

Original Article

Adolescent home food environments and socioeconomic position

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Many adolescents have diets that are less than optimal, particularly adolescents of low socioeconomic position (SEP). The determinants of SEP differences in adolescent dietary intake are poorly understood. This study examined the home food environments of adolescents and specifically investigated whether low SEP adolescents have less supportive home meal environments, fewer eating rules and poorer home availability of fruit and vegetables than adolescents of high SEP. A cross-sectional, self-reported survey was administered to 3,264 adolescents in years 7 and 9, from 37 secondary schools in Victoria, Australia. Adolescent perceptions of the home meal environment, eating rules and home food availability were described and compared across SEP, which was measured using maternal education. Maternal education was linked to various aspects of the home meal environment, as well as home food availability, but not to eating rules. Low SEP adolescents were more likely to report that they were always allowed to watch television during meal times, and that unhealthy foods were always or usually available at home. In contrast, high SEP adolescents were more likely to report that vegetables were always served at dinner, that the evening meal was never an unpleasant time and always or usually a time for family connectedness, and that fruit was always or usually available at home. This study highlights aspects of the home food environment that might explain SEP variation in adolescent diets. Feasible ways of increasing home availability of healthy foods, and encouraging home meal environments to be supportive of healthy eating should be explored, particularly in households of low SEP adolescents.

Key Words: social class, adolescents, food habits, nutrition, Australia

INTRODUCTION

Adolescent nutrition is important in terms of current and future health. Inadequate intake of energy and nutrients during adolescence may negatively impact on growth and development.¹ Furthermore, poor eating patterns during adolescence may have long-term health implications.²⁻⁴ For example, overweight children and adolescents have a greatly increased risk for becoming overweight adults,² high fat intake during adolescence may be associated with increased risk of coronary heart disease in adulthood,³ and low intake of calcium during adolescence is associated with low bone density and an increased risk of osteoporosis later in life.⁴

Despite the importance of adolescent nutrition, many adolescents have diets that are less than optimal,^{5,6} particularly those from lower socioeconomic backgrounds. For example, adolescents of lower socioeconomic position (SEP) tend to consume fewer vegetables, fruits, dairy and high fibre foods and more high fat foods than their counterparts of higher SEP.⁵⁻¹⁰ Irregular meal patterns, as well as snack consumption, are common, especially among girls of low SEP.¹¹

Surprisingly, few studies have examined why adolescents of low SEP have poorer diets. While some studies have attributed SEP differences in dietary intake to cognitive factors^{12,13} or factors within the local neighbourhood

environment,¹⁴ few have examined the importance of the home food environment. Three aspects of the home food environment that may explain the poorer diets of socioeconomically disadvantaged adolescents are less supportive home meal environments; fewer eating rules; and poorer availability of fruit and vegetables in low SEP homes.

Some evidence suggests that the home meal environments of low SEP adolescents may not support healthy eating. For example, adolescents of lower SEP eat family meals less frequently than do adolescents of higher SEP,¹⁵ and consequently, may have poorer diets since family meals are positively associated with healthful dietary intake patterns.^{15,16} Lower SEP adolescents appear to eat breakfast and lunch less often than do adolescents of higher SEP,¹¹ and children from lower SEP families are more likely to watch television while eating dinner and to eat take-away for dinner more than twice a week, compared to children from higher SEP families.¹⁴

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Another possible explanation for why low SEP adolescents eat poorer diets may be that they are subject to fewer eating rules than their high SEP peers. Several studies have shown that parental use of eating rules to encourage children to eat healthy foods and limit their consumption of unhealthy foods may have positive effects on children's and adolescents' diets.^{17,18} For example, one study showed that adolescents who are restricted by their parents from eating unhealthy foods at a young age are more likely to make healthy food choices, and consume less unhealthy foods (fats and sugars), in adolescence.¹⁷ Furthermore, in a cross-national survey, Hupkens *et al.*¹⁸ found that mothers in middle-class families, where children's diets tended to be more healthful, were more likely to restrict their children's consumption of unhealthy foods than mothers in lower class families. Hart *et al.*¹⁹ also found that low SEP children more frequently reported free choice or the absence of eating rules in the home than high SEP children. However, there is also growing evidence that parental restriction of access to unhealthy foods and pressure to eat healthy foods may have undesirable effects on children's and adolescents' diets.²⁰⁻²³

A third possibility to explain the poorer diets of low SEP adolescents is that the availability of fruit and vegetables is poor in low SEP homes. Adolescents and children of low SEP have poorer availability of fruit and vegetables in their homes, compared to their high SEP peers.^{14,24,25} Consequently, low SEP adolescents may have poorer diets since home food availability is one of the strongest correlates of fruit and vegetable consumption.^{24,26}

The present study expands upon the limited research examining the home food environments of adolescents. The large study population comprises adolescents from diverse socioeconomic backgrounds, thus allowing for comparisons of adolescent home food environments across SEP. Given that adolescents of low SEP are likely to consume diets that are not consistent with healthy or recommended food practices, the question arises as to whether aspects of their home food environment may explain their poor diets. The first objective of this study is to describe aspects of the home food environment that are likely to influence adolescent nutrition, namely home meal environments, eating rules and food availability. The second objective is to examine how these aspects of the home food environment vary according to SEP.

METHODS

Study Design and Procedures

Data were obtained as part of a larger study, the Youth Eating Patterns (YEP) study,²⁷ designed to investigate environmental, personal and social correlates of dietary intake among a socioeconomically diverse sample of adolescents. This study was approved by the Deakin University Ethics Committee, the Victorian Department of Education and Training and the Catholic Education Office. All co-educational state (government) and Catholic secondary schools (including years 7 to 12), located in the Southern metropolitan region of Melbourne and the non-metropolitan region of Gippsland to the east of Melbourne, and with enrolments over 200, were invited to

participate. Of the 70 schools (47 metropolitan and 23 non-metropolitan) that met these criteria, 37 schools (20 metropolitan and 17 non-metropolitan) agreed to participate in the study.

All students ($n = 9,842$) from year 7 (aged 12-13 years) and year 9 (aged 14-15 years) were invited to participate. Teachers distributed parental consent forms to parents via students. In addition to requesting consent for their adolescent to participate in the study, parents were also asked to report sociodemographic information including their gender, age, relationship to the child, and highest level of schooling. Parental consent was obtained for 4,502 (46%) of all eligible students. Teachers administered online surveys to 3,264 adolescents whose parents had consented to them participating (33% of all eligible students that were invited to participate) in class time during the 2004-2005 school year. Teachers were provided with detailed information on how to access and administer the survey, answers to frequently asked questions, and the procedure to re-commence the survey at a later time if students were unable to complete on the day. Further details of the sample and data collection procedures are described in a previous publication.²⁷

A parental survey was also mailed to all parents who gave consent for their teenager to participate in the study. The parent who was mostly responsible for the purchasing, preparing and cooking of foods/meals for the household was asked to complete the questionnaire, which included questions about their own demographics, including highest level of education, as well as the demographics of their partner, and additional questions about their teenagers' eating patterns.

Measures

Prior to administration of the online survey, and as part of its development, the survey items were trialled with 50 adolescent students and modified based on the students' feedback.

Home meal environment. Adolescent perceptions of the home meal environment were assessed by asking them how frequently the following eight statements were true: 'There is plenty of food at home'; 'Vegetables are served at dinner'; 'The evening meal is an unpleasant time for my family'; 'The evening meal is a time when my family really talks and catches up with each other'; 'During meal times I'm allowed to put the television on'; 'I'm expected to be home for dinner unless otherwise arranged'; 'I'm expected to have good manners at the dinner table (e.g. handling food politely – using my knife and fork properly)'; and 'At meal times I have to follow certain rules (e.g. not talking with my mouth full)'. Possible responses were 'never', 'sometimes', 'usually' or 'always'. These items were adapted from Project EAT (Eating Among Teens).²⁸

Eating rules. Adolescent perceptions of eating rules were assessed by asking them how frequently the following four situations occurred: 'I can eat whatever I like at home'; 'I'm always allowed to buy whatever I want from fast food places'; 'I'm expected to eat all the foods served even if I don't like them'; and 'It's OK for me to make

something else to eat if I don't like the food being served for dinner'. Possible answers were 'never', 'sometimes', 'usually' or 'always'. These items were also adapted from Project EAT.²⁸

Food availability at home. Food availability at home was assessed by asking adolescents 'How often are the following foods available in your home?' This was followed by a list of eight items, including fruit, vegetables, cakes/donuts/biscuits, fruit juice, potato chips or other salty snack foods, chocolate or other lollies, soft drink, and sports or energy drinks. Possible answers were 'never', 'sometimes', 'usually' or 'always'. These items were adapted from the Nepean Kids Growing-Up Study.²⁹

Demographics. The online survey collected information on demographic characteristics including adolescent gender and current grade. In the parent consent form and questionnaire, parents were asked to report their highest level of schooling undertaken. Response categories included 'Never attended school', 'Primary school', 'Some high school', 'Completed Year 10 High school', 'Completed Year 12 High school', 'Technical or trade school certificate/apprenticeship', 'University or tertiary qualification'. Maternal education was used as the indicator of SEP for two reasons. Firstly, of the three commonly used indicators of SEP, education, income and occupation, it has been suggested that education is the strongest and most consistent in terms of predicting health behaviours.³⁰ Secondly, maternal education is an important determinant of dietary intake of children and adolescents³¹⁻³⁵ and consequently is probably the most commonly used indicator of SEP in studies of childhood and adolescent eating behaviours³¹⁻³⁵ and home food environments.^{14,18,36}

Statistical analysis

The data were analysed using SPSS version 12.0. Data regarding the family meal environment, eating rules, and food availability were examined using descriptive statistics. Cross tabulations were used to examine associations between these variables and maternal education. Maternal education was collapsed to form three groups: 'low' (completed Year 10 High school or less), 'medium' (completed Year 12 High school/Technical certificate or apprenticeship), and 'high' (University or tertiary qualification). A *p* value of ≤ 0.01 was considered significant.

RESULTS

Characteristics of the sample

The sociodemographic characteristics of the sample are presented in Table 1. Among the 3,264 adolescent participants, who ranged in age from 12 to 15 years, more were female than male, more were in year 7 than 9, and more resided in the metropolitan than the non-metropolitan region of Victoria. In considering maternal education, approximately half of the mothers had completed Year 10 high school or less.

Home meal environment

Table 2 shows that nearly all adolescents reported there was always or usually plenty of food at home (87%) and that vegetables were always or usually served at dinner

Table 1. Sociodemographic characteristics

	%
Sex	(<i>n</i> = 3264)
Male	47
Female	53
Age group	(<i>n</i> = 3264)
Year 7 (12-13 years)	62
Year 9 (14-15 years)	38
Region of Victoria	(<i>n</i> = 3264)
Metropolitan	67
Non-metropolitan	33
Maternal education	(<i>n</i> = 2735)
Low	48
Medium	29
High	23

(90%). However, a considerable proportion of adolescents reported that plenty of food was only sometimes available at home (12%), and that vegetables were only sometimes served at dinner (9%). Most adolescents (89%) indicated that the evening meal was a pleasant time. However, only half of the adolescents (53%) considered that the evening meal was always or usually a time for family connection and discussion. More than half of all the adolescents (56%) were always or usually allowed to put on the television during the family meal. Similarly, most adolescents were always or usually expected to be home for dinner unless otherwise arranged (81%), to have good manners at the dinner table (76%), and to follow certain rules at mealtimes (59%).

Several home meal environment variables were positively associated with maternal education (Table 2). Adolescents of highly educated mothers were more likely to report that vegetables were always served at dinner, that the evening meal was never an unpleasant time for their family, and that the evening meal was always or usually a time when their family really talked and caught up with each other, compared with adolescents whose mothers were less well educated. In contrast, the likelihood of adolescents reporting they were allowed to watch television during mealtimes was negatively associated with maternal education. Adolescents of poorly educated mothers were more likely to report they were always allowed to put on the television during meal times, compared with adolescents whose mothers were more highly educated.

Eating rules

About half of adolescents reported they could always or usually eat whatever food they liked at home, and nearly half (43%) reported they were always or usually allowed to buy whatever they wanted from fast food places (Table 3). More than half of all adolescents (55%) reported they were never or only sometimes expected to eat all the foods served at dinner if they didn't like them. However, only one third of adolescents (33%) indicated that it was always or usually OK for them to make something else to eat for dinner if they didn't like the food being served. No associations were found between eating rules and maternal education.

Table 2. Home meal environment and maternal education

		Total	Maternal Education			<i>p</i> value
			Low	Medium	High	
There is plenty of food at home	Never	1	2	1	1	0.02
	Sometimes	12	14	10	10	
	Usually	35	34	34	39	
	Always	52	50	55	50	
Vegetables are served at dinner	Never	1	1	1	1	<0.01
	Sometimes	9	9	10	7	
	Usually	29	33	28	25	
	Always	61	57	61	67	
The evening meal is an unpleasant time for my family	Never	67	63	70	70	<0.01
	Sometimes	22	23	21	22	
	Usually	7	10	5	4	
	Always	4	4	4	4	
The evening meal is a time when my family really talks and catches up with each other	Never	14	17	13	11	<0.01
	Sometimes	33	33	32	34	
	Usually	29	28	29	30	
	Always	24	22	26	25	
During meal times, I'm allowed to put the television on	Never	15	14	15	17	<0.01
	Sometimes	29	29	29	31	
	Usually	26	24	26	28	
	Always	30	33	30	24	
At mealtimes I have to follow certain rules	Never	16	16	17	13	0.22
	Sometimes	25	25	24	26	
	Usually	25	26	24	25	
	Always	34	33	35	36	
I'm expected to be home for dinner unless otherwise arranged	Never	6	7	6	5	0.09
	Sometimes	13	15	13	12	
	Usually	26	26	27	23	
	Always	55	52	54	60	
I'm expected to have good manners at the dinner table	Never	6	6	6	4	0.09
	Sometimes	18	20	17	17	
	Usually	28	28	26	28	
	Always	48	46	51	51	

Values are expressed as %

Table 3. Eating rules and maternal education

		Total	Maternal Education			<i>p</i> value
			Low	Medium	High	
I can eat whatever I like at home	Never	10	10	9	10	0.66
	Sometimes	39	40	40	37	
	Usually	33	33	32	35	
	Always	18	17	19	18	
I'm always allowed to buy whatever I want from fast food places	Never	14	14	13	16	0.32
	Sometimes	43	42	44	45	
	Usually	24	25	23	23	
	Always	19	19	20	16	
I'm expected to eat all the foods served even if I don't like them	Never	25	26	25	24	0.34
	Sometimes	30	31	30	29	
	Usually	28	26	30	29	
	Always	17	17	15	18	
It's OK for me to make something else to eat if I don't like the food being served for dinner	Never	25	25	23	28	0.48
	Sometimes	42	42	44	39	
	Usually	19	19	19	19	
	Always	14	14	14	14	

Values are expressed as %

Table 4. Home food availability and maternal education

		Total	Maternal Education			<i>p</i> value
			Low	Medium	High	
I have fruit at home	Never	1	2	1	1	<0.01
	Sometimes	3	4	3	2	
	Usually	16	18	14	13	
	Always	80	76	82	84	
I have vegetables at home	Never	1	1	1	1	0.05
	Sometimes	5	5	4	3	
	Usually	13	15	13	11	
	Always	81	79	82	85	
I have cakes, sweet biscuits at home	Never	3	3	3	4	0.57
	Sometimes	56	55	57	58	
	Usually	29	31	28	27	
	Always	12	11	12	11	
I have fruit juice at home	Never	3	3	4	3	0.43
	Sometimes	21	21	22	18	
	Usually	34	35	33	35	
	Always	42	41	41	44	
I have potato crisps, salty snacks at home	Never	6	5	5	8	<0.01
	Sometimes	47	44	46	54	
	Usually	31	34	33	24	
	Always	16	17	16	14	
I have chocolate, lollies at home	Never	5	5	5	6	<0.01
	Sometimes	56	54	55	63	
	Usually	26	29	26	20	
	Always	13	12	14	11	
I have soft drink at home	Never	8	6	9	13	<0.01
	Sometimes	46	45	45	50	
	Usually	27	30	24	24	
	Always	19	19	22	13	
I have sports or energy drinks at home	Never	40	35	41	49	<0.01
	Sometimes	37	39	37	32	
	Usually	14	16	14	11	
	Always	9	10	8	8	

Values are expressed as %

Food availability at home

Most adolescents (80%) reported fruits and vegetables were always available in their home (Table 4). The majority also reported that fruit juice was at least usually available at home (76%). Sports or energy drinks were at least usually available in a quarter of homes. Approximately half of all adolescents also reported that soft drink (46%), potato chips or other salty snack foods (47%), cakes/donuts/biscuits (41%), and chocolate or other lollies (39%) were at least usually available in their home.

Adolescents of high SEP were slightly more likely to report that fruit was always or usually available at home, however adolescent-reported home availability of vegetables, fruit juice and cakes did not vary with SEP (Table 4). A higher proportion of adolescents of low SEP reported that sports drink, soft drink, potato chips, and confectionary were always or usually available at home.

DISCUSSION

Most previous studies that have examined the relationship between SEP and diet have focused on dietary intake differences.⁵⁻¹⁰ Fewer studies have investigated SEP differences in the dietary behaviours that necessarily precede the intake of food and nutrients, such as those related to

the home food environment. This study described the home food environments of adolescents, namely the home meal environment, eating rules and home food availability, and how these vary according to SEP. Maternal education was linked to various aspects of the home meal environment, as well as food availability in the home, but not to eating rules.

The home meal environments of low SEP adolescents were less supportive of healthy eating than those of high SEP adolescents. Adolescents of less educated mothers were more likely to report they were always allowed to put on the television during meal times. Television-viewing at mealtimes is associated with poor eating choices^{37,38} and decreased family interactions³⁷ and has previously been reported to occur more frequently in households of poorly educated mothers.^{14,38} The home meal environments of high SEP adolescents were more conducive to healthy eating, with adolescents of more highly educated mothers more likely to report that vegetables were always served at dinner, that the evening meal was never an unpleasant time for their family, and that the evening meal was always or usually a time when their family really talked and caught up with each other.

Campbell *et al.*¹⁴ also found that more highly educated Australian parents were more likely to report that the family meal was a time for family connectedness.

Poor food availability in the home may also partly explain the poorer diets of low SEP adolescents. Food availability in the home was associated with maternal education, with adolescents whose mothers were poorly educated being more likely to report that unhealthy foods (e.g. soft drink, potato chips, and confectionary) were always or usually available at home. In contrast, adolescents whose mothers were more highly educated were more likely to report that fruit was always or usually available at home. These findings are consistent with previous studies, which found a significant association between education level and food purchasing, with less educated respondents being less likely to purchase grocery items that were consistent with the dietary guidelines recommendations.^{39,40} Vegetable availability in the home may also have been greater in high SEP households, even though adolescent-reported vegetable availability did not vary across SEP, since adolescents whose mothers were more highly educated were more likely to report that vegetables were always served at dinner. This suggests that unless parents present vegetables in an accessible form (e.g. cut up carrot sticks at the front of the fridge), children and adolescents may be unaware of their availability in the home.

The home availability of several other foods did not vary across SEP. For example, adolescent-reported availability of fruit juice was not associated with maternal education in adolescents. The conflicting messages that parents are given about the healthiness of fruit juice may explain this result. On the one hand, Australian nutrition guidelines recommend that adolescents consume three to four serves of fruit each day, and half a cup of fruit juice is included as one serve.⁴¹ On the other hand, results of studies linking fruit juice consumption with childhood obesity^{42,43} have been cited in the national media with advice to parents to control and moderate the amount of fruit juice consumed by children. Adolescent-reported availability of cakes and biscuits also did not vary across maternal education in adolescents, but this finding may reflect the inability of the YEP survey to distinguish between processed and healthier homemade versions of cakes and biscuits. Processed cakes, donuts and biscuits are typically high in saturated fats, sugar and salt, while homemade varieties, especially those with added fruit or vegetables, may be quite low in fat, sugar and salt and provide an important source of dietary fibre, vitamins and minerals.

Eating rules were not associated with maternal education in this study, a finding that contrasts with previous studies with children.^{18,19} In a cross-national survey, Hupkens *et al.*¹⁸ found that more poorly educated mothers were less likely to restrict their children's consumption of unhealthy foods than more educated mothers. Furthermore, Hart *et al.*¹⁹ found that low SEP children in the UK more frequently reported the absence of eating rules in the home than high SEP children. Parental control over food choices, however, has been shown to diminish with age, such that older children were more likely to report having 'free choice' or 'no rules' as compared with their

younger counterparts.¹⁹ It is perhaps therefore not surprising that SEP differences in eating rules were absent in adolescents. However, the lack of any relationship between eating rules and maternal education in adolescents may also reflect the opposing effects (both negative and positive) that parental use of eating rules may have on children's and adolescents' diets.^{17,18,20-23} The impact of parental use of eating rules on children's and adolescents' dietary intake is clearly an important area for investigation because parents need to be informed about which feeding strategies are effective and which are counterproductive.

This study found that maternal education was linked to home food availability and aspects of the home meal environment of adolescents. However, other factors are also correlated with maternal education or SEP⁴⁴⁻⁴⁷ and may therefore indirectly influence adolescent home food environments. For example, education level is associated with nutrition knowledge⁴⁵ and use of nutrition labels.⁴⁶ Poorly educated parents may be less able to make use of written material like newspapers and leaflets to gain dietary and health-related information,⁴⁵ which in turn may influence the types of foods they make available in their home and serve at dinner. Education level and SEP are also associated with attitudes and beliefs about healthy lifestyle.^{44,47} Poorly educated Irish adults are less likely to have positive attitudes or motivation towards healthy eating behaviour,⁴⁷ and low SEP British adults are less health conscious (think less about things to do to keep healthy), have stronger beliefs in the influence of chance on health, and think less about the future.⁴⁴

In drawing conclusions from this study, the strengths and limitations of the study design need to be considered. Strengths of our study include the large and diverse nature of the study population. To our knowledge, this is the largest survey on eating habits of adolescents in Australia, and while the study sample was not population-representative, it comprised adolescents from diverse socioeconomic backgrounds. A limitation of our study was the low response rate of approximately 33%. A high non-response rate can result in a bias towards socioeconomically advantaged groups, since non-responders tend to be persons from socioeconomically disadvantaged backgrounds.⁴⁸ Surprisingly, however, our study had a high proportion of participants whose mothers had completed Year 10 high school or less (48%). This was probably due to the high rate of participation by schools in non-metropolitan (74%) versus metropolitan areas (43%). In addition, we acknowledge that this is a cross-sectional survey and thus, that no causal attributions can be made.

To date, intervention programmes focused on improving adolescent nutrition have primarily targeted schools, probably because school settings have the potential to reach a large number of adolescents and provide the opportunity to conduct intervention programmes in stable and established settings.⁴⁹ This study, however, highlights the importance of the home food environment on adolescent nutrition and suggests that future programmes should also target homes. More importantly, this study highlights how home food availability and aspects of the home meal environment of adolescents differ across SEP. Interventions that are effective at increasing the home availability

of healthy food (e.g. fruit and vegetables) and encouraging the home meal environment to be supportive of healthy eating (e.g. limited television-viewing during meals) are essential, particularly in households of low SEP adolescents.

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AUTHOR DISCLOSURES

Abbie MacFarlane, David Crawford, Kylie Ball, Gayle Savige and Anthony Worsley, no conflicts of interest.

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Original Article

Adolescent home food environments and socioeconomic position

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青少年家庭食物環境和社經地位

許多青少年的飲食很不理想，低社經地位(SEP)的青少年尤甚。對青少年飲食的社經地位決定因素差異的瞭解相當有限。本研究調查青少年的家庭食物環境，特別針對是否低社經地位的青少年，比起社經地位較高者，其家庭飲食環境支持較少、較少的進食規則和較差的家庭蔬菜水果可獲性。一個橫斷性自陳調查，收集 3,264 位來自澳洲維多利亞 37 所中學 7 年級及 9 年級的青少年。我們描述青少年家庭膳食環境、進食規則和家庭食物可獲量的看法，並作跨 SEP（母親教育程度）的比較。母親教育程度與家庭膳食環境的不同面向及家庭食物可獲量相關，但與進食規則無關。低社經地位青少年較可能報告他們總是被允許在用餐時看電視，以及在家裡總是或常有不健康的食物。相較之下，高社經地位青少年較可能報告晚餐時都會供應蔬菜，而晚餐時從不會是不快樂的時間，而總是或常常是家人聯絡感情的時刻，水果在家也是隨時都有。本研究強調家庭食物環境面向可能說明社經地位在青少年飲食的變異。增加家中健康食物的可獲性的可行的方法，及鼓勵家庭用餐環境能支持健康飲食值得探究，尤其針對低社經地位青少年的家戶。

關鍵字：社會階級、青少年、飲食習慣、營養、澳洲。