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The Victorian Lifestyle and Neighbourhood Environment Study (VicLANES) is internationally significant research involving 4,913 participants in 50 small areas in Melbourne.

VicLANES examines the importance of area socio-economic status (SES), neighbourhood environments, individual perceptions, attitudes and knowledge in relation to three important health behaviours:

- food purchasing for household consumption
- physical activity
- alcohol consumption.
Residents living in more disadvantaged areas have poorer health and are less likely to participate in physical activity and healthy eating.

In an effort to reduce the health inequalities associated with a lack of exercise and having poor diet, researchers, practitioners and policy makers in public health and in other disciplines such as planning, health promotion and geography are trying to explore the complex reasons for these differences. Contrasting health behaviours found between areas may be due to characteristics of the area where people live (contextual effects), the individuals who live within the area (compositional effects), or a combination of both.

VicLANES was set up to assess the importance of individual and area-level characteristics in shaping three important health behaviours: household food-purchasing, physical activity and alcohol consumption.

The findings presented in this report are descriptive. More detailed statistical analyses will be presented in academic papers, seminars and conferences. The VicLANES website will be kept up-to-date with references and events (see http://www.kcwhs.unimelb.edu.au/viclanes/).
behaviours

Compared with people in high SES areas, people in low SES areas were less likely to:

- purchase groceries that are low fat, high fibre, low salt and sugar
- purchase fruits and
- exercise at levels that are sufficient for health
- spend time walking.

People in low SES areas were also more likely to purchase fast food for consumption in the home. However, they were just as likely to drink alcohol, with the exception that men from low SES areas were more likely to consume alcohol at levels that may cause short-term harm.

The lower level of healthy behaviours found in low SES areas occurs even after we statistically adjust for the socio-economic characteristics of people who are living in disadvantaged areas. This suggests that physical and other characteristics of low SES areas are impacting on people’s ability to engage in activities that promote good health. In other words, place does matter for your health.
knowledge and attitudes

Compared with people in high SES areas, people in low SES areas were less likely to:

- make food purchasing decisions based on health considerations
- like the taste of healthy food
- have good nutritional knowledge
- agree with statements about the health benefits of physical activity.

And were more likely to:

- be influenced by the price of different food types
- be prevented from exercising because of barriers to physical activity such as having young children to look after.

Reduced knowledge about the benefits of healthy foods and physical activity are more common amongst people in low SES areas. Attitudes towards food and cost considerations may reduce the amount of healthy food purchased by residents of low SES areas. Barriers, such as care of children, which prevent people from exercising, are more frequent in low SES areas.
Perceptions of the local environment

Perceptions of local food stores did not vary greatly across SES areas with the exception that more people in low SES areas believed greengrocers were cheaper than larger supermarkets.

Participants from low SES areas were less likely to perceive that their neighbourhood was attractive and safe for walking and more likely to think that there was a lot of traffic in their area.

These findings suggest that residents of low SES areas perceive their local area to be less conducive to physical activity, particularly walking, than residents of advantaged areas.

Objective characteristics of the local environment

Low SES areas had more:
- fast food stores
- shops selling fruits and vegetables
- destinations to walk to
- alcohol stores.

Low SES areas had less total distance of walking paths than mid and high SES areas. Access to structured and unstructured recreational facilities was similar across all areas.

Walking was more common in areas with:
- longer walking and cycling paths
- more destinations to walk to such as shops, schools, parks, religious institutions
- more pedestrian crossings.
This report is aimed at local government, policy-makers and health promotion practitioners as well as researchers. Promoting healthy behaviour requires a multifaceted approach that focuses on individuals, households and their local environments. It is important that strategies concentrate on individual and household barriers to healthy behaviours such as the cost of and perceptions about food, the responsibility of caring for young children and other dependents and perceptions about the safety of local areas. This multifaceted approach can inform interventions to make areas more health promoting, such as reducing fast food outlets. Community consultations are a key strategy to designing locally-based interventions to overcome such barriers.

Area-based health promotion interventions can make many potential improvements including:

- improving and lengthening existing walking paths
- increasing the number of pedestrian crossings to promote walking
- reducing the density of fast food outlets.

This report is divided into five sections. For those interested in the study design there is a section which overviews the methods used in VicLANES. The following three sections provide information on the major behavioural outcomes (food purchasing, physical activity and alcohol consumption) with respect to:

- knowledge and attitudes
- perceptions of the local environment
- objective characteristics of the local environments.

In the final section, we summarise our research translation work with local government.
All findings are presented according to area SES categorised as low, mid and high and most findings are displayed in either graphs or tables. In the case of physical activity and alcohol use, results are presented separately for men and women where behaviours vary by sex. Food-purchasing results are presented for the whole sample as we were interested in household food consumption not individual dietary behaviour. A glossary of commonly used terms is included at the end of the report.

The results reported here are only a small proportion of what VicLANES can potentially reveal about the 50 areas of Melbourne studied for the project. More findings are presented as Appendices available on our website.

**A note of caution**

When comparing graphs please note differences in the scale on the horizontal axis. The position of the dots or lines on the graphs may not be comparable from one graph to the next.
what is “VicLANES”? 

Low levels of physical activity, poor diet and excessive alcohol consumption are important causes of chronic diseases such as coronary heart disease, diabetes and some cancers. Socio-economically disadvantaged people are at higher risk of these conditions. VicLANES aimed to understand behavioural differences associated with these chronic diseases between socio-economic groups by examining environmental, household and individual determinants.

sampling of areas and individuals

VicLANES researchers collected data on food-purchasing, physical activity and alcohol consumption in 50 census collector districts (CCDs) in 19 inner local government areas in Melbourne, Australia. A CCD is the basic geographic unit used by the Australian Bureau of Statistics (ABS) to collect population census data. The CCDs in the study area had an average of 557 residents and a mean size of 0.34km².

CCDs were stratified according to the percentage of households with an income of less than $400 per week (less than $400 per week are considered to be low income households). The sample comprised 17 low SES, 16 mid SES and 17 high SES CCDs. We refer to area disadvantage as low SES (extremely disadvantaged), mid SES (medium levels of disadvantage) and high SES (low levels of disadvantage). The median proportions of households with a low income were 31%, 15% and 7% for low, mid and high SES areas respectively. The map in Figure 1 shows the randomly selected CCDs that are coloured to represent low, mid and high SES areas.

Trained auditors collected data about the environments for food-shopping, physical activity and alcohol purchase within a two kilometre radius of the centre of the CCD (the exception to this was for a more detailed walking audit where the radius was 400 metres). Auditors collected detailed information on the presence and type of food stores and the price and availability of healthy and less healthy foods (a list of common food items can be found in the glossary).
For physical activity, routine data from geographical information systems (GIS) was obtained including the presence of recreational facilities and the walking and cycling tracks within the areas. More detailed information on the walkability and cyclability of local areas was collected within a 400 metre radius of a randomly selected household in the CCD. For the alcohol audit, we collected information on the location of stores selling takeaway alcohol, and the price and availability of a range of alcoholic beverages.

Two surveys were distributed to collect individual and household data on food purchasing (“Food Shopping and Your Household”) and physical activity and alcohol use (“You and Your Neighbourhood”). Questionnaires were directed to adults aged 18 to 75 years. The food purchasing survey was directed to the person who did most of the food shopping in the household.
description of sample

This section briefly outlines response rates and demographics of the survey respondents. More details about the sample, response rates and comparisons with the census data are available on the VicLANES website.

food purchasing

The “Food Purchasing and Your Household Survey” was completed by 2,564 people of whom 85% were women. This is due to the survey being targeted at the person who did most of the food-shopping in the household and in most households this was a woman.

physical activity & alcohol

The “You and Your Neighbourhood” survey was completed by 2,349 people. In this questionnaire 56% of respondents were women.

For both surveys, response rates were positively associated with area SES. Response rates for both the food purchasing and physical activity surveys were greatest in high SES areas (69% & 62% respectively) and lower in the mid SES (66% & 59%) and low SES areas (58% & 55%).

Most respondents were between 35 and 54 years of age, about one third of participants had a bachelor degree or higher and the majority of participants were from a household consisting of a couple with or without children.

Compared with the census data for the selected areas, men and women aged 18 to 24 years were under represented in the “You and Your Neighbourhood” survey. Further detail about the sample and methodology are available in the appendices on the website.
a VicLANES taster – body mass index

In Figure 2 we show the mean Body Mass Index (BMI) (see glossary) of VicLANES participants according to area SES. For both men and women, BMI increases as SES level decreases. This means that a person of average height is estimated to be about three kilograms heavier in low SES areas compared with high SES areas. These differences suggest that characteristics of areas may influence individual BMI.

Figure 2
BMI by area SES and sex

body mass index (BMI)

Mean BMI

NB: A person with a BMI over 25 is considered overweight or obese
food PURCHASING
This section outlines area SES differences in behaviours related to shopping for groceries, fruit and vegetables. Index scores have been developed as a measure of how much healthy food is being purchased. A higher fruit and vegetable index score means more of these items are purchased. For groceries, a higher index score indicates that the food items purchased are more consistent with dietary guidelines such as high fibre bread or low fat milk. Further details on these terms can be found in the glossary.

**where food is purchased**

Almost everyone within the sample shopped in large supermarkets (99%), three-quarters shopped in greengrocers (76%) but only about half used small-to-medium convenience stores (49%).

**grocery, fruit & vegetables**

Across all three food types there is an obvious gradient between index score and area SES with people in the high SES areas having the highest index scores and the low SES areas having the lowest score (Figure 3). This means people in low SES areas are less likely to purchase groceries that are low in fat, high in fibre, low in salt, low in sugar and that they purchase fewer fruits.

**Figure 3**

Food shopping index by area SES
**fast food**

A fast food meal is defined as any meal eaten at home that has been purchased at any of the five major fast food chains (Hungry Jacks, KFC, McDonald’s, Pizza Hut and Red Rooster). The frequency of fast food intake was divided into three categories: never, monthly (one to three times per month) and weekly (four or more times per month).

Figure 4 shows more people indicate that they never purchase fast food in high SES areas (60%) compared to people in low SES areas (50%). A major difference however, is noticed in the weekly fast food intake category. Twice as many people purchased fast food weekly in low SES areas (14%) compared with people in high SES areas (7%).

![Figure 4](image-url)
A reduced ability to lift or carry groceries due to health reasons was more frequent in low SES areas (26%) compared to both mid (19%) and high SES areas (13%).

**Figure 5**

Percentage of people who reported running out of food and not being able to afford more by area SES

**food security**

This section outlines area SES differences in some of the difficulties people may face when purchasing food for consumption at home.

Respondents were asked whether “in the last twelve months, were there any times that you ran out of food, and could not afford to buy more?” Figure 5 shows that this situation occurred three times more often in low SES areas (12%) compared to high SES areas (4%).

**ran out of food and could not afford to buy more**

A reduced ability to lift or carry groceries due to health reasons was more frequent in low SES areas (26%) compared to both mid (19%) and high SES areas (13%) (Figure 6).
People in low SES areas were less likely to have access to a car to do their food shopping.

**Figure 6**
Percentage of people who have difficulties lifting or carrying groceries due to their health by area SES

**Figure 7**
Percentage of people who always have access to a car to do their food shopping by area SES
People in low SES areas were less likely to purchase fruit and grocery items consistent with current dietary guidelines and were more likely to purchase fast food for consumption at home.

People in low SES areas more likely to run out of food and not be able to buy more, have reduced ability to carry groceries due to poor health, and have less access to a car to do their food shopping.
knowledge and attitudes

This section examines variations in dietary knowledge and attitudes by area SES. The percentages presented are people who agree with each statement.

thoughts on food purchasing and diet

Results from some of the questions about food purchasing and diet are presented in Table 1. Compared with people in high SES areas, people in low SES areas were more likely to agree that:

- eating healthily is difficult because healthy food choices are usually limited
- their household sometimes could not afford to buy healthy foods
- the price of food influenced food choice.

Compared with people in high SES areas, people in low SES areas were less likely to agree that their food choices were influenced by body weight and health considerations or that their household’s diet consists mainly of healthy food.

thoughts on food purchasing and diet

<table>
<thead>
<tr>
<th>Percentage who agree that:</th>
<th>Area SES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low %</td>
</tr>
<tr>
<td>It is difficult to eat healthily because healthy food choices are usually limited</td>
<td>16</td>
</tr>
<tr>
<td>Sometimes my household cannot afford to buy healthy and nutritious food</td>
<td>22</td>
</tr>
<tr>
<td>When buying food for my household, my choice is influenced by the price of the food</td>
<td>50</td>
</tr>
<tr>
<td>When buying food for my household, considerations about body-weight influence my choice</td>
<td>52</td>
</tr>
<tr>
<td>When buying food for my household, health considerations influence my choice</td>
<td>75</td>
</tr>
<tr>
<td>Overall, my household’s diet consists mainly of healthy and nutritious food</td>
<td>76</td>
</tr>
</tbody>
</table>
**taste preferences**

Figure 8 shows attitudes towards the taste of healthy food for different household members. A gradient was apparent for the main food shopper with those in high SES areas least likely to dislike the taste of healthy foods and those in low SES areas most likely. Compared with high and mid SES areas, children and partners from low SES areas were more likely to agree with the statement ‘healthy foods aren’t very tasty’.

Despite a higher percentage of low SES people reporting that they dislike the taste of healthy foods a majority (over 90%) of people from all SES groups reported that they like the taste of fruit and vegetables. Taste preferences differed more between other food items where there was a healthier option (e.g. wholemeal bread or low fat milk) and a less healthy option (e.g. white bread or full cream milk). For these types of items people in low SES areas generally preferred the less healthy options.
nutrition knowledge

Respondents were asked to answer 17 true or false questions related to food and nutrition, examples of which are presented in Table 2. Overall knowledge about healthy food choices was good. On average, people in high SES areas (86%) answered questions correctly most often. Their average was marginally higher than mid SES areas (83%) but noticeably higher than the average percentage of correct answers in the low SES areas (78%).

food and nutrition knowledge

<table>
<thead>
<tr>
<th>Area SES</th>
<th>Low %</th>
<th>Mid %</th>
<th>High %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average percentage of respondents who correctly answered each of the seventeen nutrition questions</td>
<td>78</td>
<td>83</td>
<td>86</td>
</tr>
</tbody>
</table>

Examples of questions asked (percentage who answered correctly):

- Meat, fish, chicken and eggs should make up the largest part of our diet (A: false) 63 72 78
- It is recommended that most adults should choose full cream milk instead of skim or low fat (A: false) 73 79 83
- Eating wholemeal bread rather than white bread, provides no health benefits (A: false) 79 81 85
- Choosing salt reduced food provides no health benefits (A: false) 79 82 86
- Dietary fibre from wholemeal foods, combined with an adequate intake of drinking water prevents constipation (Answer: true) 84 87 92

Table 2

Percentage of correct answers related to knowledge of food and nutrition by area SES
People in low SES areas were *less likely* to be influenced by health considerations when buying food and *more likely* to be influenced by the price of food and think that healthy food choices were limited.

Respondents and other household members (children and partners) from low SES areas were *less likely* to like the taste of healthy food. Although knowledge of food and nutrition was generally good, it was slightly lower in low SES areas.
perceived environment

Respondents were asked about their perceptions of the presence and accessibility of large supermarkets, small-to-medium sized convenience stores and greengrocers in their local area. They were also asked about their perceptions of the price and availability of different food types.

perceptions of local food stores

People in each SES group found large supermarkets most accessible and small-to-medium food stores least accessible. Large supermarkets were also perceived as having the most convenient opening hours. Compared to high SES areas more people in low and mid SES areas perceived large supermarkets and greengrocers to be well served by public transport.

perceptions of food prices

A large percentage of people believed that greengrocers were cheaper than large supermarkets, however this varied by area SES. More people agreed that this was true in low SES areas (54%) compared to both mid (48%) and high SES areas (45%).

Across all area SES groups about a third of people (33% high SES areas; 33% mid; 36% low) thought wholemeal bread was more expensive than white bread. Nearly a half thought low fat milk (46% high; 45% mid; 46% low) was more expensive than full cream milk. This indicates the majority of people, irrespective of where they lived, perceive healthier options as more expensive.
These results are striking in that they reveal very few differences between SES areas in people’s perceptions about the accessibility of shop types. More people in low SES areas think that greengrocers are cheaper than larger supermarkets.

Across all SES areas healthier food options are perceived to be more expensive.
objective environment

This section details the differences in the presence of food stores and food items within respondents’ local areas by SES. The price of a selection of food items is also examined.

food stores that sell fruit and vegetables

The median number of all shops that are likely to sell fruit and vegetables is higher for the mid and low SES areas than in the high SES areas (Table 3). When examining individual shop types (supermarkets, greengrocers, convenience stores and ethnic shops) the median number that are likely to sell fruit and vegetables are very similar for all SES areas.

number of shops that sell fruit and vegetables

<table>
<thead>
<tr>
<th>Area SES</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>All shops that sell fruit and vegetables</td>
<td>10</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Supermarkets</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Greengrocers</td>
<td>3</td>
<td>2.5</td>
<td>2</td>
</tr>
<tr>
<td>Convenience stores</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Ethnic shops</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

availability of fruit & vegetables

Tables 4 and 5 show that for supermarkets, greengrocers and convenience stores there is very little difference in the availability of fruit and vegetable items by the SES of areas. In the audit there were 22 fruit items and 25 vegetable items. Details of all items are presented in the Appendix available on the VicLANES website.

availability of fruit

<table>
<thead>
<tr>
<th>Area SES</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarkets</td>
<td>19</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>Greengrocers</td>
<td>18</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Convenience stores</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Ethnic shops</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
availability of vegetables

<table>
<thead>
<tr>
<th>Area SES</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarkets</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Greengrocers</td>
<td>22</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>Convenience stores</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Ethnic shops</td>
<td>0</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>

price of fruit & vegetables

The price of fruits and vegetables audited was recorded per kilogram. Table 6 shows the hypothetical fruit and vegetable baskets that were created based on the ten most commonly purchased fruits and vegetables (Coles Supermarkets, 2000). ‘Limited baskets’ containing only five fruit items and seven vegetable items were created specifically for convenience stores due to the limited supply of fruit and vegetables in those stores.

contents of fruit and vegetable baskets

The price of the basket is based on one kilogram of each item listed. Prices for the fruit and vegetable baskets are shown in Tables 7 and 8. Prices for supermarkets and greengrocers are based on the full fruit and vegetable baskets and for convenience stores are based on the 5-fruit basket and the 7-vegetable basket. For all shops an SES trend is apparent with cheaper baskets found in low SES areas. For the fruit baskets the average price was lower in the low SES areas than in the high SES areas for all three shop types. For the vegetable baskets, the average price was lower in low SES areas compared to high SES areas but this was less apparent for supermarkets.
People in low SES areas are more likely to be exposed to fast food outlets.

**fast food outlets**

Figure 9 shows that people in low SES areas are more likely to be exposed to fast food outlets. The median for high SES areas is one compared to three and four in mid and high SES areas respectively.

**price of fruit**

<table>
<thead>
<tr>
<th>Area SES</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarkets</td>
<td>$44.09</td>
<td>$49.32</td>
<td>$49.51</td>
</tr>
<tr>
<td>Greengrocers</td>
<td>$42.68</td>
<td>$47.77</td>
<td>$50.94</td>
</tr>
<tr>
<td>Convenience stores*</td>
<td>$29.21</td>
<td>$31.42</td>
<td>$34.71</td>
</tr>
</tbody>
</table>

*Convenience store prices based on 5-item fruit basket

**price of vegetables**

<table>
<thead>
<tr>
<th>Area SES</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarkets</td>
<td>$35.72</td>
<td>$37.22</td>
<td>$37.40</td>
</tr>
<tr>
<td>Greengrocers</td>
<td>$32.67</td>
<td>$38.31</td>
<td>$38.48</td>
</tr>
<tr>
<td>Convenience stores*</td>
<td>$16.77</td>
<td>$21.48</td>
<td>$22.08</td>
</tr>
</tbody>
</table>

*Convenience store prices based on 7-item vegetable basket

**fast food outlets**

<table>
<thead>
<tr>
<th>Area SES</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarkets</td>
<td>$44.09</td>
<td>$49.32</td>
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<tr>
<td>Convenience stores*</td>
<td>$29.21</td>
<td>$31.42</td>
<td>$34.71</td>
</tr>
</tbody>
</table>

*Convenience store prices based on 5-item fruit basket

**Table 7**

Mean fruit basket price by area SES and shop type

**Table 8**

Mean vegetable basket price by area SES and shop type

**Figure 9**

Distribution of fast food outlets by area SES
People in low and mid SES areas had more access to shops selling fruits and vegetables. The variety of fruits and vegetables that were available was similar in all areas. Fruits and vegetables are cheaper in low and mid SES areas than in high SES areas. There were more fast food outlets in low and mid SES.
This section outlines area SES differences in four main types of physical activity. We examine differences in the percentage of people that are “sufficiently active for health” as well as explore levels of jogging, swimming and cycling. Walking is the main form of exercise undertaken by most people and is therefore discussed separately.

A person is classified as being “sufficiently active for health” if they participate in at least 150 minutes of moderate intensity physical activity per week. Further details on this are found in the glossary. For swimming, cycling and jogging the percentages presented indicate the percentage of people participating in that activity for a period of 10 minutes or more over the last month.

**physical activity: overall, jogging, swimming and cycling**

As shown in Figure 10, men and women from low SES areas are least likely to be sufficiently active for health.

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**Figure 10**

Percentage of people considered sufficiently active for health over the last month by area SES and sex.

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**sufficiently active for health in the last month**

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Rates of participation in cycling, jogging and swimming are relatively low across all areas (Figures 11, 12 and 13). Men are *more likely* to jog or cycle than women. Cycling is less common for both men and women in low SES areas. Women in low SES areas are *less likely* to jog than women in mid or high SES areas. Participation in swimming was similar for men and women across all area SES groups.

**Figure 11**
Percentage of people who have cycled in the last month by area SES and sex

**Figure 12**
Percentage of people who have jogged in the last month by area SES and sex
The amount of time spent walking is lowest in low SES areas.

walking analysis

Women spent more time walking than men across all area SES groups (Figure 14). The number of minutes spent walking does not vary between high and mid SES areas for men or women. The amount of time spent walking is lowest in low SES areas.
**where do people walk?**

This section examines where people usually walk. Results are presented by area SES because there were few sex differences. No area SES differences are noted in relation to the percentage of people who usually walk on a footpath or walking paths (Table 9). A slightly higher percentage of people in high SES areas walked beside a creek, river or foreshore or in a park.

**if you walk, where do you usually walk?**

<table>
<thead>
<tr>
<th>Area SES</th>
<th>Low %</th>
<th>Mid %</th>
<th>High %</th>
</tr>
</thead>
<tbody>
<tr>
<td>On a footpath</td>
<td>95</td>
<td>96</td>
<td>93</td>
</tr>
<tr>
<td>Walking path</td>
<td>66</td>
<td>63</td>
<td>67</td>
</tr>
<tr>
<td>In a park</td>
<td>54</td>
<td>50</td>
<td>59</td>
</tr>
<tr>
<td>Beside a creek, river or foreshore</td>
<td>39</td>
<td>39</td>
<td>44</td>
</tr>
</tbody>
</table>

*Respondents may nominate more than one place in which they usually walk.*
Women were less likely than men to be sufficiently active for health, jog or cycle but spent more time walking than men. Men and women who lived in low SES areas were less likely to be sufficiently active for health benefit and had lower levels of walking, cycling and jogging.

Most people regularly walked on footpaths and on walking paths.
knowledge and attitudes

Respondent’s knowledge and attitudes related to physical activity are examined here. The tables in this section represent the percentage of respondents who agree with each statement and are presented by area SES and sex.

benefits of physical activity

This section outlines area SES and sex differences related to people’s knowledge of the potential benefits of participating in regular physical activity and sports (Table 10).

Men in low SES areas were less likely to agree that participation in physical activity or sports will make them:
- feel less depressed
- lose weight
- build muscle strength and tone
- feel better about their body
- improve their health or reduce their risk of disease.

Men in low SES areas were also less likely to believe that half an hour of brisk walking on most days is enough to improve their health.

SES differences were less apparent for women. Women in low SES areas were less likely to agree that through exercise they will build up muscle strength and tone but slightly more likely to agree that they will lose weight.
### Benefits of Physical Activity

<table>
<thead>
<tr>
<th>Percentage who agree that:</th>
<th>Low %</th>
<th>Mid %</th>
<th>High %</th>
</tr>
</thead>
<tbody>
<tr>
<td>I will feel less depressed</td>
<td>Men</td>
<td>67</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>76</td>
<td>75</td>
</tr>
<tr>
<td>I will lose weight</td>
<td>Men</td>
<td>73</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>81</td>
<td>80</td>
</tr>
<tr>
<td>I will build up muscle strength and tone</td>
<td>Men</td>
<td>80</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>86</td>
<td>89</td>
</tr>
<tr>
<td>Half an hour of brisk walking on most days is</td>
<td>Men</td>
<td>81</td>
<td>88</td>
</tr>
<tr>
<td>enough to improve you health</td>
<td>Women</td>
<td>89</td>
<td>89</td>
</tr>
<tr>
<td>I will feel better about my body</td>
<td>Men</td>
<td>84</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>89</td>
<td>90</td>
</tr>
<tr>
<td>I will improve my health or reduce my risk of</td>
<td>Men</td>
<td>86</td>
<td>90</td>
</tr>
<tr>
<td>disease</td>
<td>Women</td>
<td>92</td>
<td>92</td>
</tr>
</tbody>
</table>

### Attitudes Towards Physical Activity

Attitudes towards physical activity are outlined in Table 11. Fewer men in high SES areas believe physical activity takes a lot of effort compared to men in mid and low SES areas. No area SES differences in attitudes towards physical activity were evident for women.

People’s level of confidence about whether they could do physical activity most days of the week varied by area SES and sex. Three quarters of men in high SES areas agreed with this statement compared to 63% of men in low SES. There were fewer differences among women in high, mid and low SES areas.

<table>
<thead>
<tr>
<th>Percentage who agree that:</th>
<th>Low %</th>
<th>Mid %</th>
<th>High %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical activity takes a lot of effort</td>
<td>Men</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>41</td>
<td>40</td>
</tr>
<tr>
<td>I’m confident that I could do physical activity on</td>
<td>Men</td>
<td>63</td>
<td>69</td>
</tr>
<tr>
<td>most days of the week</td>
<td>Women</td>
<td>64</td>
<td>70</td>
</tr>
</tbody>
</table>
barriers to physical activity

When asked about what prevented them from exercising, survey participants were asked to choose from a variety of statements and some of the results are presented in Table 12.

Not having someone to exercise with is a barrier to physical activity that varies by both area SES and sex. Men and women in low SES areas were more likely to agree that having no one to exercise with is a reason for not exercising. Women saw this as more of a barrier than men in each of the SES areas. Over a third of women in low SES areas gave this as a reason for not exercising.

Surprisingly high numbers of people reported an injury or disability as a reason for not exercising. Once again, this varies by area SES. A steady gradient is apparent between area SES, with injury or disability being cited as a barrier to exercise by over a quarter of men and women in low SES areas.

Women are more likely to agree with the statement ‘I’m not the sporty type’. Men and women living in low SES areas are more likely to agree with the statement than people from mid and high SES areas. Over 38% of women in low SES areas agreed that they are not the sporty type.

Lack of time was frequently identified as a barrier, particularly among people from high and mid SES areas. Across all area SES groups women were more likely to agree to this.

Table 12

<table>
<thead>
<tr>
<th>Percentage who agree that:</th>
<th>Area SES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low %</td>
</tr>
<tr>
<td>There’s no one to exercise with</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>28</td>
</tr>
<tr>
<td>Women</td>
<td>34</td>
</tr>
<tr>
<td>I have an injury or disability</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>29</td>
</tr>
<tr>
<td>Women</td>
<td>27</td>
</tr>
<tr>
<td>I’m not the sporty type</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>29</td>
</tr>
<tr>
<td>Women</td>
<td>31</td>
</tr>
<tr>
<td>I haven’t got time</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>44</td>
</tr>
<tr>
<td>Women</td>
<td>47</td>
</tr>
</tbody>
</table>

Table 12
Barriers to physical activity by area SES and sex
Of people who had young children, women were more likely to find children a barrier to physical activity than men (Figure 15). For both men and women, there was a clear area SES gradient in the proportion that found children a barrier with people in low SES areas being most likely to indicate that children were a barrier. Half of the women in low SES areas agreed with the statement.
Beliefs and knowledge on physical activity varied with area SES with those in high SES areas having more positive attitudes towards exercise. The area SES gradient appeared to be stronger in men than women.

Men and women in low SES areas were less likely to agree with statements about the health benefits of physical activity. In many instances the area SES differences were more pronounced for men than women. Generally a higher percentage of women than men agreed with the statements on the benefits of physical activity.

With the exception of not having enough time, all other barriers to physical activity were highest in low SES areas. Having an injury or disability was more often seen as a barrier for men, but women were more likely to agree that not having enough time, not having someone to exercise with, not being the sporty type and having young children were barriers to physical activity. Of the people who had young children, approximately half in low SES areas indicated that children were a barrier to physical activity.
perceived environment

This section examines perceptions about the local environment in relation to physical activity. Perceptions of the features within two kilometres of peoples' home are examined by area SES only, while more specific questions on the perceptions of the local neighbourhood are presented by area SES and sex.

recreational features in your local environment

There was no area SES variation in perceptions about the presence of public parks or public ovals within two kilometres of home (Table 13). Only 42% of people in low SES areas, compared with 70% in high SES areas believed there was a cycle lane on the road in their local environment. People in mid SES areas more commonly said they did not have a swimming pool within two kilometres of where they lived. This study found that 73% of people in low SES areas believed a swimming pool was close by.

which of these is within two km of where you live?

<table>
<thead>
<tr>
<th>Recreation Feature</th>
<th>Area SES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low %</td>
</tr>
<tr>
<td>Public park</td>
<td>94</td>
</tr>
<tr>
<td>Public oval</td>
<td>90</td>
</tr>
<tr>
<td>Cycle or walking path not on the road</td>
<td>85</td>
</tr>
<tr>
<td>Swimming pool</td>
<td>73</td>
</tr>
<tr>
<td>Cycle lane on the road</td>
<td>42</td>
</tr>
<tr>
<td>River</td>
<td>39</td>
</tr>
<tr>
<td>Beach or waterfront</td>
<td>14</td>
</tr>
</tbody>
</table>
perception of local neighbourhood

For both men and women, there were clear area SES gradients in the proportion who perceived their environment in positive ways with the proportion increasing from low to high SES areas. Figures 16 to 20 show that people from low SES areas were less likely to agree with the statements:

- the neighbourhood is safe for walking
- you often see people out for walks in this neighbourhood
- there are many attractive natural sights in this neighbourhood
- there are many attractive buildings or homes in my neighbourhood.

Women were less likely than men to agree that ‘the neighbourhood is safe for walking’ and this was particularly the case in low SES areas (Figure 16). People from high SES areas were least likely to agree with the statement that ‘there is a lot of traffic in the neighbourhood’ (Figure 20).

**Figure 16**

Percentage of people who believe their neighbourhood is safe for walking by area SES and sex.
Figure 17
Percentage of people who agree that they often see other people on walks in their neighbourhood by area SES and sex

Figure 18
Percentage of people who agree the neighbourhood has attractive natural sights by area SES and sex

you often see people on walks in this neighbourhood

there are many attractive natural sights in my neighbourhood
Figure 19
Percentage of people who agree the neighbourhood has attractive buildings or homes by area SES and sex.

Figure 20
Percentage of people who believe there is a lot of traffic in their neighbourhood, by area SES and sex.
swimming pools
Of people who thought a swimming pool was located within two kilometres of where they lived, the majority believed their local swimming pool was affordable and clean and there were no obvious differences by area SES (Table 14).

Table 14
Perceptions about local swimming pools by area SES

<table>
<thead>
<tr>
<th>Low %</th>
<th>Mid %</th>
<th>High %</th>
</tr>
</thead>
</table>

perception of the local swimming pool you are most familiar with
There were very few area SES differences in perceptions about the presence of recreational facilities in local areas. The main exception to this was that there were a lower percentage of people from low SES areas who thought a cycle lane on a road was close to their residence.

People from low SES areas were far less likely to have positive perceptions of their environment compared with people from high SES areas. Women in all areas were less likely to think their neighbourhood was safe for walking than men.
This section examines features related to the walkability of areas and how they vary by area SES. Also examined is the distribution of structured and unstructured recreational facilities and swimming pools.

**walkability**

Four domains of walkability are examined: functionality (the structural features of the street or path), safety, aesthetics and destinations. There were few differences between high, mid and low SES areas for the four walkability measures. One example for each of the four walkability domains is presented below.

Figure 21 shows the distribution of the number of street segment sides (two per segment) where the path surface is hard (paved, bitumen, or concrete). There were less street segment sides with a hard path surface in the high SES areas compared to both mid and low SES areas.

**functionality – number of hard path surfaces**

![Figure 21](image)

- High
- Mid
- Low

Number of sides with hard path surface

- Indicates median
- Represents an observation from a CCD
- CBD excluded
Figure 22 shows the area SES differences in the distribution of the number of street segments with one or more crossings present. Types of crossings included pedestrian crossings at traffic signals, zebra or children's crossings, bridges/overpasses and underpasses. There was very little difference in the median number of street segments with crossings present between high, mid and low SES areas.

Garden maintenance is used as a measure of aesthetics. A gradient was found between garden maintenance and area SES. More gardens were well maintained in the high SES areas and fewer gardens were well maintained in the low SES areas indicating high SES neighbourhoods were more aesthetically pleasing.

Destinations are places that people might want to walk to such as shops, schools, religious institutions or transport infrastructure. Low SES areas had a higher number of different destinations to walk to compared to high SES areas.
walking/cycling tracks

Figure 23 shows the mean total length of walking/cycling tracks within a two kilometre radius from the centre of each CCD. Low SES areas have noticeably shorter walking tracks than both mid and high SES areas.

recreational facilities

Recreational facilities have been divided into unstructured (recreation reserves, parks ovals etc) and structured (bmx tracks, golf courses and driving ranges, indoor bowling, squash courts, tennis courts etc). Results are presented by area SES.

There was no difference in the distribution of unstructured and structured recreation facilities between SES areas (Figures 24 and 25).
High SES areas were less likely to have a public swimming pool within a two kilometre radius from their home. Fifty three percent of high SES areas had a swimming pool in their local area compared to 69% in mid SES areas and 76% in low SES areas.
The presence of hard path surfaces were less common in high SES areas however high SES areas were more aesthetically pleasing as measured by garden maintenance. Low SES areas had a greater mix of destinations for people to walk to and from. Safety did not vary by area SES.

The mean total length of walking and cycling tracks was lower in low SES areas. The number of structured or unstructured recreational facilities was also similar across SES areas.
VicLANES
Victorian Lifestyle and Neighbourhood Environment Study

alcohol
In this section we briefly describe patterns of alcohol consumption by area SES and sex. Drinking at levels that might cause short term harm on a weekly basis refers to the consumption at least once per week of 6 standard drinks for men and 4 standard drinks for women. Long term harm is more than 28 standard drinks per week for men and 14 for women.

**harm from alcohol consumption**

Men were *more likely* than women to drink alcohol at levels that may cause short term harm (Figure 26). A gradient with area SES and drinking for short term harm is evident for men with nearly one quarter of men in low SES areas drinking at these levels.

**weekly short term harm**

![Figure 26](image)

Percentage of people reporting weekly alcohol consumption resulting in short term harm by area SES and sex.
Figure 27 shows very few people reported consuming alcohol at levels consistent with long term harm. It is not possible to discern any obvious area SES differences.

**long term harm**

![Graph showing long term harm by area SES and sex](image)

**objective environment**

This section outlines the differences in the number of takeaway alcohol stores present within local areas by area SES.

**Alcohol stores**

There appears to be a slight difference in the number of stores that sell alcohol for consumption off premises between SES areas. The median number of stores rises from five in high SES areas to seven in mid SES areas and to nine in low SES areas. The CBD was excluded from analysis due to the highly commercialised nature of this area.
Alcohol consumption is generally higher in men compared to women. Men in low SES areas were more likely to consume alcohol at least once per week at levels that place them at risk of short term harm. Alcohol stores are more common in low SES areas.
There are growing demands for local government to increase their use of research evidence to improve the health of communities. Ideally, evidence can guide policy, planning and be used to bid for funding for large and small scale projects. However, there is sparse reliable evidence that is relevant to the local context and research findings are often inaccessible.

In 2005-2006, the VicLANES research team received a Department of Human Services (DHS) public health research grant to work with local government. This allowed researchers who had already collected data to disseminate their findings in a more systematic way to local government and work intensively with two local councils.

The broad aims of the project were to:

- provide an evidence-base resource for local governments in developing their activities, in particular, their Municipal Public Health Plans (MPHP).
- enhance planning and activities of local councils to improve the health of their communities by increasing physical activity and healthy eating.
COUNCIL PROFILES

BRIMBANK CITY COUNCIL

Brimbank City Council is in Melbourne’s west and is the second largest municipality with an area of 123 square kilometres and more than 170,000 residents. The population is predicted to rise to 200,766 by the 2015. The community is characterised by high numbers of people from culturally and linguistically diverse (CALD) backgrounds with 40% of Brimbank’s residents born overseas and about 54% speaking a language other than English. Brimbank is home to people from more than 96 nationalities. Brimbank is the third most socio-economically disadvantaged municipality in Melbourne (ABS 2003).

KNOX CITY COUNCIL

Knox City Council is in Melbourne’s east, 25 kilometres from the Melbourne central business district and has a population of 150,000. The population is expected to grow slowly over the next 10 years to about 155,000. However, it is projected the population of 60-69 year olds will more than double over the next 25 years. Knox is generally considered to be an area with high levels of socio-economic advantage (ABS 2003), and one with a ‘leafy green’ image but it has pockets of disadvantage. The area has high car use and is poorly served by public transport.
Over the 12 month period of the project, researchers and councils sought to devise a feasible way to work together to translate research into practice. The project committee comprising councils, researchers and the Victorian Local Governance Association (VLGA) met five times. At these meetings, results were presented and discussed with councils who were then able to disseminate findings within their own councils to guide local planning and decision-making. The VLGA had an advisory role throughout the project and assisted with disseminating information about the research translation project and about VicLANES to the broader local government community in Victoria.

Councils were particularly interested in the following:

- environmental predictors of physical activity
- presence of fast food outlets in areas
- influence of individual socio-economic status, employment, age and sex on food-purchasing and physical activity
- importance of other household members (especially children) on food-purchasing and physical activity
- places of alcohol consumption
- perceptions of local environment
- attitudes and knowledge about food and physical activity.
incorporation of actions into council activities

The two councils have used the data in a number of ways to inform their decision making and policies. The planning phase for the MPHs has started and both councils agree that the data will be used in a range of ways including aligning priorities with the ‘environments for health’ framework (social, economic, natural and built environments). The councils’ Municipal Strategic Statements (MSS) are also likely to be informed by VicLANES data.

There is a commitment to use VicLANES data to develop a physical activity strategy in Brimbank and ensure that physical activity is a priority area for health promotion with the Brimbank-Melton Primary Care Partnership.

The VicHealth funded project in their “Food for All program” in Brimbank aims to increase the access of disadvantaged groups to affordable fresh food. The food security data and information about knowledge and attitudes to foods generated by VicLANES will inform the work of this project over the next three years. The council secured funding from VicHealth for a healthy eating display at the Brimbank City Festival in late 2006, and used data from VicLANES to argue the case for funding. The Leisure Department of Brimbank Council is developing a strategy to promote physical activity and healthy eating; the VicLANES data will contribute to the development of this strategy.

Knox is undertaking a project with women in one of their suburbs to increase physical activity and social connectedness. Local women will be trained as peer researchers. The project is an across Council initiative that involves partnerships with the Department of Infrastructure, the local Community Health Centre and other local service agencies. The project aims to develop a “Community Travel Plan” that can then be applied in other settings.

One of the positive consequences of this local government project is that it has not only inspired interest from other local governments, but other agencies that work with local government such as community health centres, health promotion practitioners/ researchers, Primary Care Partnerships and those with
There was also dissemination of findings to the broader local government sector through a research forum and our website. The forum for local government and health promotion practitioners was attended by around 70 participants and the website will continue to be a source of information for local government. The 12-month time frame of the “Improving local areas to increase physical activity and healthy food choices” project and the interruption of council elections a few months into its commencement posed some difficulties. However, the flow-on effects are likely to continue well into 2007 and beyond.

**discussion**

The research translation project has demonstrated that researchers can work constructively with local government to assist with developing an evidence base to improve aspects of the local environment that impact on health. The need for local government to use high quality research findings in policy and planning creates many opportunities for academic/government partnerships but the capacity to undertake this work is often restricted by monetary and time constraints.

There were several important lessons:

- while councils have similar obligations to produce MSS and MPHP, each council has different ways of working and varying demands and capacity to take on more unpaid work. There are dangers in conceptualising local government with a ‘one size fits all’ approach
- future research translation projects involving academia and local government should run over a longer time frame and allow time and resources for meetings and busy work schedules of councils. There also needs to be adequate time for project evaluation. Councils were paid for their attendance at meetings, and this was regarded positively by councils
- the availability of downloadable web resources is an essential adjunct to a project where there is rapid data analysis and interpretation.
final note

Local government staff and elected officials regularly use research in funding submissions, planning and decision making, but there is variation in councils’ capacity to engage with complex research findings for local use. Peak bodies for local government may wish to include this topic in professional development programs for council staff and elected officials.

ongoing research and analysis

In this report we have provided basic summary findings on area SES differences in levels of health behaviours and their determinants. Future VicLANES analysis will aim to determine just how much the local environment is influencing certain health behaviours once we statistically adjust for differences between individuals.

Currently we are working on papers related to environmental influences on cycling, walking, alcohol use, fast food consumption and other food shopping behaviours. Once published, these papers will appear on our website. Two previously published VicLANES papers on physical activity rates (Kavanagh et al. 2005) and BMI (King et al. 2006) are currently available on our website (www.kcwhs.unimelb.edu.au/viclanes/)
glossary

**body mass index (BMI)**

Body Mass Index (BMI) is used to estimate body fat in proportion to height. It is calculated as weight in kilograms divided by height in metres squared.

\[
\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m)}^2}
\]

BMI provides an estimate of whether a person might be overweight or underweight. A BMI between 20 and 25 kg per m\(^2\) is considered a healthy weight for young and middle aged adults. Between 25 and 30 kg per m\(^2\) is considered overweight and above 30 kg per m\(^2\) is obese.

**census collector district (CCD)**

A CCD is the basic geographic unit used by the Australian Bureau of Statistics (ABS) to collect census data. CCDs contain an average of 200 private dwellings. In the innermost areas of Melbourne, where the VicLANES data was collected, the CCDs were more densely populated, with an average of 557 residents and a mean size of 0.34 km\(^2\). By using CCDs we are able to compare our data with the census data to ensure it gives a true picture of the population actually living in the area.

**food basket**

A hypothetical “basket” of common food items is used to compare price differences across stores and areas (see Table 6).

**food purchasing indices**

A derived score between 0 and 100 reflecting the healthiness of foods purchased within the household. A higher score means more food is purchased that is consistent with recommended dietary guidelines. We calculated separate indices for fruit, vegetable and general grocery purchasing.
food security/insecurity
Food security/insecurity refers to the ability/inability to have regular access to adequate and nutritious food. The notion of ‘food security’ looks more broadly at the traditional concept of hunger and embraces a systemic view of the causes of hunger and poor nutrition within a community, while identifying the changes necessary to prevent their occurrence.

harmful alcohol consumption
Alcohol consumption likely to lead to long term harm is defined as more than 28 standard drinks per week for men and 14 for women. Consumption likely to lead to short term harm on a weekly basis is more than six standard drinks at least once a week for men and more than four for women.

local government area (LGA)
A local government area is the area governed by a local council.

Mean
The sum of all values divided by the number of values (same as an average).

median
The median is the middle number in a sequence of numbers. In a sample with numeric measurements, exactly half of the measurements are higher than the median, and exactly half are lower than the median. The median is used as an alternative to the mean when values are skewed.
radius

The radius of a circle is the distance from the centre to the edge of the circle. In the VicLANES environmental audits, data was collected from the area within a 2km radius from the centre of each CCD.

sample

Because it is usually not practical to collect data from every individual in a population (that is what the Census does, and it only happens every five years), we collect data from randomly selected individuals. Ideally the sample should be representative of a population so that information from the sample can be generalised to the population.

socio-economic status (SES)

Socio-economic status refers to wealth or income relative to the population. In this study, we were interested in the socio-economic status of geographic areas, as defined by Census Collector Districts (CCDs). CCDs were ranked according to the proportion of households in that CCD with a weekly pre-tax income of less than $400 per week (low income households), and classified into seven SES groups. We then took a random sample of 50 CCDs from the very high, middle and very low SES groups.

street segment

In the walking audit, a street segment was the part of a street between two intersections.

sufficiently active for health

This term comes from the “Active Australia” survey, a widely used tool which measures different types of every day activities. In this survey we asked people to estimate how much time they spent in walking, vigorous gardening or yard work or other moderate intensity activity over the past week. People who spent less than 150 minutes of physical activity during the previous week were considered “insufficiently active for health”. It is recommended that people spend at least 30 minutes doing moderately intense activity on most days of the week.
references


