

# Why do some women of low socioeconomic position eat better than others?

Centre for Physical Activity and Nutrition Research

## Summary report

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C-PAN



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# Contents

<b>Executive summary</b>	<b>1</b>
<b>1. Background and study aims</b>	<b>3</b>
1.1 Eating behaviours and socioeconomic status	3
1.2 Factors influencing eating behaviours	4
1.3 Resilience to poor eating behaviours	5
1.4 Study aims	5
<b>2. Study design and methods</b>	<b>6</b>
2.1 Study design	6
2.2 Study participants	6
2.3 Dietary survey	7
<b>3. Study findings</b>	<b>10</b>
3.1 Characteristics of participants	10
3.2 Fruit, vegetable and fast food consumption among study participants	11
3.3 Factors associated with resilience amongst low socioeconomic women	14
<b>4. Study conclusions</b>	<b>20</b>
<b>5. References</b>	<b>23</b>

## List of figures

Figure 1	Frequent consumption of fruit, vegetables and fast food	12
Figure 2	Fruit consumption according to socioeconomic position	12
Figure 3	Vegetable consumption according to socioeconomic position	13
Figure 4	Fast food consumption according to socioeconomic position	13

## List of tables

Table 1	Characteristics of study participants	10
Table 2	Daily consumption of fruit and vegetables	11
Table 3	Mean score for various individual-level correlates of fruit and vegetable consumption among resilient and non-resilient women	16
Table 4	Mean score for various individual-level correlates of fast food consumption among resilient and non-resilient women	17
Table 5	Mean score for various social correlates of fruit consumption among resilient and non-resilient women	18
Table 6	Mean score for various physical environmental correlates of fruit consumption among resilient and non-resilient women	19

## Executive summary

It is well-known that adequate nutrition is important for the promotion of good health and the prevention of many chronic diseases, including overweight and obesity, cardiovascular disease, some cancers and osteoporosis. Despite these benefits, many Australians, particularly those experiencing socioeconomic disadvantage, do not eat a healthy diet.

Not all people of low socioeconomic position (SEP) eat poorly, and some people appear 'resilient' to poor dietary behaviours. Little is known about the characteristics of these resilient people, so it is useful to examine individual, social and environmental correlates to inform the development of future health promotion strategies.

This cross-sectional study surveyed 1,567 women by mailed questionnaire. It compared eating behaviours amongst women from varying socioeconomic backgrounds, and examined the correlates of fruit, vegetable and fast food consumption among women of low socioeconomic position.

Overall, 60% of women responding to the survey met the guidelines for fruit consumption (at least two serves/day). Only 5% met the guidelines for vegetable consumption (at least five serves/day), while 29% consumed three to four serves/day. Nearly 80% of women reported eating fast food infrequently (less than once/week).

Compared with higher SEP women, a lower proportion of low SEP women met fruit and vegetable guidelines, however, some were resilient with 54% of low SEP women meeting fruit guidelines, 30% consuming three or more serves/day of vegetables and 80% infrequently consuming fast food.

Examination of the factors that support resilience to poor dietary behaviours amongst women of low SEP found that, compared to non-resilient women, resilient women reported having higher confidence and self-efficacy for eating a healthy diet and avoiding fast food. They also reported preferring



fruit and vegetables, and using meal planning strategies. In addition, resilient women reported having more support from family and friends, and having fresh food available in their neighbourhood.

Non-resilient women reported being more influenced by the taste preferences of family members such as children; having fewer skills for cooking and preparing healthy food; having poorer storage for fresh food; and perceiving a higher cost of fresh food, compared to resilient women.

The study suggests that a poor diet is not an inevitable consequence of socioeconomic disadvantage. It identifies several potentially modifiable correlates of a healthy diet, which will be valuable in informing the development of nutrition promotion strategies aimed at improving diet amongst socioeconomically disadvantaged women.

**This report describes the key findings of the study. It will be of interest to women and families; community health organisations; policy makers; health professionals such as dietitians and nutritionists; and others interested in women's health and the promotion of healthy eating.**



# Background and study aims

## 1.1 Eating behaviours and socioeconomic status

There is good evidence that adequate nutrition is important for the prevention of many chronic diseases such as cardiovascular disease, type 2 diabetes, some cancers and osteoporosis<sup>1</sup>. Poor eating patterns, including a lower consumption of fruit and vegetables<sup>2</sup> and a higher frequency of eating meals outside of home, are also associated with increased risk of overweight and obesity<sup>3</sup>.

Despite this, many adults, particularly those experiencing socioeconomic disadvantage, do not eat a healthy diet<sup>4</sup>. One large-scale study examining dietary patterns among Australian adults showed significant differences in dietary patterns between individuals of high and low socioeconomic position (SEP), and between men and women<sup>4</sup>. For example, lower SEP females more often ate 'traditional vegetables' and 'meat dishes' while high SEP females more often ate 'ethnic vegetables' and 'breakfast cereal/muesli'. Socioeconomic differences in fruit and vegetable intake have also been shown among Australian adults. Giskes and colleagues (2002) found that adults of lower income consumed a smaller variety of fruit and vegetables than did adults of higher income<sup>5</sup>. Given that poor dietary behaviours appear to be more prevalent in persons of low SEP, it is important to understand the correlates of eating behaviours in this population.

## 1.2 Factors influencing eating behaviours

When examining dietary behaviour, the social-ecological model provides a useful framework for understanding influences at individual, social and environmental levels<sup>6</sup>. Individual-level factors that are thought to influence healthy eating include knowledge about nutrition, confidence in ability to eat healthfully, and skills around planning and cooking or preparing healthy foods<sup>7</sup>.

### ***Nutrition knowledge***

Parmenter and colleagues (2000) examined whether nutrition knowledge was different between sociodemographic groups in England<sup>8</sup>. In that study, nutrition knowledge was examined using a series of questions in four different areas: knowledge of recommendations regarding intake of different food groups; nutrient knowledge; healthy food choices (e.g. choose the food lower in fat); and knowledge about the relationship between diet and disease. Across all indicators of nutrition knowledge, individuals of low SEP tended to have poorer knowledge about nutrition<sup>8</sup>. This may, in turn, influence their ability to choose a healthy diet, thereby partially explaining socioeconomic differentials in dietary behaviours.

### ***Self-efficacy***

Other factors at the individual-level such as self-efficacy (confidence in ability to eat healthfully in any circumstances) have also been associated with intake of a healthy diet. Havas and colleagues (1998) found that women who were sure they could eat fruit and vegetables away from home (i.e. high self-efficacy for eating a healthy diet), ate significantly more fruit and vegetables<sup>9</sup>. Low self-efficacy has also been shown to have an association with poor dietary behaviours. Satia and colleagues (2004) examined correlates of frequency of eating at a fast food restaurant among adults in the United States. Self-efficacy was defined as confidence to eat more fruit and vegetables and less fat. Low self-efficacy for healthy eating was associated with higher frequency of eating at fast food restaurants in that sample<sup>10</sup>.

### ***Behavioural skills***

Certain behavioural skills such as using meal planning strategies and time management are suggested to impact on food choices<sup>11</sup>, as are food management skills such as budgeting<sup>12</sup>. However, these factors have not been widely examined among groups of varying SEP.

### ***Social environment***

Eating often occurs in the presence of others, therefore family members and friends are likely to influence food consumption<sup>7</sup>. Havas and colleagues (1998) examined social support (encouragement for buying, preparing and eating fruit and vegetables) and fruit and vegetable consumption among women. They found higher social support was associated with greater fruit and vegetable intake<sup>9</sup>. Preferences for specific foods or meals from family members has also been found to correlate with dietary behaviours<sup>13</sup>. Despite emerging evidence of the role of the social environment in shaping dietary behaviour, it has not been explored in depth, particularly among individuals experiencing socioeconomic disadvantage.

### ***Physical environment***

Recently, interest in environmental influences on dietary behaviours has increased, with studies examining various physical environmental factors for associations with specific dietary behaviours, such as fruit and vegetable intake. The environmental factors examined most frequently are accessibility and availability of fruit and vegetables<sup>14</sup>. The presence of a nearby supermarket, for example, has shown positive associations with fruit and vegetable consumption. Accessibility of shops and affordability of fruit and vegetables have also shown positive associations with intake of these foods<sup>14</sup>. Research into environmental influences on dietary behaviours is limited, with little research examining these factors among individuals experiencing socioeconomic disadvantage.

## **1.3 Resilience to poor eating behaviours**

Although poor dietary behaviours appear to be more common among individuals experiencing socioeconomic disadvantage, not all people of low SEP eat poorly. In fact, there is considerable variation in dietary behaviours within socioeconomic groups<sup>15</sup>. Some people appear to be 'resilient' to poor dietary behaviours, despite experiencing socioeconomic disadvantage.

Understanding the factors that contribute to an individual's resilience to poor dietary behaviours despite their socioeconomic disadvantage, is an important basis for developing strategies to promote healthy eating amongst socioeconomically disadvantaged groups. Understanding resilience amongst women is particularly important. Women's diets are qualitatively and quantitatively different from those of men. Women tend to eat less than men and are more likely to diet to manage their weight, and consequently they risk falling short of key food and nutrient requirements for good health. In addition, despite significant changes to the workforce in recent years, women typically still have the role as food gatekeepers within their families<sup>11</sup> and this role has the potential to influence the diets of other family members.

## **1.4 Study aims**

This study took a social-ecological approach, examining influences at individual, social and physical environmental levels, to shed further light on apparent resilience to poor eating behaviours amongst women of low socioeconomic position. In particular the study aimed:

1. To examine dietary behaviours, such as fruit, vegetable and fast food consumption among women of varying socioeconomic position.
2. To identify the proportion of women experiencing socioeconomic disadvantage that were resilient to poor dietary behaviours.
3. To understand the correlates (including individual, social and physical environmental factors) of resilience to poor dietary behaviours amongst women experiencing socioeconomic disadvantage.

# Study design and methods

## 2.1 Study design

This study was part of a larger study known as the ‘Socioeconomic Status and Activity among Women’ study or ‘SESAW’, which was extended to include a focus on healthy eating. It was a cross-sectional study involving a survey of a sample of Melbourne women.

Approval to conduct all phases of this study was received from the Deakin University Human Research Ethics Committee. Consent for participation in the study was provided by the participants.

## 2.2 Study participants

Participants in the SESAW study were a random sample of women living in metropolitan Melbourne. All suburbs were identified and a socioeconomic score for relative disadvantage (SEIFA) for each area was examined. The SEIFA score is based on data from the Australian Bureau of Statistics’ 2001 census and incorporates an area-level measure of a series of socioeconomic indicators including the proportion of people in that area with low income, low educational attainment and in unskilled occupations<sup>16</sup>.

All neighbourhoods were ranked according to their SEIFA score and grouped into seven different groups (septiles), ranging from low to high socioeconomic disadvantage. Fifteen suburbs were randomly selected from each of three groups, the lowest, middle and highest septiles, providing a total of 45 suburbs. The Australian electoral roll was used to identify a random sample of 2,400 women aged 18-65 years living in each of the 45 suburbs.

To counter differential response rates across socioeconomic groups typically observed in mail-based surveys, women from the lowest and middle septile were over-sampled compared with those in the highest septile. In total 645

women from high socioeconomic areas, 780 from the middle socioeconomic areas and 975 from the low socioeconomic areas were approached to participate in the study.

## 2.3 Dietary survey

Information was collected via a mailed survey. Women identified from the electoral roll to participate were mailed a letter stating they had been selected to participate in a study examining women's health behaviours and would shortly receive a survey in the mail. One week later, a survey about women's diet and influences on eating behaviours was posted out to 2,400 women.

Participants who did not respond within three weeks of being mailed the survey were posted a reminder letter. A third reminder letter and replacement survey were sent out a further three weeks later.

Using the same methodology, a second sample of women were sent a survey about physical activity. Respondents to the physical activity survey were asked if they would also be willing to complete a survey about healthy eating, and if they responded positively, a dietary survey was mailed to them.

The survey contained demographic questions including items relating to the women themselves, their family circumstances and indicators of socioeconomic position such as educational attainment. It also sought information about the women's dietary behaviours and potential correlates of these behaviours.

### ***Demographics***

- *Age* - women reported their date of birth.
- *Socioeconomic position* - women were asked a question about the highest educational qualification they had completed with seven options, ranging from no formal qualifications, to year 12 or equivalent, up to university degree or high university degree. Education level was collapsed into three categories: low (less than year 12 or equivalent), mid (year 12 or equivalent, certificate or diploma) and high (university/tertiary qualification or higher). For the purposes of this report, education level is used as a proxy measure of individual SEP. Education is considered a useful indicator of SEP for women because other indicators, such as occupation and income, fluctuate as women move in and out of the workforce during childbearing years.
- *Family circumstances* - women reported their current relationship status (e.g. living in a registered marriage, living in a de facto relationship, separated, divorced, widowed or never married). They also reported how many people lived with them, including children (number of children and age), partner or spouse and relatives.

### ***Weight status***

Women self-reported their weight (without clothes and shoes) and height (without shoes). Women's body mass index (BMI) was calculated ( $\text{kg}/\text{m}^2$ ), and cut-points used for determining overweight and obesity were applied based on those recommended by the Australian National Health and Medical Research Council classification system<sup>17</sup>. Women were classified according to their BMI: less than  $18 \text{ kg}/\text{m}^2$  was classified as underweight;  $18\text{-}24.9 \text{ kg}/\text{m}^2$  was classified as healthy weight;  $25\text{-}29.9 \text{ kg}/\text{m}^2$  was classified as overweight; and greater than  $30 \text{ kg}/\text{m}^2$  was classified as obese.

### ***Dietary behaviours***

The consumption of a healthy diet is one of the most important factors in protecting against the development of chronic diseases such as cardiovascular disease, overweight and obesity and some cancers. The Australian Guide to Healthy Eating suggests that adults should consume at least two serves of fruit and five serves of vegetables each day. The guidelines also suggest avoiding consumption of fast foods, as they may be high in fat, salt or sugar. The survey therefore sought information about fruit and vegetable consumption and consumption of fast foods.

- *Fruit consumption* - women were asked to report how many serves of fruit they usually ate each day, with response options ranging from none to five serves or more. One serve of fruit was indicated to be one medium piece or two small pieces of fruit, or one cup of diced fruit. Frequent consumers of fruit were defined as those women who ate two or more serves of fruit/day.
- *Vegetable consumption* - women reported their daily intake of vegetables in a separate question, indicating how many serves of vegetables they ate each day, with response options ranging from none to five or more serves. One serve of vegetables was identified as half a cup of cooked vegetables or one cup of salad vegetables. Although the Australian Guide to Healthy Eating recommends consuming five or more serves of vegetables/day, the proportion of women consuming the recommended amount of vegetables each day was low (5%). Therefore, the next cut-point down was used (3 to 4 serves/day) and frequent consumers of vegetables were defined as those women eating more than three serves of vegetables/day. These questions on fruit and vegetable intake were based on those used in the Australian National Nutrition Survey<sup>18</sup> in which they were shown to adequately discriminate between groups with different fruit and vegetable intakes assessed by 24-hour recall.
- *Fast food consumption* - women also reported on how many occasions per week, they ate meals that were from fast food restaurants (e.g. pizza, McDonalds, Red Rooster, fish and chips), either in the restaurant or as takeaway. Response options ranged from never through to 6 to 7 meals /week (daily). Frequent consumers of fast food were those women who reported consuming fast food more than once/week.

### ***Correlates of dietary behaviour***

The survey sought information about factors which may be correlated with women's resilience to an unhealthy diet, including:

- *Individual correlates* - women reported their confidence in their ability of eat a healthy diet, their preferences for healthy or unhealthy foods, their knowledge and skills relating to food and cooking, and their strategies for planning meals and eating a healthy diet.
- *Social correlates* - women reported the food preferences of their children and other household or family members, and whether their family or friends encouraged them to eat a healthy diet.
- *Environmental correlates* - women reported the barriers to eating a healthy diet such as cost and lack of storage space, as well access to and availability of healthy and unhealthy food choices in their local neighbourhood.

Throughout the study, resilience to poor dietary behaviours (frequent consumption) was defined as consuming:

- two or more serves of fruit/day (resilient to poor fruit intake); or
- three or more serves of vegetables/day (resilient to poor vegetable intake); or
- fast foods less than once/week (resilient to high takeaway food intake).





# Study findings

## 3.1 Characteristics of participants

Of the 2,400 women who were mailed a dietary survey, 1,136 returned a completed response, including 345 from high SES areas, 407 from mid-SES areas and 375 from low SES areas. The overall response rate from this group was 50% (excluding 127 women deemed ineligible).

Of the women who had previously completed a physical activity survey and who indicated they were willing to complete a diet survey, responses were received from 444 women. The final sample included in the following analyses was 1,567.

Table 1 shows the demographic characteristics of the sample. On average, participants were aged approximately 42 years, and about two-thirds of the sample were living in a marriage or defacto relationship. A large proportion of the sample had children living at home (40%), and approximately one-third had completed university or tertiary education.

Table 1 Characteristics of study participants (n=1,567) <sup>a</sup>

	n	%
<b>Age</b>		
< 29.9 years	309	20
30-39.9 years	394	26
40-49.9 years	375	25
>50 years	449	29
<b>Marital status</b>		
Married / Defacto	1001	66
Separated / Divorced / Widowed	188	12
Never married	334	22
<b>Have children at home</b>	627	40
<b>Education level</b>		
Some high school or less	355	23
High school or technical certificate	613	40
University/tertiary	550	36

<sup>a</sup> There were small numbers of participants who did not respond to all questions

### 3.2 Fruit, vegetable and fast food consumption among study participants

#### Key findings:

- Overall, a high proportion (60%) of women in the SESAW study met the guidelines for fruit consumption (at least two serves/day), but few women (5%) met the guidelines for vegetable consumption (at least five serves/day).
- Approximately 20% of women ate fast food frequently (more than once/week).
- Fewer women of low SEP met fruit guidelines (at least two serves/day) compared to women of high SEP.
- Women of low SEP also ate fewer serves of vegetables per day compared to high SEP women.
- There were few differences in fast food consumption between socioeconomic groups.

Table 2 shows the daily consumption of fruit and vegetables among the study participants. A small proportion of women (6%) reported eating no fruit, with the largest proportion of women (35%) consuming two serves/day. For vegetable consumption, 35% reported eating two serves/day and 29% reported eating three to four serves/day, while a small proportion (5%) reported eating five or more serves/day. For fast food consumption, 79% of women reported eating fast food less than once/week.

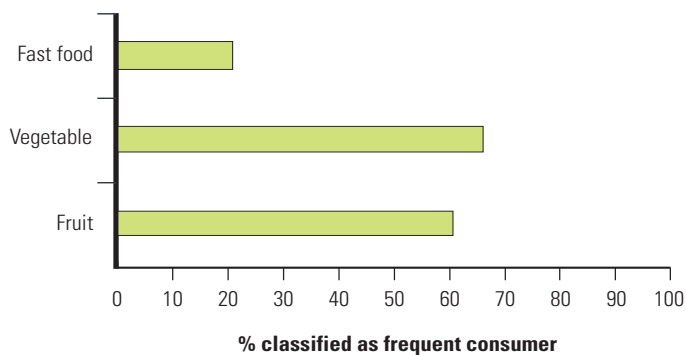
Table 2 Daily consumption of fruit and vegetables (n= 1,567)

	Fruit (%)	Vegetables (%)
None	6	2
1 serve/day	34	29
2 serves/day	35	35
3 - 4 serves/day	23	29
5 or more serves/day	3	5



Figure 1 shows women classified as frequent consumers of fruit, vegetables and fast food. Approximately 60% of participants were classified as frequent consumers of fruit, eating two or more serves/day. The proportion classified as frequent vegetable consumers (consuming three or more serves/day) was 34%. Twenty-one percent of women reported consuming fast food frequently (more than once/week).

Figure 1. Frequent consumption of fruit, vegetables and fast food (n=1,567)

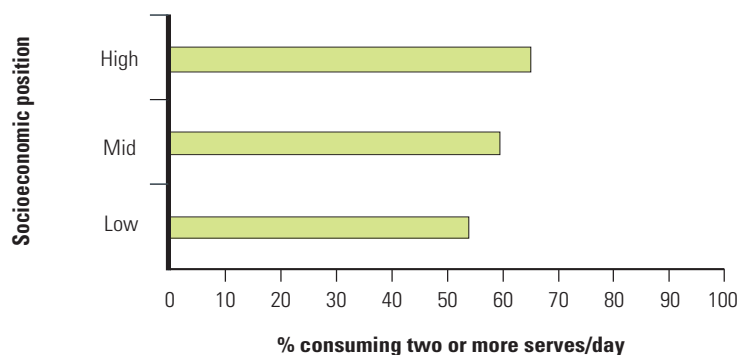


Fruit, vegetable and fast food consumption was analysed by socioeconomic group.

#### ***Fruit consumption***

Figure 2 shows the proportion of women eating two or more serves/day according to SEP. Only 54% of those women in the lowest SEP group were frequent fruit consumers, compared to 60% in the middle and 65% in the highest SEP group (a significant difference).

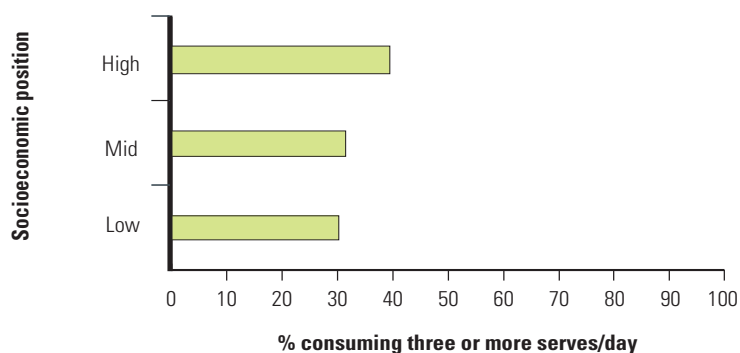
Figure 2. Fruit consumption among women according to socioeconomic position (n= 1,567)



### **Vegetable consumption**

There were also differences in vegetable consumption according to SEP. Figure 3 shows the proportion of women eating three or more serves/day by SEP. Approximately 30% of women in the lowest SEP group consumed three or more serves/day, compared to 31% in the mid and 41% in the high SEP group (a significant difference).

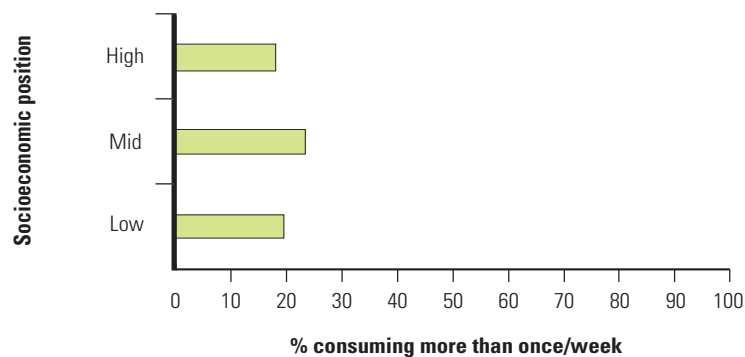
Figure 3. Vegetable consumption among women according to socioeconomic position (n=1,567)



### **Fast food consumption**

There were few differences in the proportion of women classified as frequent fast food consumers according to education level. Figure 4 shows that 20% of women in the lowest socioeconomic group were classified as frequent fast food consumers (more than once/week), compared to 24% in the middle socioeconomic group and 19% in the highest socioeconomic group (not a significant difference).

Figure 4. Fast food consumption among women according to socioeconomic position (n=1,567)



### 3.3 Factors associated with resilience amongst low socioeconomic women

#### Key findings

##### *Individual factors*

- Resilient women were more likely to report higher confidence and self-efficacy to stick with low fat food choices, as well as a greater preference for fruit and vegetables and a lower preference for fast food.
- Higher scores for cooking and preparation skills were seen among those women resilient to low fruit and vegetable consumption, compared to non-resilient women.
- Using meal planning strategies was more commonly seen among women resilient to low fruit intake, compared to non-resilient women.
- Nutrition knowledge did not differ between resilient and non-resilient women in the sample.

##### *Social factors*

- Resilient women reported higher levels of support from family members in relation to healthy eating behaviours compared to non-resilient women.
- Women resilient to low vegetable and high fast food consumption reported lower scores on social influences than did non-resilient women, and women resilient to low fruit consumption reported higher support from friends than non-resilient women.

##### *Physical environmental factors*

- Women resilient to low fruit and vegetable and high fast food consumption had less storage space concerns than non-resilient women.
- Compared to non-resilient women, women resilient to low fruit consumption and high fast food consumption did not perceive cost as a barrier to eating a healthy diet.
- Women resilient to low fruit and vegetable consumption scored higher on questions relating to the availability of healthy food options in the neighbourhood than non-resilient women.

Whilst the dietary behaviours of women of low SEP are less consistent with dietary guidelines when compared to women of high SEP, particularly for fruit and vegetable consumption, there are a substantial proportion of women of low SEP who frequently consume fruit and vegetables (54% and 30% respectively), and who infrequently consume fast food (80%). This suggests that despite experiencing socioeconomic disadvantage, these women are resilient to unhealthy dietary behaviours. Examining the correlates of dietary behaviours among this group provides an understanding of how and why these women are resilient.

This section of the report focuses on women of low SEP and examines the characteristics of these women as well as the correlates of their dietary behaviours. In particular, it examines the individual, social and environmental factors that correlate with women's resilience to low fruit consumption (i.e. those who consume two or more serves/day), low vegetable consumption (i.e. those who consume three or more serves/day) and high fast food consumption (i.e. those who consume fast food less than once/week).

### **3.3.1 Individual-level correlates of resilience to unhealthy eating behaviour**

Table 3 shows the mean score for each of the individual-level factors for resilient and non-resilient women in relation to fruit and vegetable intake.

Women resilient to low fruit and vegetable consumption scored significantly higher for confidence in their ability to eat a healthy diet compared to non-resilient women. Resilient women also scored significantly higher for self-efficacy for eating a healthy diet in challenging circumstances, and for preferring fruit and vegetables.

There were no significant differences between resilient and non-resilient women for nutrition knowledge, however, non-resilient women were more likely to report barriers relating to a lack of cooking/preparation skills compared to resilient women. Non-resilient women were also less likely to use meal planning strategies.



Table 3. Mean score for various individual-level correlates of fruit and vegetable consumption among resilient and non-resilient women (n=1,567)

	<b>Fruit consumption</b>		<b>Vegetable consumption</b>	
	Non-resilient women	Resilient women	Non-resilient women	Resilient women
<b>Confidence</b> (range 6-30) (e.g. Confidence in ability to eat a low fat diet over the next year)	17.9	22.2*	19.4	22.2*
<b>Self-efficacy</b> (range 7-40) (e.g. Confidence in ability to stick to low fat foods when eating out)	20.5	24.9*	21.8	25.2*
<b>Preferences for fruit or vegetables</b> (range 3-12) (e.g. In general, I like the taste of fruits like apples, oranges, bananas and pears)	9.3	10.3*	15.2	15.9*
<b>Skills for preparation and cooking</b> (range 3-12) (e.g. Lack of cooking/preparation skills prevent me from eating a healthy diet)	6.2	5.1*	5.8	5.1*
<b>Nutrition knowledge</b> (range 0-8) (e.g. Milk and milk products like cheese and yoghurt are the best sources of iron – true or false?)	6.1	6.4	6.2	6.5
<b>Meal planning strategies</b> (range 4-16) (e.g. I usually plan meals for the week before I go shopping)	10.0	10.6*	10.2	10.6

\*= significantly different

Table 4 shows the mean score for each of the individual-level factors for resilient and non-resilient women in relation to fast food consumption.

Women resilient to fast food consumption were more confident in their ability to limit fast food intake in the next year. They also indicated a lower preference for fast food than non-resilient women. There was a non-significant trend for non-resilient women in terms of lacking cooking/preparation skills compared to resilient women, but no significant differences between resilient and non-resilient women for nutrition knowledge or for the meal planning strategies score.

Table 4. Mean score for various individual-level correlates of fast food consumption among resilient and non-resilient women (n=1,567)

	<b>Non-resilient women</b>	<b>Resilient women</b>
<b>Confidence</b> (range 1-5) (e.g. Confidence in ability to limit fast food consumption to once a week or less over the next year)	3.3	4.2*
<b>Preference for fast food</b> (range 1-6) (e.g. In general, I like the taste of foods like meat pies, savoury pasties, pizza and hamburgers)	4.9	4.4*
<b>Skills for preparation and cooking</b> (range 3-15) (e.g. Lack of cooking/preparation skills prevent me from eating a healthy diet)	6.3	5.4
<b>Nutrition knowledge</b> (range 0-8) (e.g. Milk and milk products like cheese and yoghurt are the best sources of iron – true or false?)	6.1	6.3
<b>Meal planning strategies</b> (range 4-16) (e.g. I usually plan meals for the week before I go shopping)	9.9	10.3

\*= significantly different



### 3.3.2 Social correlates of resilience to unhealthy eating behaviours

Table 5 shows the mean score for each of the social factors among resilient and non-resilient women in relation to fruit and vegetable intake as well as consumption of fast food.

Being influenced by the tastes of children and other family members was slightly lower among women resilient to low fruit and vegetable consumption and significantly lower in those resilient to high fast food consumption. Social support was also different between resilient and non-resilient women. Compared to non-resilient women, support from family members for healthy eating was significantly higher among women resilient to low fruit and vegetable and high fast food consumption. Support from friends was slightly higher among women resilient to low vegetable and high fast food consumption and significantly higher among women resilient to low fruit consumption.

Table 5. Mean score for various social correlates of fruit consumption among resilient and non-resilient women (n=1,567)

	Fruit consumption		Vegetable consumption		Fast food consumption	
	Non-resilient women	Resilient women	Non-resilient women	Resilient women	Non-resilient women	Resilient women
<b>Social influences</b> (range 0-15) (e.g. My children don't like the taste of healthy foods)	6.5	5.8	6.4	5.4*	7.1	5.8*
<b>Support from family members for eating healthy foods</b> (range 3-15) (e.g. family members encourage eating healthy foods)	8.4	9.4*	8.7	9.6*	8.0	9.2*
<b>Support from friends for eating healthy foods</b> (range 3-15) (e.g. friends encourage eating healthy foods)	6.4	7.3*	6.8	7.2	6.5	7.0

\*= significantly different

### 3.3.3 Physical environmental correlates of resilience to unhealthy eating behaviours

Table 6 shows the mean score for each of the physical environmental factors among resilient and non-resilient women in relation to fruit, vegetable and fast food consumption.

Women resilient to low fruit and vegetable, and high fast food consumption were less likely to report lack of storage space as a barrier to healthy eating, and were more likely to report that healthy food was available in their neighborhood than non-resilient women.

Access to healthy food did not differ between resilient and non-resilient women, but fewer women resilient to low fruit consumption reported that cost was a barrier to healthy eating, compared to non-resilient women.

Table 6. Mean score for various physical environmental correlates of fruit consumption among resilient and non-resilient women (n=1,567)

	Fruit consumption		Vegetable consumption		Fast food consumption	
	Non-resilient women	Resilient women	Non-resilient women	Resilient women	Non-resilient women	Resilient women
<b>Storage space</b> (range 1-5) (e.g. I do not have adequate storage space in my house – fridge/cupboards too small)	1.7	1.4*	1.6	1.3*	1.6	1.3*
<b>Cost</b> (range 0-10) (e.g. I do not buy fruit and vegetables because they cost too much)	4.7	4.0*	4.4	4.1	4.4	4.1
<b>Access to healthy food</b> options in neighbourhood (range 0-4) (e.g. Fruit/vegetables stores within walking distance of home)	2.2	2.4	2.3	2.3	2.3	2.3
<b>Availability of healthy food</b> options in neighbourhood (range 0-29) (e.g. The fresh produce in my area is usually of a high quality)	17.0	18.6*	17.4	19.0*	17.4	19.0*

\*= significantly different

## Study conclusions

The SESAW study aimed to examine dietary behaviours among women of varying socioeconomic position (SEP), and the correlates of these behaviours. It has been one of the first studies internationally to take a social-ecological approach, investigating individual, social and physical environmental correlates of dietary intake and the mechanisms underlying socioeconomic inequalities in dietary intakes amongst women.

Data from this study show that there are a large number of women not meeting the Australian guidelines for healthy eating, with 40% of women consuming fewer than two serves of fruit/day and 95% consuming fewer than five serves of vegetables/day. Only 20% of women however consumed fast food frequently (more than once/week).

In terms of the difference between socioeconomic groups, there were no differences in fast food consumption, but women of low SEP consumed fewer serves of fruit and vegetables each day compared to those of high SEP. This is consistent with previous research among Australian adults <sup>4</sup>.

### ***Individual factors affecting resilience to poor dietary behaviours***

The study findings highlight some important attributes of low SEP women who were resilient to poor dietary behaviours. In particular, resilient women were more confident in their ability to eat a healthy diet and avoid fast food, and showed greater self-efficacy for eating a healthy diet than non-resilient women. This supports previous research, which has shown self-efficacy to be associated with higher intakes of fruit and vegetables among low SEP adults <sup>19</sup>.

Preference for fruit and vegetables and use of meal planning strategies were also positively associated with resilience to poor dietary behaviours in this study, whilst lack of cooking and food preparation skills was more commonly reported in non-resilient women. Previous research has identified enjoyment of shopping and preparing food to be associated with high consumption of fruit and vegetables among Australian women <sup>20</sup>, and has highlighted personal preference as influencing purchasing and preparation of fruit and vegetables

among low-income women<sup>13</sup>. The present study is, however, the first to demonstrate these factors to be associated with resilience to poor dietary behaviours amongst low SEP women.

Interestingly, nutrition knowledge did not differ between resilient and non-resilient women in this sample. It is possible that many women are aware of the benefits of high fruit and vegetable consumption and low fast food consumption, and hence a more detailed knowledge of nutrition is not needed to support these behaviours. Further research is required to examine whether nutrition knowledge mediates SEP differences in dietary intake.

The findings suggest that strategies targeting individual-level factors such as using meal planning strategies, and improving cooking and food preparation skills may have important benefits for encouraging the consumption of a healthy diet among women experiencing socioeconomic disadvantage. Programs targeting such skills may also improve women's confidence and self-efficacy for consuming a healthy diet, although further research is required to examine the temporal nature of these associations.

### ***Social factors affecting resilience to poor dietary behaviours***

There also appear to be a number of important social correlates of resilience to a poor diet for low SEP women. Compared to non-resilient women, having support from family members and friends was higher among resilient women in this study, and resilient women tended to be less influenced by other social factors such as the food preferences of other family members such as children. This is supported by previous research, which found the likes and dislikes of family members to be important factors influencing low-income women's shopping and preparation of fruit and vegetables<sup>13</sup>. Another study among Australian women has also found social support to be associated positively with women's intake of fruit and vegetables<sup>21</sup>. In light of these findings, it is suggested that strategies aiming to increase women's consumption of fruit and vegetables should consider approaches that target women as well as their families. For example, strategies such as involving children and partners in food preparation and cooking may encourage them to support women's healthy food choices.

### ***Physical environmental factors affecting resilience to poor dietary behaviours***

Physical environmental factors within the neighbourhood have only recently been investigated for associations with dietary behaviours, and evidence to date has been inconclusive<sup>22</sup>. The hypothesis that women with greater perceived availability of healthy food options in the neighbourhood and fewer environmental barriers to consuming a healthy diet (e.g. lacking storage space and high perceived cost) should be more likely to be resilient to an unhealthy diet is plausible, and the current study supports this. Women resilient to poor dietary behaviours were less likely to report low availability of fresh food in the neighbourhood. They were also less likely to report storage space or cost as barriers to fruit and vegetable consumption.

Previous research has associated accessibility of shops and of fruit and vegetables in shops with fruit and vegetable intake, as well as perceived affordability<sup>14</sup>. Further, Inglis and colleagues (2008) found that the association between socioeconomic position and women's intake of fruit and vegetables was almost wholly explained by perceived availability, accessibility and affordability<sup>23</sup>. However, it is important to note that these studies, and the present study, all relied on perceptions of the neighbourhood environment rather than objective environmental measures. Whether these findings would be similar using objective measures remains to be established. One recent study suggested that perceived availability of foods may be more important than objectively-assessed availability in explaining socioeconomic variations in diet<sup>24</sup>. If disadvantaged women do have poorer access and availability, and higher cost of fruit and vegetables, policy changes addressing these issues are required. If, however, these barriers are perceived, nutrition promotion programs should focus in raising awareness of healthy food options in the local neighbourhood.

The findings from this study suggest that a poor diet is not an inevitable consequence of socioeconomic disadvantage, given that a significant proportion of women of low socioeconomic position do manage to eat a healthy diet.

The study highlights several important factors that may support resilience in these women, at an individual, social and physical environmental level. These factors can usefully inform the development of targeted nutrition promotion strategies aimed at improving diet amongst less resilient socioeconomically disadvantaged women. Acknowledging the cross-sectional nature of these data and the need for further research to confirm the causal relationships amongst the factors examined here, future nutrition promotion interventions, programs and policies might incorporate a focus on, for example, the use of meal planning strategies, or the provision of basic food cooking and preparation workshops, as well as familial involvement and promotion of local food facilities to encourage consumption of fruit and vegetables among women experiencing socioeconomic disadvantage.

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Why do some women  
of low socioeconomic  
position eat better  
than others?

**Summary report**