Partnerships, Shepparton Access, Greater Shepparton City Council, Moira Shire as well as Alfred Health and the Department of Rural Health, The University of Melbourne, based in Shepparton.

The study included a survey of 431 adults from 299 households (299 households participated from 500 randomly selected, eligible houses for a response rate of 60%).

55% of the households had been visited in the earlier study and an additional 45% were from new neighbourhoods. All adults in the selected households were invited to complete a questionnaire and adults were asked questions about all residents under 16 years of age. At the household, one adult was randomly selected and invited to attend a free 2-hour health screening clinic where a series of health assessments were conducted, including the Oral Glucose Tolerance Test, cholesterol test, blood pressure, liver disease, height, weight, atrial fibrillation screening, hearing impairment, cognitive function, lung function and dental health. 125 participants attended the clinic. Together these results provide an overview of health, access to and use of services and rates of undiagnosed disease with comparison to the same results 15 years earlier.

Some of the key findings include the following.

Health and happiness of older people:

Respondents aged 65 and over comprised 23% of the participants in this study. 39% of people aged 65+ rated their health as very good or excellent, similar to the state average for all adults (42%). Further, 80% rated their level of happiness as somewhat happy, happy or very happy.

Chronic disease:

Chronic health conditions were reported to have increased in the time between Crossroads I and II. The rates of many screening tests and health checks were also identified to have increased.

Mental health:

Depression was reported to have been experienced (either current or past diagnosis) by 29% of participants. 9% of participants said they had accessed a psychologist in the past 12 months, 63% in Seymour either face to face or via telehealth. Participants raised a number of concerns regarding mental health care, including a need for greater numbers of local mental health professionals and increased access to local counselling to complement medication use. The K10 screening test suggested that 19% of clinic participants were at risk of psychological distress.

GP services:

94% of participants stated they had visited a GP in the past 12 months. Half of the participants reported being able to see a GP on the same or next day. Participants raised a number of concerns regarding GP services, including high turnover of local GPs, language barriers and delays in diagnosis or treatment.

Location of health services utilised by residents of Seymour:

Utilisation of health services was described as increasing in the time between Crossroads I and II. Participants reported utilising GP services predominantly in Seymour (91%). Respondents said they had also utilised hospitals, mostly in Melbourne (75%) as well as Seymour (24%) and Shepparton (5%) and sometimes more than one location. Similarly, participants identified visiting medical specialists in Melbourne (64%), Seymour (19%) and Shepparton (14%).

The increased prevalence of many chronic health conditions, including both mental and physical conditions, is not unique to Seymour, but has occurred at a national level. Utilisation of health services has increased since Crossroads I, but there may still be unmet demand for local services that meet the needs of patients. A range of local services are working to improve the health of the community to prevent and optimally manage chronic physical and mental health conditions.

Given these findings, this study proposes three recommendations:

1. Promote healthy living and quality of life:

The increase in chronic health conditions that impact on quality of life, particularly for older people, calls for a whole-of-community approach to promotion of healthy lifestyles, including healthy diet, adequate physical exercise, reduction in smoking rates and addressing harmful alcohol behaviour. Indeed, this report outlines that there is a need to address excess alcohol consumption, overweight and obesity. Expanding and integrating current strategies to promote healthy living would provide a holistic, place-based approach.

2. Increase access to GPs and local mental health services:

Results suggest that there may be challenges facing GP service provision in Seymour due to high staff turnover. These challenges may impact the health outcomes of patients but also have flow on effects for other local healthcare providers. Poor mental health is of concern and there may be demand for more mental health professionals in the region. These issues each have workforce implications that need to be considered in order to deliver the 'right care, in the right place, at the right time' [(1)].

3. Address factors limiting local residents' ability to manage their health well.

Known as the social determinants of health, addressing key issues in people's lives enables healthier living and improved access to health care for those who need it. This includes income, employment, education, housing, transport, social connection and social inclusion. Addressing these issues for residents with disability, chronic pain, mental ill-health and/or who are socially isolated as well as for residents who are marginalised due to low income, low English proficiency and other cultural barriers is important for overall health, wellbeing and inclusion. Like recommendation one, a whole of-community approach is required that will (i) integrate current initiatives, (ii) develop improved environments for access, inclusion and participation, and (iii) engage new sectors of the community so that Seymour can improve the quality of life and conditions of daily living for all local residents.

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The researchers and all involved with this project would like to sincerely thank all the participants who generously gave their time and shared their stories. Many invited us into their homes, shared personal details and came to our clinic for several hours after fasting the previous night. We are indebted to you all and thank you for your participation. We sincerely thank the staff members at Seymour District Memorial Hospital, including the Dialysis Unit staff for their support of the project.

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STUDY BACKGROUND

ABOUT SEYMOUR

"The New Crossing Place" across the Goulburn River was established in 1839 and became the township of Seymour in 1843. Seymour has a rich Aboriginal history and is the traditional land of the Taungurung (Daung wurrung) people. Located just over 100km north of Melbourne and 80km south of Shepparton, Seymour was on the main overland mail route between Melbourne and Sydney. Its more recent history has involved the railways and military activity. Due to a post war housing shortage, 46% of the houses in Seymour shire were built by the Housing Commission [2]. Today, Seymour is home to 6300 residents. The surrounding Mitchell Shire is one of the fastest growing municipalities in Victoria and is increasingly integrated with metropolitan Melbourne [3]. Mitchell Shire has a high proportion of commuter workforce.

Seymour Health

The Seymour Soldier's Memorial Hospital opened in 1920 to treat ex-servicemen from World War I. In 1951 it became a public hospital and the newly built Seymour District Hospital was officially opened in 1959. The reference to 'Memorial' was added to the hospital's name in 1965. Today, Seymour Health encompasses Seymour District Memorial Hospital, Barrabill House Residential Aged Care, the Ambulatory Care Centre, Community Services and Goranwarrabul House, a service dedicated to improving the health and well-being of Aboriginal and Torres Strait Islander residents.

One of the questions of interest to Seymour Health at the commencement of the project was whether people were accessing health services locally, in Shepparton to the north or in Melbourne to the south. There were also questions raised about mental health and wellbeing among local residents, given the above state average rate of registered mental health clients [4] and the impact of ageing on health and use of health services.

THE CROSSROADS II STUDY

While it is well known that rural residents have less access to health services, lower rates of health service utilisation and poorer health outcomes, there is little accurate health data about specific rural places and populations [5]. This study was undertaken to assess the health of the residents of Seymour as well as their service use, access to services and rates of undiagnosed disease. This project was undertaken in partnership with local services in order to provide them with improved understanding of the health of the local population, the health needs of residents of Seymour and assist in planning for health services in the coming years.

Named Crossroads II, this study was undertaken in 2016 – 2018 and is a follow up from a baseline study conducted 2000-2003. The original study (Crossroads I) investigated residents of Shepparton and Mooroopna along with the 6 shire capitals of the region. Crossroads II revisited the towns of Seymour, Shepparton and Mooroopna, Cobram and Benalla to determine service use, access to services, health and wellbeing to provide information about health service needs and future planning for the communities [6].

HOW WAS THE STUDY UNDERTAKEN?

A total of 600 households were randomly selected in the Seymour township from a council list which included 55% households that were eligible for participation in the original study plus 45% of households that had been built since 2001. Of the 600 selected households, 500 were residential addresses eligible to participate. Ineligible addresses included those that had become non-residential (e.g., a business), were vacant or occupied by residents who had lived in Seymour for less than six months. Trained research assistants approached each household in pairs and invited all adults to participate in the study. Where residents were not home or the time was inconvenient, multiple follow up visits were made to contact all adults in the household. Adults were asked to complete an additional questionnaire for each child under the age of 16 years residing with them. Interviewers asked a set of questions about health conditions, service use, concerns about health care in addition to wellbeing, social participation and demographic questions. Using this method, 299 of the 500 eligible households participated in the questionnaire for a response rate of 60%. In these 299 households, 431 adults completed a questionnaire and a further 51 families completed children's questionnaires for 103 children.

For those households completing the questionnaire, a randomly selected person (using a random number generator at the household) was also invited to a health screening clinic. People under the age of 18 or pregnant women were ineligible to participate. The clinics were held at the dialysis unit at Seymour District Memorial Hospital. The clinics were timed around the Oral Glucose Tolerance Test, in which a fasting blood-test is taken, 75g of glucose is consumed and a second blood test is taken two hours later. A series of health assessments were conducted within the 2 hour period, including tests for cholesterol, blood pressure, liver disease, height, weight, atrial fibrillation screening, hearing impairment, cognitive function, lung function and dental health. At the conclusion of the clinic, participants were offered breakfast. A total of 202 participants were invited to the clinic and 125 attended and completed the clinic, resulting in a response rate of 62%. Both the household questionnaire and the clinic measures were based on the original study which was conducted in 2001-2003. Data were collected between May and October, 2018.

Data were recorded into a large dataset and then cleaned and coded. Analysis of each question has been undertaken and an overview of findings is presented in this report. Results were also compared to the earlier study and state or national averages where possible.

BENEFITS OF THE STUDY TO PARTICIPANTS

During the collection of data via the household questionnaire and screening clinic, some participants talked about the benefits of being part of the study. Clinic participants expressed to researchers that the study had enabled them to access screening tests that they would have been otherwise unable to access, avoid duplication of tests, check up on a health condition that had been diagnosed some time previously, check up on a health condition that was common among their family members, check up on their pre-diabetes or have a dental check-up that they had been avoiding for some time. Participants regularly reconnected with friends and acquaintances that they had lost touch with at these clinics. Some participants commented that the attributes of the Research Assistants were an invaluable asset to the study, stating that they would have liked them to work in their local businesses! On occasion during the household survey, researchers assisted participants with trouble shooting electronic devices or completion of paperwork. At other times the research assistants connected participants with services if they expressed a certain need, such as social isolation, mental health concerns or lack of transport.

RESULTS

RESULTS – DEMOGRAPHICS

A total of 431 people over the age of 16 completed the household survey from 299 of the 500 households approached, representing a 60% response rate. The characteristics of the participants are summarised in Table 1. Of these participants, 43% indicated they were male, lower than the percentage in the Crossroads I study and the state average. Respondents reported that they primarily spoke English as their first language. Respondents said they had lived in Seymour for an average of 25 years. A greater percentage of participants indicated being retired compared with Crossroads I. The percentage of people reporting working either full-time or part-time was lower than the Victorian average. The Crossroads II participants were found to be older than the Crossroads I participants, and identified higher levels of educational attainment than the earlier study.

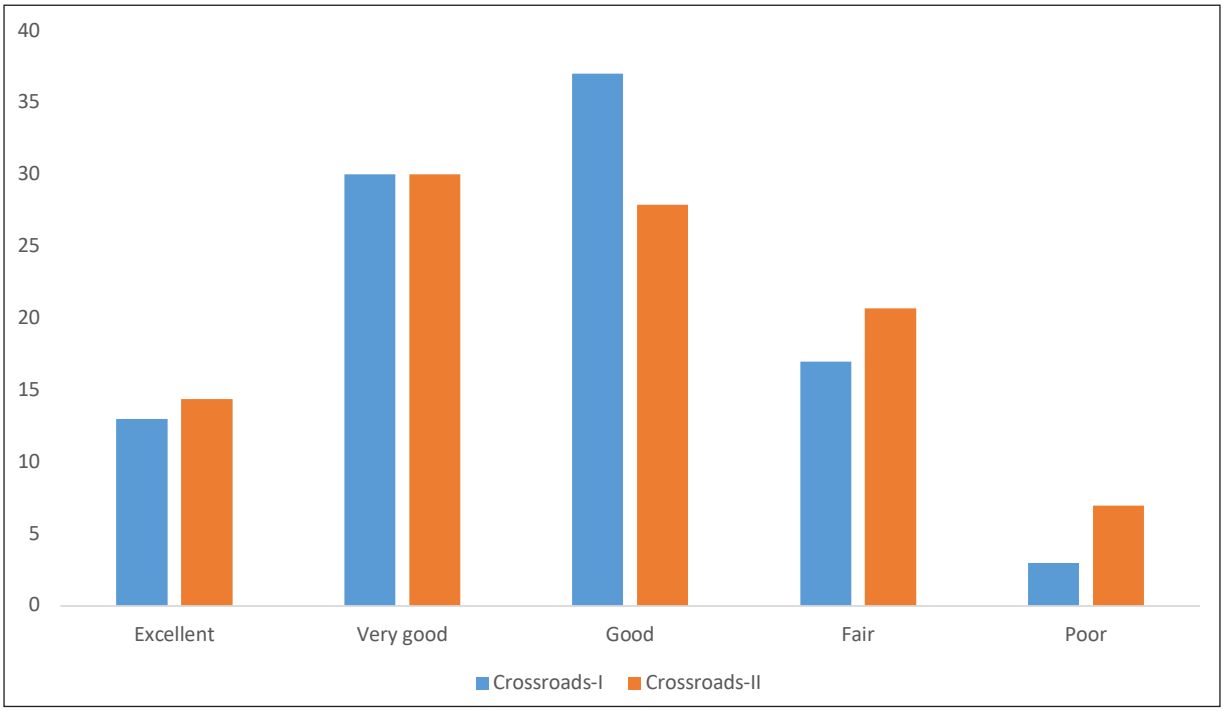
Table 1: Seymour participant demographics

Characteristics	Crossroads II	Crossroads I	Australian or Victorian comparison
Number of respondents	431	540	
Males	43%	43%	49% [7]
Females	56%	57%	
Transgender/intersex/ other	0.5%		
Age (mean ± standard deviation, range)	53.4 ± 19.1 (range 16-95)	43.0 ± 16.5 (range 16-89)	37 [7]
Born in Australia(%)	88%	91%	67% [8]
Employment			
Full-time (%)	24%	33%	58% [9]
Part-time (%)	17%	17%	34% [9]
Retired (%)	27%	20%	Not available
Not working but not retired (%)	23%	7%	Not available
Highest level of education			
Partial secondary(%)	44%	58%	24% [10]
Completed secondary (%)	14%	42%	19% [10]
TAFE/trade (%)	22%		18% [10]
University/part University (%)	19%	8%	37% [10]
Private health insurance (%)	36%	37%	57% [10]
Married or de facto (%)	53%	60%	61% [11]

RESULTS – HEALTH AND WELLBEING

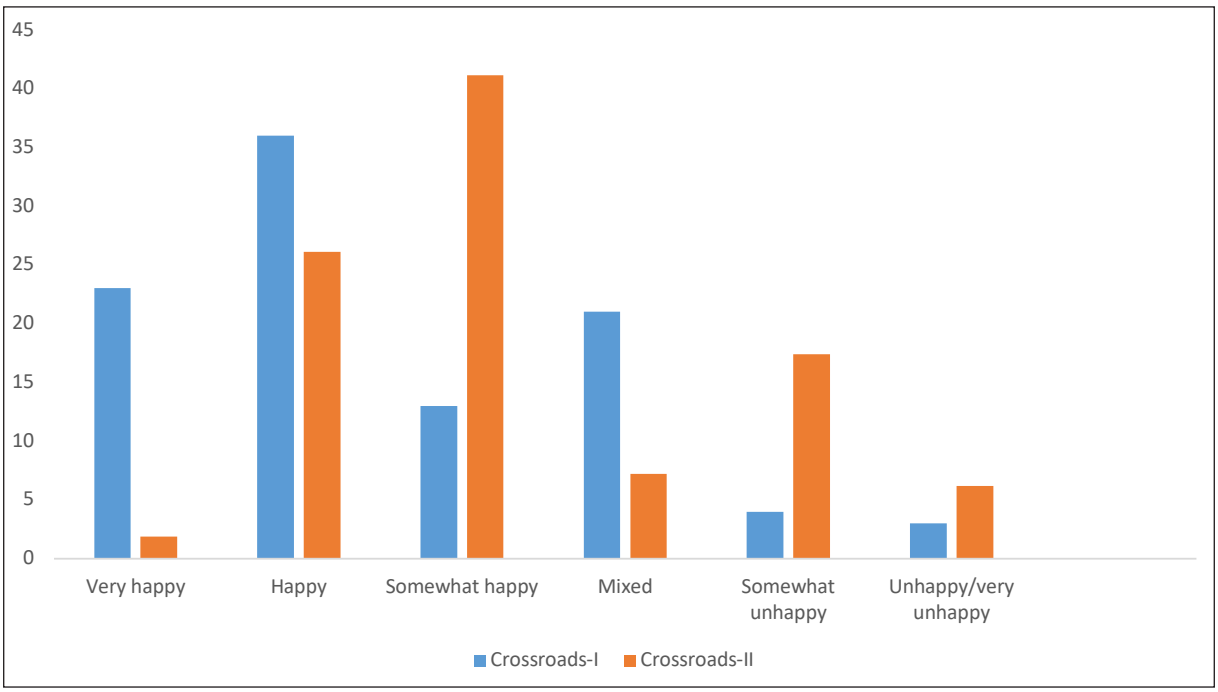
In Crossroads II, 44% of participants rated their health as very good or excellent, as presented in Figure 1. This percentage is similar to the Crossroads I study (43%) but below the Victorian average (56% [12]). There was an increase in the percentage rating their health as fair or poor compared to Crossroads I.

Figure 1: Health status (self-reported, %)



The percentage of participants reporting that they were very happy, happy or somewhat happy was 69% compared to 72% in Crossroads I (see Figure 2). Despite this, there was an increase the proportion of respondents who said they were unhappy and somewhat happy with a decline in those indicating they were very happy.

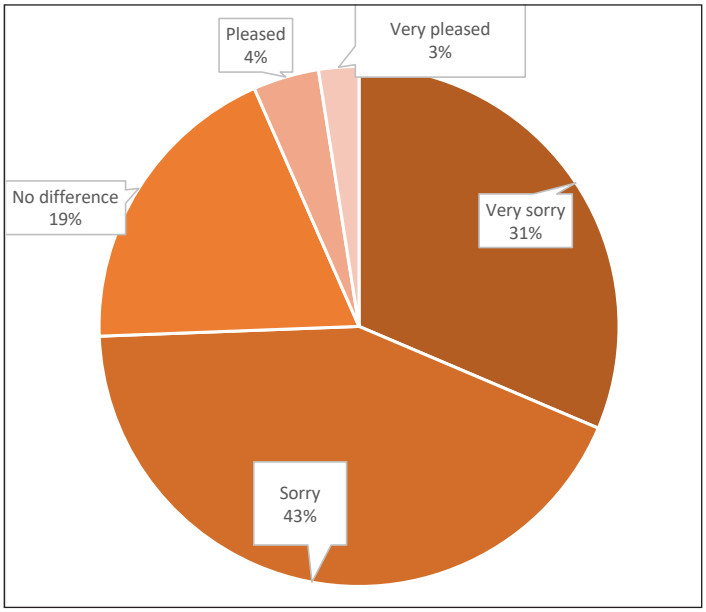
Figure 2. Self-reported Happiness (%)



RESULTS – CONNECTION TO SEYMOUR

Participants were asked how sorry they would be to leave Seymour (Figure 3). 74% indicated they would be very sorry or sorry to leave, which is similar to Crossroads I where 70% said they would be very sorry or sorry to leave.

Figure 3. Would you be sorry to leave Seymour? (%)



In other questions, 48% of participants in Seymour indicated they belonged to clubs, sporting groups or other local organisations (compared to 54% in Crossroads I). Just over half, 54% of these people, identified having formal, voluntary roles within these clubs and groups. When asked how much time respondents spent volunteering for these clubs, the proportion spending more than 10 hours had increased:

- 63% said they spent more than 10 hours per month (30% in Crossroads I)
- 17% indicated spending 5-10 hours per month (17% in Crossroads I)
- 20% responded 1-4 hours per month (12% in Crossroads I)

RESULTS – PREVENTATIVE HEALTH

The percentage of participants reporting that they had undergone screening tests in the past two years increased between Crossroads I and Crossroads II, with the exception of mammograms and pap tests, as presented in Table 2. Immunisations were also reported to have generally increased.

Table 2: Preventative health measures

Check	Crossroads II	Crossroads I	National comparison
Health Check in past 2 years			
Blood pressure check	90%	86%	
Cholesterol check	68%	49%	
Diabetes check	62%	54%	
Bowel examination	43%	15%	37% [13]
Skin check	40%	30%	
Mammograms (female over 50 only)	63%	71%	70% [14]
Pap test (female only)	38%	60%	60% [14]
Prostate check (males over 50 only)	70%	58%	
Immunisation (childhood illnesses)	91%	82%	53-75% [15]
Influenza vaccination in the past year	56%	34%	Adults <65 years 23%, ≥65 years 75% [16]
Pneumovax in past 5 years	19%	12%	Adults <65 years 8%, ≥65 years 59% [16]
Tetanus booster in past 10 years	58%	65%	

RESULTS – CHRONIC HEALTH CONDITIONS

The percentage of participants reporting chronic health conditions increased from Crossroads I to Crossroads II, and many conditions were identified as more prevalent in Seymour than the state average. One quarter of participants reported living with chronic pain. Almost one quarter of participants indicated having a disability, predominantly physical in nature.

Table 3: Major health conditions (self-reported, diagnosed in the past or current, %)

	Crossroads II	Crossroads I	Victorian comparison
Heart condition	17%	10%	7% heart disease[13]
Circulatory problems	14%	6%	-
Asthma	20%	17%	11% [13]
Respiratory condition	20%	8%	-
Digestive issue	20%	12%	-
Kidney disease	6%	5%	-
Liver disease	3%	2%	-
Cancer	16%	11%	5% (13)
Diabetes	14%	6%	5%[13]
High blood pressure	34%	23%	25% [13]
Arthritis	37%	21%	20% [13]
Chronic pain	25%	Not available	-
Stroke	4%	2%	-
Chronic obstructive pulmonary disease	4%	1%	-

RESULTS – DISABILITY

24% of those surveyed reported as having a disability requiring assistance.

Of these the major types of disability reported were:

- Chronic pain - 11%
- Physical (legs or feet) - 11%
- Physical (arms, hands) - 6%
- Physical (other than legs/arms) - 8%

RESULTS – MENTAL HEALTH

Mental health was a key issue raised by partner organisations. Depression was reported to have been or being experienced by 29% of participants, identifying an increase from Crossroads I. It has been estimated that 10% of Australians are currently experiencing depression [17]. In Crossroads II, 9% of participants stated they had seen a psychologist in the past 12 months, primarily in Seymour, either face to face (including visiting psychologists) or via telehealth. Further, 33% of participants with depression said they had seen a psychologist, psychiatrist or other mental health professional in the past 12 months. Among the participants who reported using a psychologist or psychiatrist, satisfaction was high, and had increased since Crossroads I.

Table 4: Mental health issues and treatment

	Crossroads II	Crossroads I
Depression (self-reported, ever) (%)	29%	13%
Medication for anxiety, depression or nervous tension %	37%	8%
Psychology		
Psychologist (seen in past 12 months) (%)	9%	4% *
Psychologist (seen in past 12 months by people with depression) (%)	25%	20% *
Psychologist (waiting time) %	58% waited ≤7 days	79% waited ≤7 days *
Psychologist location %	63% Seymour (including telehealth)	68% Seymour *
Psychologist (satisfied or very satisfied) %	82%	63% *
Psychiatry		
Psychiatrist (seen in past 12 months) (%)	5%	4% *
Psychiatrist (seen in past 12 months by people with depression) (%)	15%	20% *
Psychiatrist (waiting time) %	53% waited ≤7 days	79% waited ≤7 days *
Psychiatrist location %	50% Seymour (including telehealth)	68% Seymour *
Psychiatrist (satisfied or very satisfied) %	55%	63% *
Other mental health professional		
Other mental health professional (seen in past 12 months) (%)	4%	1%
Other mental health professional (seen in past 12 months by people with depression) %	80%	7%
Other mental health professional (waiting time)%	80% waited ≤7 days	100% waited ≤7 days
Other mental health professional location	79% Seymour (including telehealth)	100% Seymour
Other mental health professional (satisfied or very satisfied)	86%	100%

*psychologist and psychiatrist combined

PARTICIPANTS WERE ALSO ASKED ABOUT THEIR CONCERNS WITH HEALTH SERVICES IN GENERAL, AND THE FOLLOWING RESPONSES ARE EXAMPLES OF SPECIFIC MENTAL HEALTH ISSUES RAISED BY PARTICIPANTS IN SEYMOUR:

- A need for increased numbers of mental health professionals to keep up with increasing prevalence of mental health conditions
- The additional burden faced by families having to travel for mental health services
- Difficulties accessing mental health services prior to an acute episode or a suicide attempt
- Concerns about protecting the privacy of patients with mental health issues in a small town
- Concerns about medication as a first line or sole therapy

RESULTS – GENERAL PRACTICE

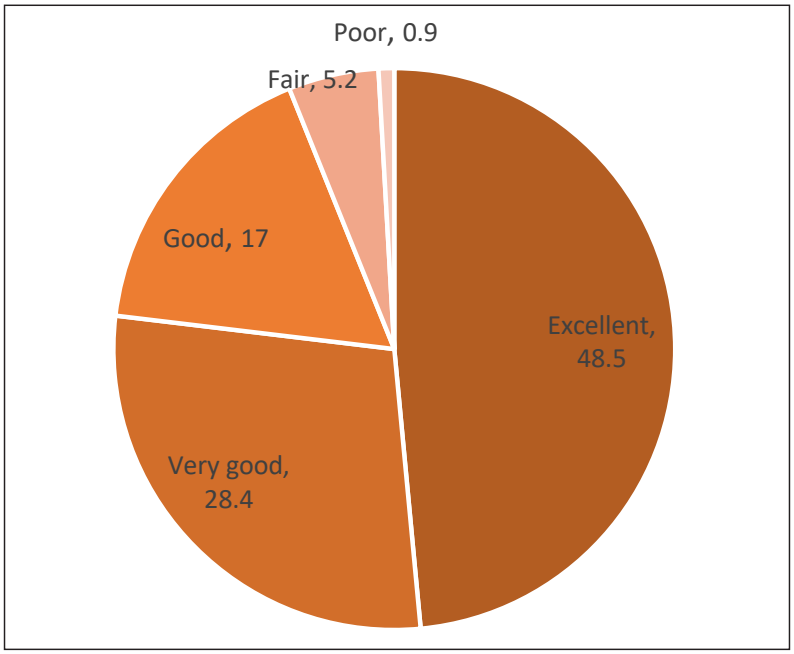
Use of General Practitioner (GP) services has increased slightly from Crossroads I to II, with 94% of participants now reporting visiting a GP in the past 12 months compared to 90% in Crossroads I. Further, the frequency of visits in the previous 12 months increased from an average 6.4 to 7.6 visits (Table 5). Most participants reported that they accessed GP services within Seymour.

Table 5: Use of General Practitioner services

	Crossroads II	Crossroads I	Victorian comparison
GP visited in previous 12 months (%)	94%	90%	83% [18]
Number of GP visits in previous 12 months mean± standard deviation	7.6 (± 9.3)	6.4 (± 8.1)	5.4 [13]
Asthma	20%	17%	11% [13]
Bulk billed on most recent visit (%)	68%	Not available	65% (all visits in past financial year) [19]
Waiting time for GP appointment			
1 day or less	52%	42%	
2-7 days	42%	43%	
>7 days	5%	12%	
Location of GP			
Seymour (%)	91%	94%	NA
Melbourne (%)	4%	2%	
Nagambie (%)	2%	0%	
Kilmore (%)	2%	1%	
Shepparton (%)	2%	0%	

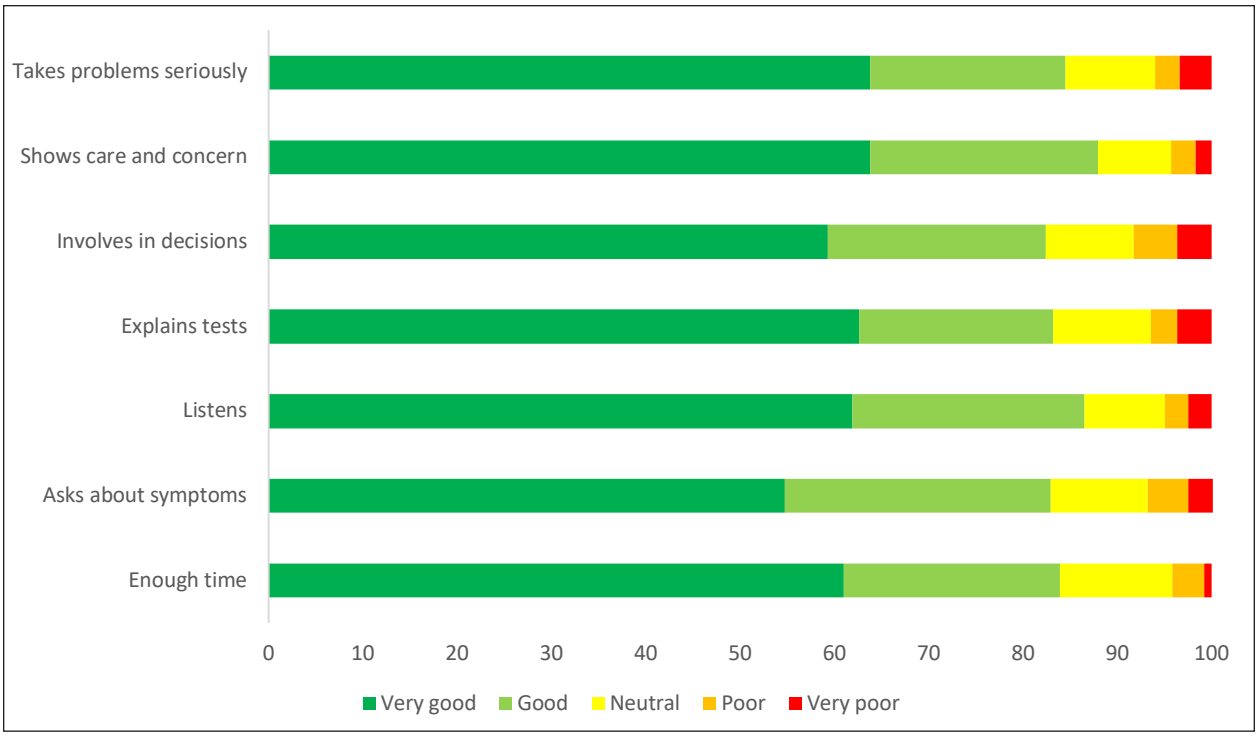
The proportion of respondents indicating they were bulk-billed was similar to the national average [19]. There was a high level of confidence in GPs (77% reporting their GP was 'excellent' or 'very good'), as presented in Figure 4. Compared with Crossroads I, satisfaction with respondents' GP has increased with 91% of participants being 'satisfied' or 'very satisfied' compared to 83% in Crossroads I.

Figure 4. Level of Confidence in GP (%)



When participants attending the clinic were asked about several aspects of GP care, they were typically positive in their responses (see Figure 5).

Figure 5: Opinion regarding aspects of GP care (%)



Of the 400 participants who responded to this question, 244 (61%) reported that they had accessed more than one GP in the past 12 months. Participants were asked why they accessed multiple GPs and the key responses are presented in Table 6.

Table 6: Reasons for utilising more than one GP

Response	Number of participants	% of participants
Availability of appointments	154	52%
GP turnover (GP left, retired, was on leave)	56	20%
Have a preferred GP that patient trusts and has confidence in	36	12%
Unsatisfied with GP due to poor communication or inexperience	13	4%
Lack of continuity or consistency	9	3%

In addition, 40 (9%) participants reported that they had accessed more than one GP clinic in the past 12 months. Participants were asked why they accessed multiple GP clinics and the most common reasons are presented in Table 7.

Table 7: Reasons for utilising more than one GP clinic

Response	Number of participants	% of participants
Availability of appointments	15	24%
Retains a preferred GP	8	13%
Access to particular service (skin checks, women's health checks, immunisations, etc.)	6	10%
Convenience or short distance	6	10%

PARTICIPANTS WERE ASKED ABOUT THEIR CONCERNS WITH HEALTH SERVICES IN GENERAL, AND THE FOLLOWING ISSUES WERE RAISED IN RELATION TO GENERAL PRACTICE:

- high turnover of GPs, making it difficult for patients to get to know their GP over an extended period of time and building trust/rapport
- high proportion of GPs with English as a second or subsequent language, at times presenting language difficulties
- delays in diagnosis
- difficulties faced by parents in being referred to specialists for their children's health concerns

RESULTS – HEALTH SERVICE UTILISATION

The percentage of participants stating they used medical specialists in the past year had increased since Crossroads I (see Table 8). Further, the location of these services were also said to have changed, with fewer participants accessing medical specialists in Seymour. The percentage who reported being hospitalised in the past 12 months was similar to Crossroads I.

Table 8: Health service utilisation

	Crossroads II	Crossroads I
Medical specialists:		
Visited in past 12 months	47%	33%
Mean visits in past 12 months ± standard deviation (range)	2.8 ± 3.5 (range 1-40)	2.8 ± 2.6 (range 1-12)
Satisfied or very satisfied	92%	91%
Location (primary specialist):		
Seymour	19%	31%
Melbourne	57% (other than Northern)	50% (all Melbourne)
Northern hospital/Epping	7%	
Shepparton	14%	5%
Hospitalisation:		
Hospitalised in past 12 months	20%	18%
Number of hospitalisations in past 12 months (mode)	1 (range 1-22)	1 (range 1-7)
Location of hospital (more than one hospital possible)		
Melbourne (other than Northern)	44%	33%
Northern hospital/Epping	31%	
Seymour	24%	50%
Shepparton	5%	0%
Concerns re medical care:		
No concerns or positive comment	80%	60%
Lack of staff including specialists, female doctors and surgeons	1%	7%
Quality or experience of doctors	1%	4%
Concerns re inpatient hospital care:		
No concerns or positive comment	67%	83%
Most frequent concern	3% Quality of care, continuity of care	4% Lack of staff
Second most frequent concern	2% Limited access to specialists	3% Quality of nursing care
Third most frequent concern	2% Lack of maternity services	

Participants were also asked how far they travelled to key health services. Most respondents reported accessing GPs, Dentists and Hospitals locally in Seymour while distances to medical specialists were described as varied (see Table 9).

Table 9: Distance travelled to key health services (%)

		<5km	5-10km	11-50km	50-100km	>100km
GP	Crossroads I	97			2	1
	Crossroads II	90	2	5	2	1
		(97% ≤ 50km)				
Dentist	Crossroads I	84			12	4
	Crossroads II	81	2	3	9	5
		(86% ≤ 50km)				
Hospital	Crossroads I	90			4	6
	Crossroads II	84	3	1	5	7
		(88% ≤ 50km)				
Specialist	Crossroads I	37			35	28
	Crossroads II	21	1	2	26	50
		(24% ≤ 50km)				

The use of allied health services and complementary and alternate therapy reported by participants has increased from Crossroads I to II (see Table 10). Utilisation of dental services had decreased since the Crossroads I study and was similar to the national average of 47% [20]. Key barriers to dental care were described as: cost, health insurance gap, time and issues regarding choice or quality of dental care. These were similar to the issues raised in Crossroads I.

Table 10: Allied health service utilisation

Have you used service in past year?	Crossroads II (%)	Crossroads I (%)
Dentist	45	74
Optometrist	43	18
Physiotherapy	20	9
Audiologist	12	4
Chiropractor	9	13
Acupuncture	8	4
Naturopathy	2	
Exercise physiologist	5	Not available
Osteopathy	5	
Social worker	3	4
Speech therapy	1	0

RESULTS – EMERGENCY PRESENTATIONS

Of the 402 Seymour participants who answered this question, 97 (24%) identified visiting an Emergency Department (ED) or Urgent Care Centre (UCC) in the previous 12 months. Of those visiting an ED/UCC 76% reported being treated in Seymour, 12% at the Northern hospital, 5% in Shepparton and 7% in Melbourne hospitals other than the Northern.

Waiting time to see a doctor at their most recent ED/UCC presentation was said to be less than one hour by 68%, 1-3 hours for 20%, 3-6 hours for 4% and the remaining 8% said they waited more than 6 hours. Of all respondents, most (59%) stated they had no concerns about the ED/UCC. Of those who had concerns about the ED/UCC, key concerns were around staffing and waiting times, and there were many positive comments, particularly about the nursing staff.

Key concerns regarding Emergency Department/Urgent Care Centre

- No concerns (59%)
- Lack of resident doctors (9%)
- Waiting times (6%)
- Poor care or concern for patients (3%)
- Lack of staff (3%)
- Urgent care cannot provide everything that an Emergency Department can (3%)

In Crossroads I, conducted 15 years earlier in Seymour, fewer, 15% of respondents, indicated they had attended an ED in the previous 12 months. Most, 2/3 of these people, used the ED in Seymour. Half said they waited less than one hour, 19% reported waiting 1-3 hours, 10% said they waited 3-6 hours and 3% indicated waiting more than 6 hours. The major concerns expressed at this time were: waiting times for emergency care and/or surgery (3%), being treated by a nurse when a doctor was unable or unwilling to attend (4%) and lack of resident doctors (6%). Importantly, 67% responded with positive comments.

RESULTS – HEALTH BEHAVIOURS

Self-reported smoking rates remained similar between Crossroads I and II and higher than the state average (see Table 11).

The percentage of participants indicating consuming less than the recommended daily serves of fruit (2) and vegetables (5 or more serves) increased from Crossroads I to II. Reports of consumption of takeaway food had also increased. At the same time, 92% of clinic participants rated their diet as 'very healthy' or 'quite healthy.'

Table 11: Health behaviours

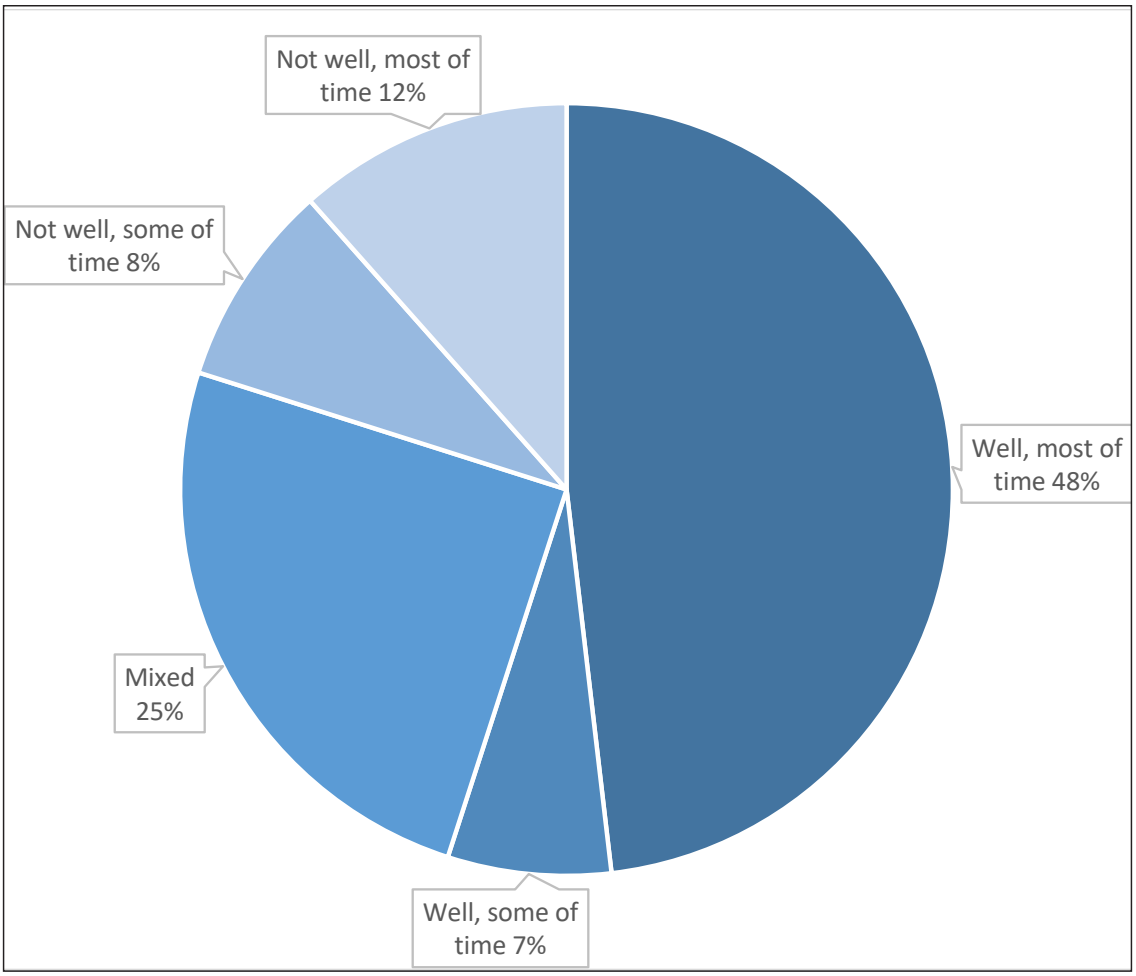
Self-reported health behaviours	Crossroads II	Crossroads I	National comparison
Smoking	22%	25%	14% [21]
Less than 150minutes of exercise per week	51%	35%	45% [21]
Consume alcohol	65%	63%	78% [5]
Average number of alcoholic drinks per week	8.7 ± 19.8	Average of 5	1-2 drinks on 1.6 days/ week [22]
More than 5 drinks within a few hours at least once in the past month	33%	32%	26% had more than 4 standard drinks at least monthly [5]
Consumed soft drink/ sugar-sweetened beverage yesterday	63%	Not available	9% daily [21]
Hours of television per week (average)	18.3 ± 18.0 hours	Not available	18.3 hours [23]
Less than 5 serves of vegetable per day	88%	72%	92% [21]
Less than 2 serves of fruit per day	54%	49%	49% [21]
Takeaway food as a main meal at least once per week	39%	27%	Not available
Perception of own diet (clinic participants):			
Very healthy	18%	Not available	Not available
Quite healthy	74%	Not available	Not available
Not very healthy	8%	Not available	Not available
Not at all healthy	0%	Not available	Not available
Overweight*	39%	39%	36% [21]
Obesity*	41%	23%	32% [21]

* calculated from self-reported height and weight

Alcohol consumption at levels associated with risk was identified as common, with 33% of participants stating they consumed five or more standard drinks in a few hours on at least one occasion in the past month (see Table 11). Based on self-reported height and weight, the prevalence of obesity was higher in Crossroads II than both Crossroads I and the state average.

Further, 55% of participants agreed that they slept well most or some of the time (see Figure 6).

Figure 6: Sleep quality (%)



RESULTS – CHILDREN'S HEALTH BEHAVIOURS

Parents or guardians provided information regarding the health and health service utilisation for 103 children in Seymour. Children ranged in age from 0 to 15 years (see Table 12). Parents reported that children typically ate lower than the recommended servings of daily vegetables and were undertaking less than the recommended amount of weekly exercise. Allergies and asthma were described as common among these children. Further, 37% of families indicated accessing a specialist for their child/children's health, primarily in Melbourne.

Table 12: Children's health behaviours

	Crossroads II	Crossroads I	Victorian comparison
Number of children	103	106	
Number of families	51		
Males	46%	45%	
Females	54%	55%	
Age	8.2±4.5 range 0-15 years	8.0±4.2 range 0-17 years	
Immunisation	100%	98%	95% of 5 years olds [24]
Exposed to secondary smoke	2/11 families with asthma	Not available	4% [25]
Less than 60 minutes of exercise per day	70%*	86%	Two thirds [26]
Soft drink/sugar sweetened beverage consumed yesterday	41%*	Not available	49% [21]
Less than 5 serves of vegetables per day	90%*	83% (less than 4 serves)	95% [27]
Less than 2 serves of fruit per day	26%*	30%	32% [27]
Takeaway food as a main meal at least one meal per week	45%*	35%	69% [28]

*of families

RESULTS – CHILDREN'S HEALTH CONDITIONS

Table 13 presents some of the health conditions reported to have been diagnosed among children in the sample. It further reports on use of services for these conditions and general health care for the children included in the study.

Table 13: Children's health conditions

	Crossroads II	Crossroads I	Victorian comparison
Asthma	22%*	29%	21% [29]
Skin conditions	16%*	8%	31% atopic dermatitis [30]
Allergies	24%*	8%	Food allergies 11% [26]
ADHD	12%*	2% ADD	5% [31]
Disability	6%*	3%	7% [32]
Seen GP in past year	88%*	76%	83% [33]
GP (location)			
Seymour	96%	95%	
Nagambie	2%	-	
Kilmore	2%	-	
% very satisfied or satisfied with GP	84%	76%	
Seen Medical Specialist in past 12 months	37%*	2%	
Location of specialist:			
Seymour	1 family	50%	
Shepparton	4 families	25%	
Northern-Epping	2 families	25%	
Melbourne (other)	11 families		
Seen Psychologist in past 12 months	12%*	2%	
Seen Speech therapist in past 12 months	22%*	3%	
Visited ED/UCC in past 12 months	29%*	14%	
Location of ED/UCC			
Seymour	98%*	89%	
Melbourne	2%*	7%	

*of families

CROSSROADS CLINICS RESULTS

RESULTS – CROSSROADS II CLINIC

From the household survey, 125 adults were randomly selected and attended a free, comprehensive health check-up at the Crossroads II clinic (response rate 62%). These clinics were held at the Dialysis Unit at Seymour District Memorial Hospital. Participants had a series of blood tests, an oral glucose tolerance test for diabetes and a series of other screening tests for undiagnosed disease.

From these tests, one new case of diabetes was detected and 8 participants (8% of those tested) showed new impaired glucose tolerance, commonly known as pre-diabetes, which is higher than in a national study using the same test (3% [26]) (see Table 14). Percentage of clinic participants with a Body Mass Index (BMI) (calculated from height and weight measured by researchers in the clinic) in the overweight or obese range was higher than the Victorian average. The percentage of respondents with a BMI corresponding to obesity has increased since Crossroads I. Other results from the screening tests are presented in Table 14.

Table 14: Clinic screening test results

	Crossroads II	Crossroads I	National comparison
Number of participants	125	114	
Male	50%	40%	
Age	63.2 ± 14.3 (range 18-83)	50.1 ± 15.6 (range 25-87)	
High cholesterol ≥ 5.5mmol/L	20%	36%	33% [26]
Diabetes (undiagnosed)	1 (1%)	2 (2%)	1% [26]
Impaired glucose tolerance	8%	4%	3% [26]
High blood pressure (>160mm systolic, >100 diastolic)	32%	39%	34% [34]
BMI (mean ± SD)	29.5 ± 5.7 (range 17-50)	28.2 ± 5.9 (range 18-48)	
Overweight	42%	41%	36% [21]
Obese	40%	30%	32% [21]
Waist circumference:			
Males >94cm	89%	100%	59% [12]
Females >80cm	85%	100%	65% [12]
Poor cognitive function	22%	Not available	
Poor cognitive function among those aged 65+	40%	Not available	37% [35]
Liver dysfunction	18% GGT >50 males, >35 females	9%	11.0% elevated ALT, 12.4% elevated GGT [36]
Kidney dysfunction	15% <60 eGFR	7% (creatinine)	4% impaired eGFR, 8% abnormal ACR [36]
Hearing impairment	49%	Not available	22% [37]
Mental health conditions:			
K10 well (<20)	81%	Not available	87% well 13% mild-moderate-severe [38]
K10 mild (20-24)	7%		
K10 moderate (25-29)	5%		
K10 severe (30+)	7%		
Lung dysfunction FEV1/FVC <0.7	27%	17%	8% (people aged 40+) 29% (aged 75+) [39]
Non-alcoholic fatty liver disease	36%	Not available	30% [40]

RESULTS – ORAL HEALTH CLINIC

Clinic participants (125) were offered a free dental check-up and clean, and 82 participants (66%) agreed to take part. Overall health of teeth was assessed using the decayed missing filled score (DMFS), which assesses a person's lifetime history of dental caries (tooth decay or cavities). Participants had an average DMFS score of 16.6 tooth surfaces with caries history compared with the Victorian state average of 12.8 surfaces and Australian average outside of capital cities of 14.4 surfaces (41). Among the individual components making up the DMFS: participants had an average of 15.1 filled surfaces and 1.5 decayed surfaces. Nine participants (11.0%) were fully edentulous (had no remaining natural teeth), compared to the Victorian average of 8.0% and the Australian average outside of capital cities of 12.9% (41). Dental caries and/or missing teeth were significantly more common among older participants compared with younger participants.

The untreated dental health issues (for example the number of teeth requiring fillings) of the participants who had some or all of their teeth (dentate) was assessed. Over two thirds of dentate participants had no untreated issues (68.5%) compared with a Victorian average of 76% and Australian average outside of capital cities of 72% [41]. Overall, 6.8% had all of the dental health issues untreated. Untreated dental caries were significantly more common among younger participants than older participants (18.8% among 25-44 year old participants compared with 8.9% among participants aged 65 or older).

More than half of dentate participants) showed evidence of tartar above the gum line or between the teeth (supra-gingival calculus) and below the gum line (sub gingival calculus) (63.0%). Similarly, evidence of periodontal pockets of between >3mm but less than 5mm in depth, a sign of gum disease was present in 28.9% of participants.

CONCLUSION

The participants of the Crossroads II study in Seymour were, on average, older than the Crossroads I participants, and a greater proportion of females participated in Crossroads II compared to Crossroads I. The results provide very detailed information about the health of participants living in Seymour and their use of health services. The results suggest that there are some health issues warranting attention. 44% of participants rated their health as very good or excellent, compared with 56% nationally. Chronic health conditions have become more common among these participants. Key health issues identified in Seymour were obesity, poor mental health and disability as well as conditions identified with ageing, such as hearing loss, blood pressure and arthritis, and lifestyle, including sleep quality, exercise, heart problems and risky alcohol consumption. Participants were typically consuming insufficient vegetables and undertaking insufficient exercise. Smoking rates in Seymour remain a concern but are being addressed by local initiatives.

Compared with Crossroads I, GP utilisation was reported to have increased, although GP turnover was identified as a particular challenge. 47% of participants identified seeing at least one medical specialist, often some distance away from Seymour. Participants had some concerns about the care provided by various services and identified issues with the Urgent Care Centre, including staffing levels, lack of resident doctors and waiting times. Utilisation of allied health services had increased between Crossroads I and Crossroads II. Health checks have generally increased in the time between Crossroads I and II.

Self-rated happiness was similar to Crossroads I, with two thirds of people happy or very happy. Almost half of participants in Seymour belonged to local clubs or organisations, and this was a similar level of participation to Crossroads I, suggesting connection to community and volunteering have been maintained.

Given these findings, this study proposes three recommendations:

1. Promote healthy living and quality of life:

The increase in chronic health conditions that impact on quality of life, particularly for older people, calls for a whole-of-community approach to promotion of healthy lifestyles, including healthy diet, adequate physical exercise, reduction in smoking rates and addressing harmful alcohol behaviour. Indeed, this report outlines that there is a need to address excess alcohol consumption, overweight and obesity. Expanding and integrating current strategies to promote healthy living would provide a holistic, place-based approach.

2. Increase access to GPs, Mental Health services:

Results suggest that there may be challenges facing GP service provision in Seymour due to high staff turnover. These challenges may impact the health outcomes of patients but also have flow on effects for other local healthcare providers. Poor mental health is of concern and there may be demand for increased numbers of mental health professionals in the region. These issues each have workforce implications that need to be considered in order to deliver the *'right care, in the right place, at the right time'*[1].

3. Address factors limiting local residents' ability to manage their health well.

Known as the social determinants of health, addressing key issues in people's lives enables healthier living and improved access to health care for those who need it. This includes income, employment, education, housing, transport, social connection and social inclusion. Addressing these issues for residents with disability, chronic pain, mental ill-health and/or who are socially isolated as well as for residents who are marginalised due to low income, low English proficiency and other cultural barriers is important for overall health, wellbeing and inclusion. Like recommendation 1, a whole of-community approach is required that will (i) integrate current initiatives, (ii) develop improved environments for access, inclusion and participation, and (iii) engage new sectors of the community so that Seymour can improve the quality of life and conditions of daily living for all local residents.

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