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# **Nutrition and Physical Activity in Children and Adolescents**

## **Barwon-South Western Region**

### **Sentinel Site Series Report 3: Dietary Patterns**

**Report prepared for Department of Human Services  
(Victoria)**

**By the WHO Collaborating Centre for Obesity Prevention  
Deakin University**

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# 1. Executive Summary

## Introduction

The rising tide of childhood obesity in Australia is leading to substantial and diverse negative health outcomes. Despite this, there is a dearth of recent reliable data on one of the most important determinants – dietary patterns. This report presents the findings from the dietary intake component of three studies conducted by The Sentinel Site for Obesity Prevention in the Barwon-South Western (Barwon-SW) region. It provides insight into current dietary patterns and adds to the evidence needed to develop health promotion efforts for improving diet and reducing unhealthy weight gain in Australian children.

## Methods

The sample includes pre-school, primary school and secondary school children. The combined dataset included 6209 participants with approximately equal gender representation (52.0% male). Samples were drawn from the Geelong, Colac, and the Barwon-SW region of Victoria. Results on dietary habits for pre-school and primary school children were parent-reported, while secondary school student results were self-reported. The School Food Checklist (SFC), or 'lunchbox survey', was also conducted in primary school children.

## Key Findings

There was a trend towards lower fruit consumption among secondary school students. While the majority of children met the recommended two serves per day, a substantial amount had less than or up to 1 serve per day. Almost two thirds of children had one serve or less of vegetables per day and younger children tended to have fewer vegetables. Overall, only a small proportion in each age group came close to the recommended five serves of vegetables per day. Over 90% of children had up to one or more serves of packaged snacks per day. For primary school students, boys had more packaged snacks than girls, as did children from lower socio-economic status (SES) areas. There was a trend for higher take away consumption with older age, and close to 40% of secondary school students ate takeaways more than once per week. Similarly, there was a trend for higher sweet drink consumption among older children. Examination of the foods primary school children brought in their lunchboxes showed that only about 10% of children had no energy dense nutrient poor (EDNP) snack foods in their lunchbox, while close to 40% had more than three serves. Children from lower SES areas had more EDNP snacks in their lunchboxes than their counterparts and only about a third of all primary school children brought water to school.

## Conclusions

These results highlight several areas important for obesity prevention with the greatest areas of concern being the large amount of EDNP snacks and sweet drinks being regularly consumed by children and adolescents. In addition, the low vegetable consumption in all children is of concern. These dietary patterns are clearly drivers of increasing overweight and obesity in children and need to be included in population-wide interventions. Effective and sustainable strategies must be developed that are also targeted towards, and sensitive to, addressing the issues faced by children and adolescents from disadvantaged families.



## Recommendations

This report describes the results from three projects established in the Barwon-South Western region of Victoria by the Sentinel Site for Obesity Prevention. It includes data on dietary patterns and behaviours for pre-school, primary school, and secondary school aged children. Overall, a number of areas relevant for intervention were identified:

### ***Recommendation 1 – Sweet drinks as a target for intervention***

The high intake of sweet drinks is an obvious target for intervention (and indeed is commonly included in community and school action plans). A strong state-wide policy would support the schools in their endeavours in to reduce sweet drink consumption. Targets to increase water consumption could be included in messages about reducing sweet drinks but should not be the main focus. Including flavoured milks and fruit juices as targets for reduction is also important.

### ***Recommendation 2 – Energy-dense, nutrient-poor snacks as a target for intervention***

As with sweet drinks, EDNP snacks are an obvious food category to try to reduce. Interestingly, it was confectionary, cakes, biscuits and snack bars that made up the bulk of this category rather than chips and other packaged snacks. In prioritising this as a specific target, replacement with fruit and healthy snacks should be included in the messages but reduction of EDNP snacks should remain the key message. State-wide policies (not just guidelines) for primary and secondary school canteens would strengthen this approach and some states (e.g. NSW and Queensland) have these in place. Victoria needs similar or stronger food service policies for schools.

### ***Recommendation 3 – Promoting vegetable and fruit consumption***

Fruit consumption appears to be the least of the dietary intake problems, although it is readily promoted in schools and pre-school settings. This should continue but the evidence would suggest that it is not the area of greatest need for improving nutrition. Very few children met the vegetable intake suggested in the dietary guidelines, although these recommendations are set quite high. The promotion of a greater range and amount of vegetables eaten should be considered as a priority for promotion if there are realistic options for intervention activities. In the school context, the promotion of vegetables is not as simple as for fruit because most vegetables need cooking.

### ***Recommendation 4 – Healthy lunchboxes***

The lunch box is a very visible reflection of dietary intake for school children and its contents are eaten in school time. This makes lunchboxes a potential focus as part of a school's healthy eating education and promotion. While contents of lunchboxes are the responsibility of parents, there is an opportunity for school policies and promotions to have an influence.

### ***Recommendation 5 – Priority focus for lower SES populations***

Many of dietary patterns were less healthy in children from lower SES backgrounds and this reinforces the need to focus programs and messages so that they are relevant to these families.



## 2. Introduction

### Background

#### Childhood obesity

Overweight and obesity arguably pose the single biggest threat to the health of Australian children. The prevalence of childhood and adolescent obesity has been steadily increasing in Australia (1) and around the world (2). The negative impacts on health and psychological well being have been well described and they are substantial (2, 3,). Indeed, recent estimates suggest that the health impacts of obesity may be so great that today's children will be the first generation for many centuries to experience a lower life expectancy than their parents (4). Despite the seriousness of childhood obesity, national surveys are very infrequent with 12 years separating the last two surveys. Nevertheless, from these and other state and regional surveys, it is clear that childhood overweight and obesity in Australia is increasing and now about 25% for school-aged children with much higher rates in some ethnic groups (1, 5-8). In pre-school children, rates of overweight and obesity have similarly increased with about 20% classified as overweight or obese nationally in 2007 (5).

#### Dietary patterns in children in Australia

Clearly, changes in dietary and physical activity behaviours have been mediating the childhood obesity epidemic, but in Australia, the lack of regular monitoring data has hampered a detailed understanding of the particular changes which might be the most implicated. Between 1985 and 1995, dietary patterns in children clearly became more obesogenic, with substantial increases in the consumption of energy dense foods and beverages (9). For example, mean energy intake increased by 15% among boys and 12% among girls aged 10–15 years between 1985 and 1995 (10). The ready availability of energy-dense foods and drinks, larger serving sizes, reduced time for cooking, and meals eaten away from home have contributed to diets becoming increasingly high in fat and energy (11).

#### Sentinel Site for Obesity Prevention, Barwon-SW region

The Deakin University/Department of Human Services (DHS) partnership in the Barwon-South Western region of Victoria established the Sentinel Site for Obesity Prevention in 2002. Its aim has been to build the evidence and expertise needed for obesity prevention in pre-school, primary school, and secondary school children through 3 whole-of-community demonstration programs.

#### This report

The purpose of this report is to present the baseline findings from the dietary intake components of the three studies in the Barwon-South Western region and to highlight the implications these have for public health and health promotion efforts to improve healthy eating and prevent unhealthy healthy weight gain in Australian children.



### 3. Methods

Three demonstration projects have been established in the Sentinel Site for Obesity Prevention area: *Romp & Chomp* (under 5 years old), *Be Active Eat Well* (primary school children) and *It's Your Move!* (secondary school students). These projects aim to build the capacity of the local community in areas of healthy eating and regular physical activity within their target group.

All projects had baseline measurements for anthropometry, behaviours, and settings audits for environmental factors, and some projects had other specific measures (such as the School Food Checklist). The methods related to the dietary patterns are outlined here but the details of the methods and tools can be found in the accompanying report (Report 1).

It is important to note that the data for pre-school children were parent-reported and the secondary school children results were self-reported. Results from primary school children were obtained from both parent report through a Computer-Assisted Telephone Interview (CATI) and the School Food Checklist (SFC), or 'lunchbox survey'. The SFC was conducted as an audit and therefore is an objective measure. All foods and beverages either brought to the school in a lunch box or purchased from a canteen/food service or vending machine were recorded.

The combined dataset from the three projects included 6209 participants with approximately equal gender representation (52.0% male). Approximately half (49.0%) of all participants were classified as of lower (below median) socioeconomic status (classified under the Socio Economic Index for Areas). Appendix A and B show detailed sample characteristics.

Samples for these projects were drawn from the Geelong, Colac, and Barwon-South Western (BSW) region of Victoria.

#### Pre-school children

This survey sample included 950 children, representing a 32.2% response rate. Children were aged 2-4 years, with a mean age of 2.9 years. The sample had equal gender representation (49.6% male versus 50.4% female), and was skewed toward a higher Socio-Economic Status (SES) (72.3% upper versus 27.7% lower SES).

The behavioural measures were parent-reported in relation to the 'key age and stage' visits for 2 and 3.5 years with Maternal Child Health Nurses in the Greater Geelong area in between July 2005 and June 2006. The nurses distributed the parent surveys, which asked parents about their child's eating and activity patterns. The two-page survey asked a series of general child and family questions and specific diet and physical activity behaviour questions. Validity was assessed against the 24hr dietary recall method, which produced an acceptable relative validity for both food/beverage serves and energy.



### **Primary school children**

Please note that the term 'primary school children' does include some pre-school aged (4 year old) children in kindergarten.

This survey sample included 2184 children, which represented a 51.0% response rate. Children were aged 4-12 years, with a mean age of 8.3. The sample had equal gender representation (48.2% male versus 51.8% female), and was skewed toward a lower SES representation (68.8% lower versus 31.2% upper).

The intervention site, Colac, had a 58.0% response rate (n=1001) from all eligible pre-schools (n=4, age 4 years) and primary schools (n=6, age 5-12 years). The sample frame for the comparison group was a stratified, random sample of the Barwon-South Western region. A 44.0% response rate (n=1183) was achieved in the participating pre-schools (n=4) and primary schools (n=12).

The behavioural measures reported here were parent-reported, and 85.0% of participants' parents completed the survey. Dietary information was elicited using the Computer Assisted Telephone Interview (CATI) with parents, the validated School Children's Questionnaire (SCQ) with 7-9 year olds, and as an objective measure the School Food Checklist (SFC) or 'lunchbox' survey which was conducted on all foods and beverages brought to or purchased at school (12).

### **Secondary School students**

This survey sample included 3075 students, representing a response rate of 49.0%. Participants were aged 11-18 years, with a mean age of 14.6 years. The survey was conducted across the Barwon-South Western region of Victoria with intervention schools (n=5) and comparison schools (n=8). The sample had roughly equal gender representation (56.0% male versus 44.0% female), and was slightly skewed toward an upper SES representation (59.3% upper versus 40.7% lower).

All results were self-reported by secondary school students. The survey administered (Knowledge, Attitude and Behavioural Survey, KAB) included 84 questions to be completed using Personal Digital Assistants (PDAs). Several questions came from the 1995 Australian National Nutrition Survey, New Zealand 2002 National Children's Survey and National Health and Medical Research Council (NHMRC) Dietary Key Indicators Study. The KAB survey was pilot tested with a sample of students.

### **Socio-economic status (SES)**

The Socio-Economic Index For Areas (SEIFA) was used as an indicator of socio-economic status (SES) giving an index of relative socio-economic advantage/disadvantage. The index is based on data collected from the 2001 Australian census of population and housing, and incorporates variables such as income, education, occupation, living conditions, access to services and wealth. The index is based on geographic postal area (postcode), and a higher score on the index indicates that an area has a relatively high proportion of people with high incomes or a skilled workforce, and also a low proportion of people with low incomes and relatively few unskilled people in the workforce (13).



## Definitions

| Measure  | Definition of product and one serve   |
|--|---|
| <b>One serve fruit</b>                         | A medium sized apple, orange, banana, or pear, OR two small pieces of fruit such as kiwi fruit, mandarins, or apricots, OR a bunch of grapes, OR a cup of diced pieces, OR 1 ½ tbsp sultanas  |
| <b>One serve vegetables</b>                    | ~ 1 cup of salad vegetables, or ½ a cup of cooked vegetables, beans, peas etc – NOT potato  |
| <b>One serve water</b>                         | 250mL   |
| <b>One serve plain milk</b>                    | 250mL tetra pack or standard glass  |
| <b>Packaged snack</b>                          | Half a standard (50 gm) bag of crisps, or one small snack pack, one fruit strap or 1 muesli bar<br>Includes potato crisps, corn chips, twisties, cheezels, cheetos, burger rings,   |
| <b>Energy Dense Nutrient Poor (EDNP) foods</b> | <b>Combination of 5 categories from the SFC</b><br><b>Packaged snacks:</b> Potato crisps, corn chips, pretzels, popcorn<br><b>Biscuits &amp; Crackers:</b> Sweet, savoury or chocolate biscuits, rice cakes or other crackers. 1 biscuit = 1 serve<br><b>Chocolates &amp; Lollies</b> – 25g = 1 serve<br><b>Cakes &amp; Buns:</b> Cakes, buns, slices, scone, muffins, donuts, tarts. 80gm OR 2 small donuts OR 2 tarts=1 serve<br><b>Muesli &amp; Fruit bars:</b> fruit sticks, muesli bars. 1 bar = 1 serve |
| <b>Takeaway</b>                                | One pie/pastie, a bucket of hot chips, a plain hamburger, one hot dog, 2 slice pizza,<br>3 Dim Sims = 140g, 7 nuggets<br>Also defined as 'fast food' and includes fish and chips, pies/pasties, hamburgers, fried chicken, pizza, Chinese   |
| <b>Sweet drinks</b>                            | One serve equals a 375mL can of soft drink that is NOT diet (e.g. Coca Cola, Pepsi, Fanta,lemonade) OR a 250mL tetra pack or standard glass of fruit juice or cordial including 100% fruit juice, diluted fruit juice drinks and cordial (e.g. Just Juice, Prima, Cottee's)   |





## 4. Fruit consumption

The main findings were:

- There was a pattern of lower fruit consumption with older age
- 65.0% of pre-school children had 2 or more servings of fruit per day
- 62.0% of primary school children had 2 or more servings of fruit per day
- 57.0% of secondary school students had 2 or more servings of fruit per day
- There were similar fruit consumption patterns between genders
- More primary school girls than boys had fruit in their lunchbox
- Children in higher SES consistently consumed more fruit than lower SES

See Figures 1 and 2 and Appendix C-F for more detailed information.

Approximately half of all children and adolescents reported consuming 2-3 serves of fruit per day. One third of children less than 4 years of age had 1 serve or less of fruit per day, which increased to over 40.0% of students in year 7 to 11. A small proportion of children (5-10%) consumed 4 or more serves of fruit per day.

The majority of primary school children had either none or up to 1 serve of fruit in their lunchbox (a greater proportion of girls than boys had fruit in their lunchbox). A greater proportion of boys (8.6%) than girls (4.7%) ate 4 or more serves of fruit per day, which was a pattern consistent across all age groups. However, a consistently greater proportion of girls than boys are represented in the category of 2-3 serves of fruit per day, and more boys than girls consumed 1 serve or less of fruit per day.

Children from areas with SES above the median consistently had more fruit than children in the lower SES category. However, differences in intakes across SES levels were less in older children. In primary school children, there was more fruit in the lunchbox of children from higher SES than children from lower SES.



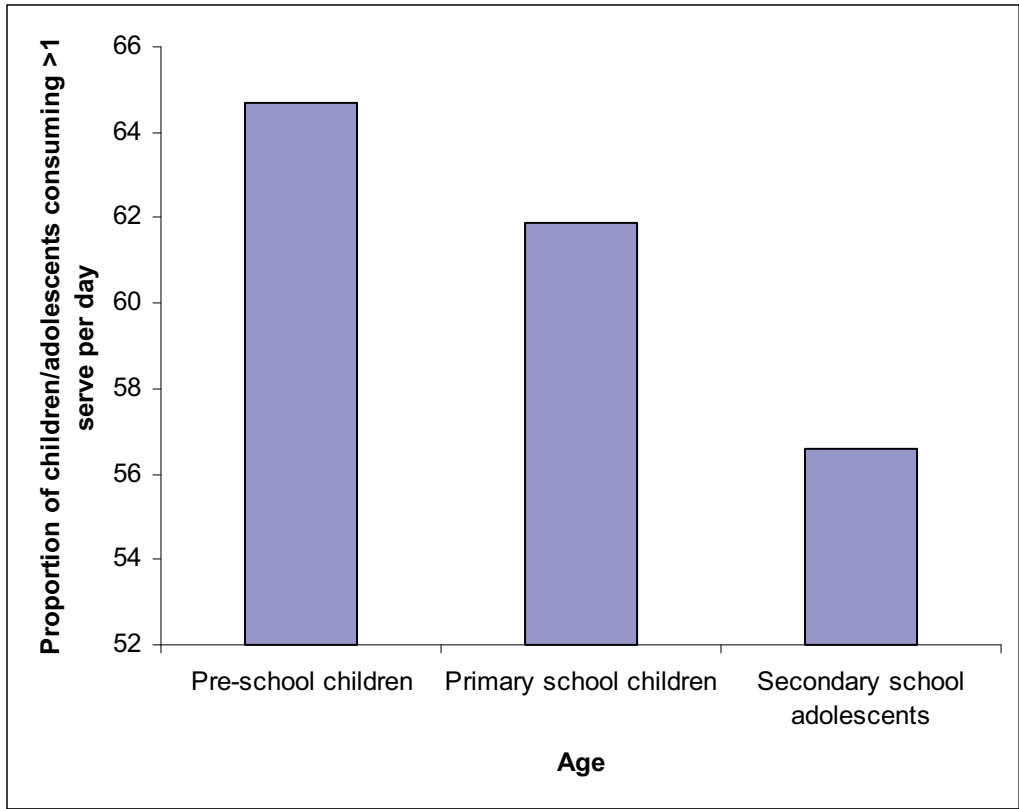


Figure 1: Fruit consumption of more than 1 serve by age group

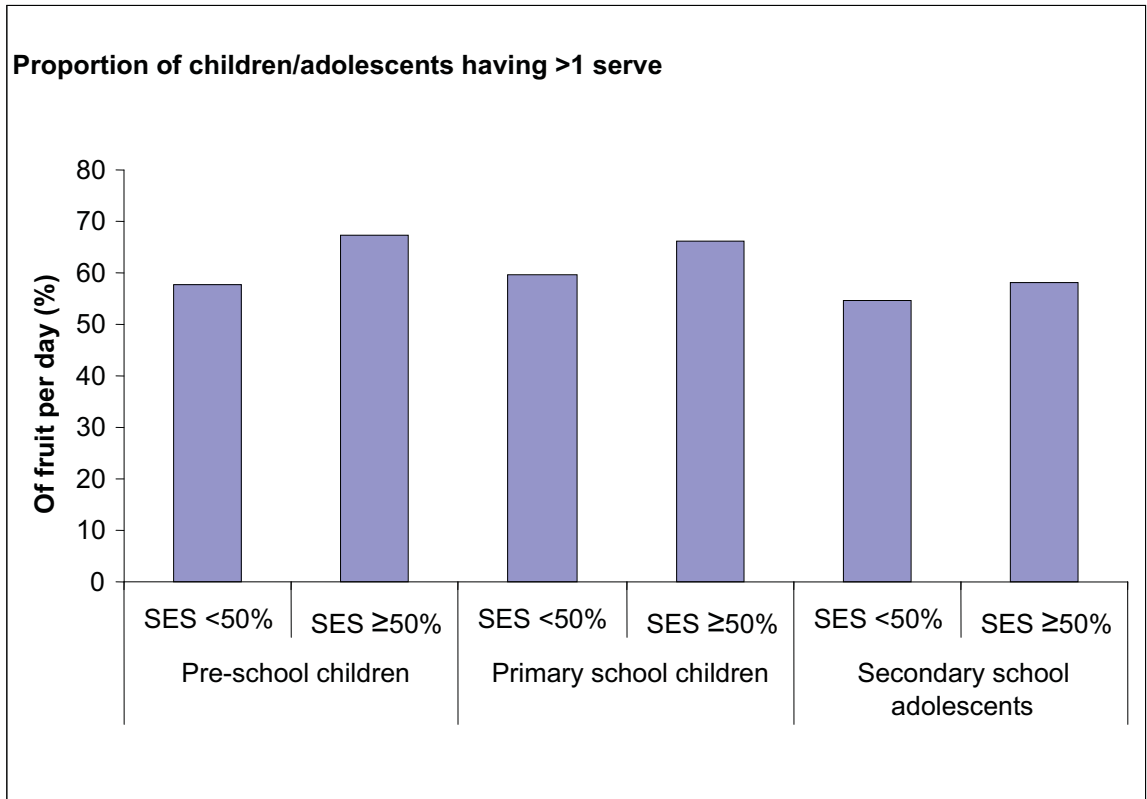


Figure 2: Daily fruit consumption of more than 1 serve by SES and age group





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**Key Points:**

- **In general, the majority of children meet fruit consumption targets (2 serves per day), however fruit consumption was lower in older children**
  - **In their lunch boxes, the majority of primary school children brought one serve or less of fruit**
  - **There was lower fruit consumption by children from a lower SES although the differences were most marked in pre-school children**
- 

## 5. Vegetable consumption

The main findings were:

- **Almost all vegetable consumption across the age groups was below national recommendations (5 serves per day):**
  - 63.0% of pre-school children had  $\leq 1$  serve of vegetables per day
  - 47.0% of primary school children had  $\leq 1$  serve of vegetables per day
  - 23.0% of secondary school students had  $\leq 1$  serve of vegetables per day
- **There was a trend to higher consumption of vegetables among older children**
- **A higher proportion of children from lower SES families had no vegetables**

See figures 3 and 4 and Appendix G-J for more detailed information.

Almost two thirds of pre-school children had 1 serve or less of vegetables per day however consumption was substantially higher in older children, with around 75.0% of secondary school students having more than 2 serves per day. Less than half of all pre-school or primary school aged children ate 2-3 serves of vegetables per day. Although only 3.0% of pre-school children ate 4 serves or more of vegetables per day, approximately 20.0% of secondary school students consumed this amount. Based on the lunch box audit, it was uncommon for primary school children to bring vegetables in their lunchbox.

There were no large gender differences in vegetable consumption and vegetable consumption patterns were similar across SES category, although there was some evidence of lower vegetable consumption in children from lower SES in the younger age groups.

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**Key Points:**

- **Vegetable consumption was markedly below national recommendations for most participants in all age groups**
  - **Vegetable consumption was substantially higher among older children**
  - **There was lower vegetable consumption in the lower SES group, however SES differences were smaller in secondary school children**
- 



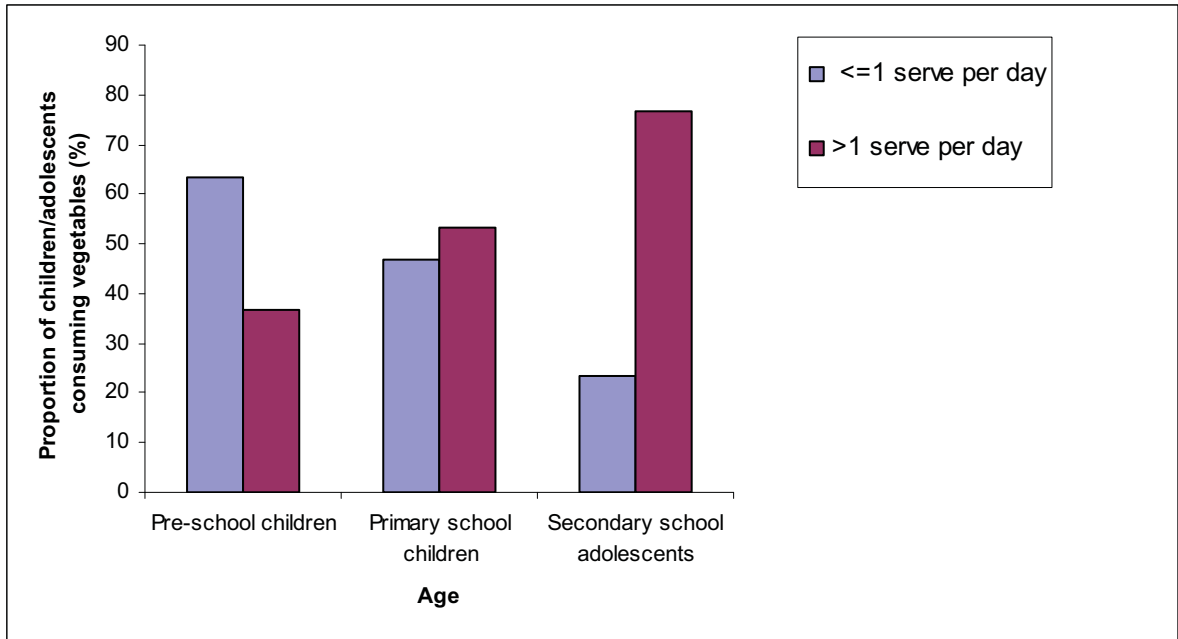


Figure 3: Vegetable consumption by age group

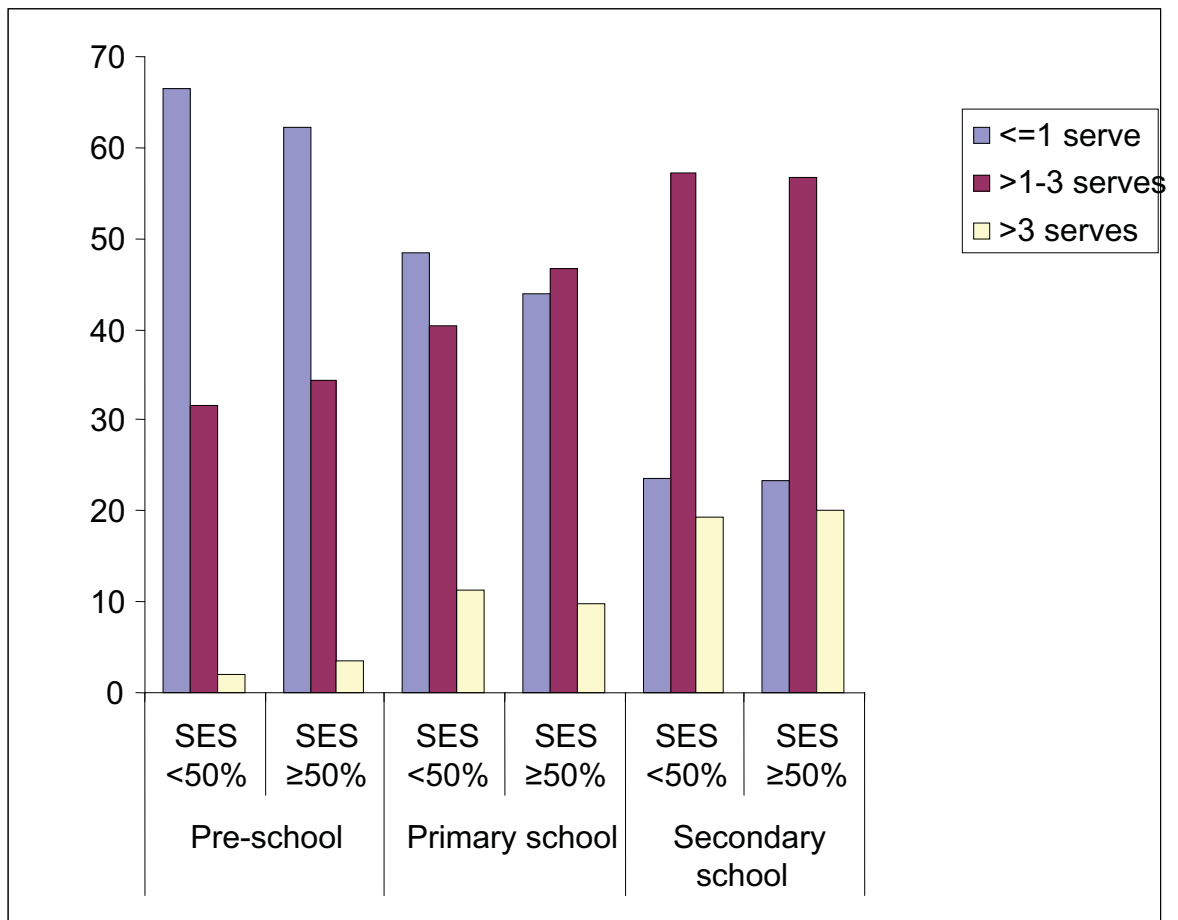


Figure 4: Vegetable consumption patterns by age and SES



## 6. Packaged snack consumption

Data on the consumption of packaged snacks were available for pre-school and primary school children. The main findings were:

- Overall, most children consumed 1 serve or less of packaged snacks per day
- In the lunch box audit, 70.0% of the primary school children had no packaged snacks in their lunchbox (27.0% had up to 1 serve in their lunchbox)
- Boys consistently ate more packaged snacks than girls in all age groups
- Children from lower SES families ate more packaged snacks than children from higher SES families.

Refer to Appendix K-N for more detailed information.

Data on packaged snack consumption were available for children up to grade 6. Almost all children (90-95%) had 1 serve or less of a packaged snack per day. On average, the remaining 5-10% had 2-3 serves of packaged snacks per day, and only a very small proportion of children consumed more than 3 serves/day. This finding was consistent with the lunchbox audit which found that 97% of primary school children had between 0 and 1 serves of packaged snacks in their lunchbox.

There were consistent differences in packaged snack consumption across genders. Girls ate less packaged snacks overall per day, and in primary school children, girls had fewer packaged snacks in their lunchbox.

There were also consistent differences in packaged snack consumption across SES. Children from lower SES families had more servings of packaged snacks per day and this difference was greater among older children. Primary school children in lower SES also had more packaged snacks in their lunchbox.

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### Key Points:

- **The vast majority of children did not eat more than 1 serve of packaged snacks per day**
  - **Boys consumed more packaged snacks than girls**
  - **Children from lower SES families consumed more packaged snacks**
  - **Consumption of packaged snacks was higher in the older age groups**
- 

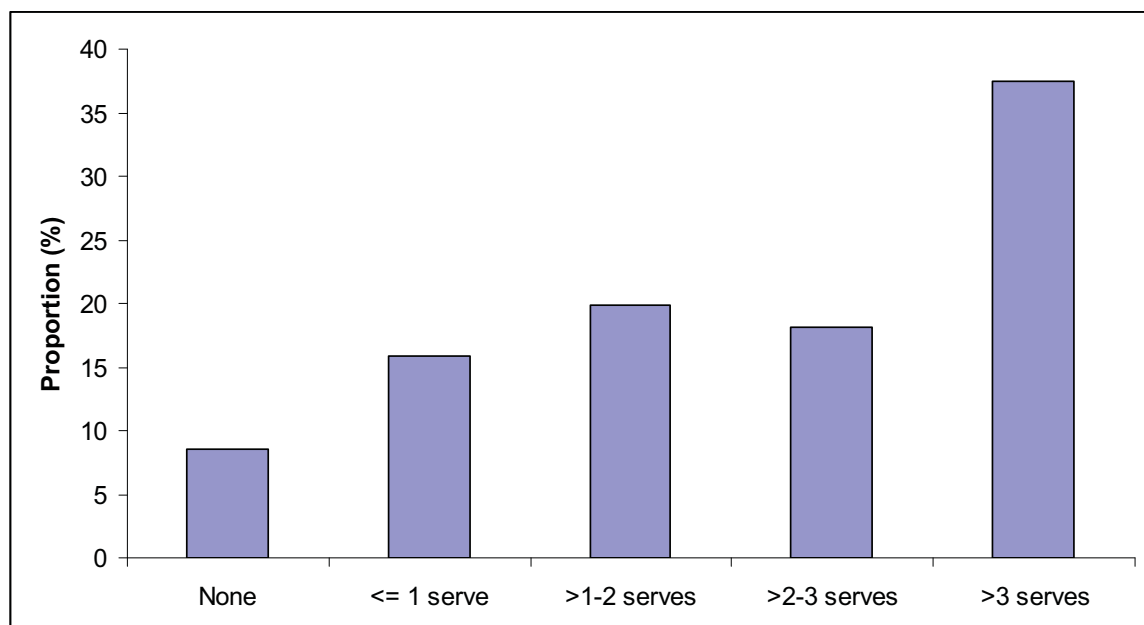


## 7. Energy Dense, Nutrient-Poor (EDNP) food consumption

Data on the consumption of EDNP foods were available only for primary school children who participated in the lunch box audit (School Food Checklist, SFC). These foods represent the combination of 5 categories from the SFC (Packaged snacks, Biscuits & Crackers, Chocolates & Lollies, Cakes & Buns, and Muesli & Fruit bars). The main findings were:

- Over 90.0% of children had EDNP snacks in their lunchbox
  - Close to 40.0% had more than 3 serves
- Boys had more serves of EDNP foods in their lunchbox than girls
- Children from lower SES had more serves of EDNP foods in their lunchbox

Refer to figure 5 and Appendix O-P for more detailed information.



**Figure 5: Presence of Energy dense, nutrient-poor snack foods in the lunch boxes of primary school students**

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### Key Points:

- **The overwhelming majority of primary school children had EDNP snack foods in their lunchboxes**
  - **Over one third of children had 3 or more serves of EDNP foods in their lunch boxes**
  - **Children from low SES backgrounds had higher amounts of EDNP snacks**
- 



## 8. Takeaway food consumption

The main findings were:

- Higher consumption of takeaway foods in older aged students
  - 10.0% of pre-school children consumed takeaway food more than once per week
  - 13.0% of primary school children consumed takeaway food more than once per week
  - 35.0% of secondary school students consumed takeaway food more than once per week
- Takeaway food consumption was similar between genders, although girls showed higher consumption in some age groups.
- There is some evidence of higher takeaway food consumption by children from a lower SES.

Refer to figure 6 and Appendix Q-R for more detailed information.

The majority of pre- and primary school children (>85%) consumed takeaway foods once a week or less. There was a markedly higher consumption of takeaway foods in secondary school students, with about one third of these older students having takeaway foods more than once per week. There was also higher consumption by girls compared to boys in this age group.

In primary and secondary school students there was evidence of increased consumption of takeaway foods in those from lower SES families.

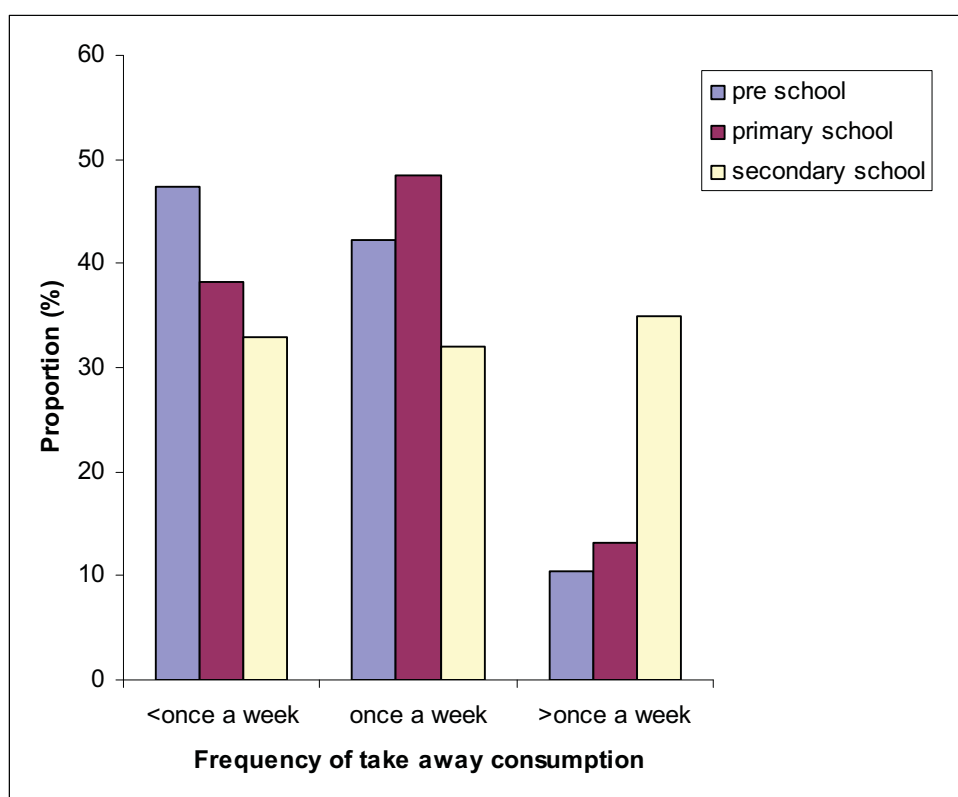


Figure 6: Frequency of take away consumption according to age



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**Key Points:**

- **Takeaway consumption is high enough to be a potential contributor to unhealthy weight gain**
  - **About one third of adolescents are consuming takeaways more than once a week**
- 



## 9. Sweet drink consumption

Sweet drinks comprise non-diet soft drinks, fruit juice (including 100% fruit juice), diluted fruit juice drinks and cordial. The main findings were:

- There was a trend for greater sweet drink consumption among older children, regardless of gender or SES level:
  - 17.0% of pre-school children consumed >250mL sweet drink per day
  - 58.0% of primary school children consumed >250mL sweet drink per day
  - 64.2% of secondary school students consumed >250mL sweet drink per day
- About 30.0% of primary school children brought sweet drinks to school
- Boys had higher consumption of sweet drinks
- Children in pre- and primary school from lower SES families had higher consumption of sweet drinks,

Refer to figures 7 and 8 and Appendix S-V for more detailed information.

Consumption of sweet drinks increased in older children. The vast majority of pre-school children (83.0%) had one glass (250ml) or less of sweet drinks per day. In primary school students, the majority of children had more than one glass of sweet drinks per day, up to about 60.0% in secondary school students. Only a third of students brought sweet drinks to school, however approximately 20.0% of children had up to 2 serves in their lunchbox and 6.5% had between 2 and 3 serves.

Sweet drink consumption trends were similar between boys and girls in all age groups. In each age group, girls consumed less sweet drink than boys which was consistent with lunchbox findings. More boys had over 250mL per day. The size of this gender trend increased with age from a 0.5% difference in pre-school children to a 13% difference in secondary school students.

Children from lower SES families had higher consumption of sweet drinks than children in higher SES families. The differences were less in secondary school.



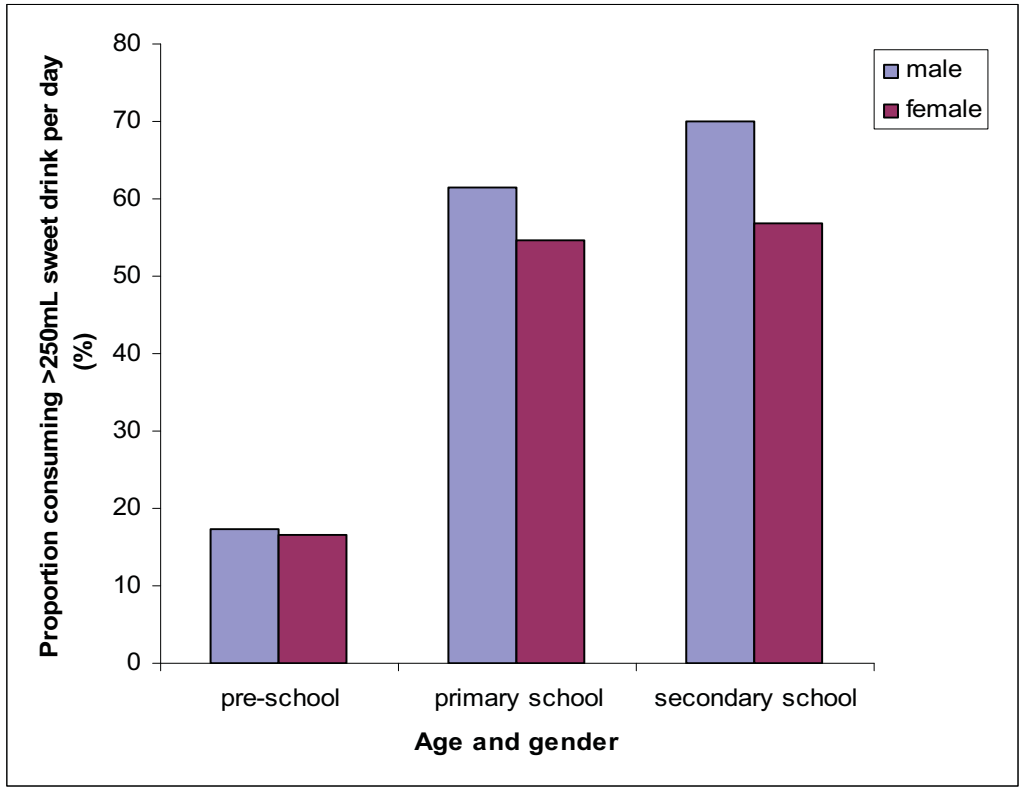


Figure 7: Sweet drink consumption by age and gender

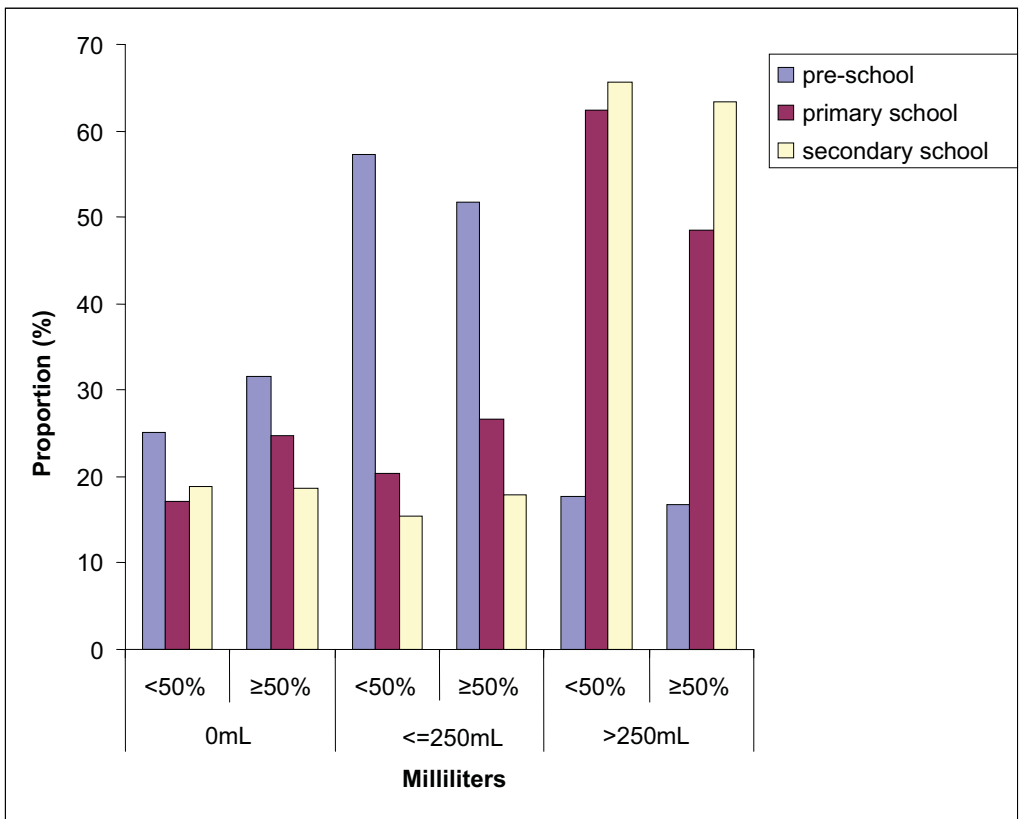


Figure 8: Sweet drink consumption by SES





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**Key Points:**

- **There was a greater sweet drink consumption among older children**
  - **The large majority of secondary school students drank more than 250mL of sweet drink everyday**
  - **For primary and secondary school students, boys had more sweet drink per day**
- 



# 10. Water consumption

The main findings were:

- The majority of pre-school children drank less than 3 serves of water per day:
  - 35.0% had one serve or less of water per day, and 14.0% had 3 or more serves of water per day
- Water consumption was similar for pre-school aged boys and girls, although girls tended to be more likely to have a higher consumption
- Primary school children from lower SES families consumed slightly less water per day, and were offered water less often than children in higher SES families

Refer to tables Appendix W-BB for more detailed information.

Parent-reported data on the frequency of daily water consumption was available for pre-school children. Approximately 35.0% of pre-school children had 250mL (one serve) or less of water per day, while 52.0% had between one and a half and two and a half serves. Water was often offered (85.8% of the time) with snacks/meals of pre- and primary school children. The lunchbox audit found that 70.0% of primary school children did not bring water to school.

A greater proportion of children in lower SES had less than 3 serves of water per day. Water was offered consistently more often to pre- and primary school children in higher SES families. The lunchbox audit showed children in both SES categories had similar amounts of servings in their lunchbox.

---

## Key points:

- **Children from lower SES families were offered water less often and consumed less water than children in families from higher SES**
  - **Water is offered often with meals/snacks (86% of the time)**
- 



# 11. Plain milk consumption

The main findings were:

- Three quarters of pre-school children had one serve or less of plain milk per day
- Almost all primary school children had no plain milk in their lunchbox
- Plain milk consumption was greater for pre-school aged boys than girls
- Plain milk consumption was similar for both SES categories

Refer to tables Appendix CC-FF for more detailed information.

Data on daily milk consumption were available for pre-school children only. In this age group, almost half of children (47.3%) had 2-3 serves of plain milk per day. Similarly, almost half of children had one serve or less per day (42.5%). 1.3% percent of children had 3 serves or more of plain milk per day.

Consumption patterns were similar for boys and girls, although girls had a higher overall consumption of 2 or more servings of plain milk per day (60.6% versus 54.3% of boys).

Plain milk consumption was similar across SES groups. From the lunch box audit, it was found that consumption was similar for both genders and across SES groups.

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## Key Points:

- **Three quarters of all pre-school children had one or less serves of plain milk per day**
  - **Pre-school boys had a higher overall plain milk consumption**
- 



## 12. Conclusions and Recommendations

This report describes the results from three projects established in the Barwon-South Western region of Victoria by the Sentinel Site for Obesity Prevention. It includes data on dietary patterns and behaviours for pre-school, primary school, and secondary school aged children. Overall, a number of areas relevant for intervention were identified.

Although high overall, there was lower fruit consumption with older age children, and over one third of children had one serve or less per day. Conversely, there was a somewhat higher vegetable consumption with older age groups, although only a few children came close to the recommended 5 serves per day. In pre-school children, vegetable consumption was very low which represents a clear area for early intervention.

There was a very high frequency of energy dense, nutrient poor (EDNP) snacks in children's lunchboxes and a substantial proportion of children had more than 3 serves each day. This report shows that packaged snacks were not the main contributors to this and interventions to reduce the regular and high consumption of biscuits, cakes, lollies and snack bars, in addition to packaged snacks, are urgently needed. Further to this, a significant number of adolescents had takeaway foods more than once a week and this represents an important area for early intervention.

Similarly, there was greater sweet drink consumption among the adolescents, with the large majority of secondary school students having more than one glass per day. Water needs to be promoted as the drink of choice for all children and adolescents, with milk consumption also promoted for younger children.

Across all of these important areas of diet, there was consistent evidence that children from families of lower SES had dietary patterns that placed them at increased risk of poor nutrition, childhood obesity and chronic diseases in adulthood. There were also a number of important gender differences in dietary patterns that should be incorporated into health promotion strategies.

### ***Recommendation 1 – Sweet drinks as a target for intervention***

The high intake of sweet drinks is an obvious target for intervention (and indeed is commonly included in community and school action plans). A strong state-wide policy would support the schools in their endeavours in to reduce sweet drink consumption. Targets to increase water consumption could be included in messages about reducing sweet drinks but should not be the main focus. Including flavoured milks and fruit juices as targets for reduction is also important.

### ***Recommendation 2 – Energy-dense, nutrient-poor snacks as a target for intervention***

As with sweet drinks, EDNP snacks are an obvious food category to try to reduce. Interestingly, it was confectionary, cakes, biscuits and snack bars that made up the bulk of this category rather than chips and other packaged snacks. In prioritising this as a specific target, replacement with fruit and healthy snacks should be included in the messages but reduction of EDNP snacks should remain the key message. State-wide policies (not just guidelines) for primary and secondary school canteens would strengthen this approach and some states (e.g. NSW and Queensland) have these in place. Victoria needs similar or stronger food service policies for schools.



### ***Recommendation 3 – Promoting vegetable and fruit consumption***

Fruit consumption appears to be the least of the dietary intake problems, although it is readily promoted in schools and pre-school settings. This should continue but the evidence would suggest that it is not the area of greatest need for improving nutrition. Very few children met the vegetable intake suggested in the dietary guidelines, although these recommendations are set quite high. The promotion of a greater range and amount of vegetables eaten should be considered as a priority for promotion if there are realistic options for intervention activities. In the school context, the promotion of vegetables is not as simple as for fruit because most vegetables need cooking.

### ***Recommendation 4 – Healthy lunchboxes***

The lunch box is a very visible reflection of dietary intake for school children and its contents are eaten in school time. This makes lunchboxes a potential focus as part of a school's healthy eating education and promotion. While contents of lunchboxes are the responsibility of parents, there is an opportunity for school policies and promotions to have an influence.

### ***Recommendation 5 – Priority focus for lower SES populations***

Many of dietary patterns were less healthy in children from lower SES backgrounds and this reinforces the need to focus programs and messages so that they are relevant to these families.



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# 14. Appendices

Appendix A: Characteristics of samples (% unless indicated otherwise)

|                       | <i>Romp &amp; Chomp</i> | <i>Be Active Eat Well</i> | <i>It's your Move!</i> |
|-----------------------|-------------------------|---------------------------|------------------------|
| <b>n</b>              | 943                     | 2184                      | 3074                   |
| <b>Age (years)</b>    |                         |                           |                        |
| <b>Mean</b>           | 2.9                     | 8.3                       | 14.6                   |
| <b>SD</b>             | 0.8                     | 2.2                       | 1.4                    |
| <b>Range</b>          | 1.5-4.9                 | 3.9-12.9                  | 11.4-18.3              |
| <b>Gender</b>         |                         |                           |                        |
| <b>Male</b>           | 49.6                    | 48.2                      | 56.0                   |
| <b>Female</b>         | 50.4                    | 51.8                      | 44.0                   |
| <b>Area level SES</b> |                         |                           |                        |
| <b>Lower</b>          | 27.7                    | 68.8                      | 40.7                   |
| <b>Upper</b>          | 72.3                    | 31.2                      | 59.3                   |

Appendix B: Characteristics of grade/year

|                     | <b>n</b> | <b>Mean (years)</b> | <b>SD (years)</b> | <b>Range (years)</b> | <b>Male (%)</b> | <b>Female (%)</b> | <b>Lower SES (%)</b> | <b>Upper SES (%)</b> |
|---------------------|----------|---------------------|-------------------|----------------------|-----------------|-------------------|----------------------|----------------------|
| <b>EC 2 years</b>   | 421      | 2.1                 | 0.1               | 1.9-2.6              | 52.7            | 47.3              | 29.9                 | 70.1                 |
| <b>EC 3.5 years</b> | 511      | 3.7                 | 0.2               | 3.3-4.7              | 47.0            | 53.0              | 25.3                 | 74.7                 |
| <b>Kindergarten</b> | 248      | 4.8                 | 0.4               | 3.9-5.8              | 46.8            | 53.2              | 63.5                 | 36.5                 |
| <b>Prep-Year 2</b>  | 834      | 6.8                 | 0.9               | 4.6-8.9              | 48.4            | 51.6              | 69.9                 | 30.1                 |
| <b>Year 3 – 4</b>   | 624      | 9.3                 | 0.7               | 7.9-11.3             | 49.2            | 50.8              | 67.8                 | 32.2                 |
| <b>Year 5 - 6</b>   | 478      | 11.3                | 0.7               | 9.5-12.9             | 47.3            | 52.7              | 71.0                 | 29.0                 |
| <b>Year 7-8</b>     | 1475     | 13.5                | 0.7               | 11.4-15.4            | 57.0            | 43.0              | 39.3                 | 60.7                 |
| <b>Year 9-11</b>    | 1551     | 15.7                | 0.8               | 12.6-18.3            | 55.1            | 44.9              | 41.9                 | 58.1                 |



*Appendix C: Frequency of daily fruit consumption by age and gender*

|                     | Gender | n    | 1 serve<br>or less | 2-3<br>serves | 4 serves<br>or more |
|---------------------|--------|------|--------------------|---------------|---------------------|
| <b>EC 2 years</b>   | Male   | 221  | 33.9               | 57.5          | 8.6                 |
|                     | Female | 198  | 32.8               | 62.1          | 5.1                 |
| <b>EC 3.5 years</b> | Male   | 239  | 34.3               | 56.9          | 8.8                 |
|                     | Female | 266  | 39.5               | 56.0          | 4.5                 |
| <b>Total</b>        | Male   | 468  | 34.2               | 57.3          | 8.6                 |
|                     | Female | 473  | 36.4               | 59.0          | 4.7                 |
| <b>All</b>          |        | 941  | 35.3               | 58.1          | 6.6                 |
| <b>Kindergarten</b> | Male   | 103  | 30.1               | 60.2          | 9.7                 |
|                     | Female | 117  | 21.4               | 65.8          | 12.8                |
| <b>Prep-Year 2</b>  | Male   | 365  | 38.9               | 51.2          | 9.9                 |
|                     | Female | 379  | 35.4               | 56.7          | 7.9                 |
| <b>Year 3 – 4</b>   | Male   | 278  | 43.5               | 46.4          | 10.1                |
|                     | Female | 273  | 38.8               | 53.9          | 7.3                 |
| <b>Year 5 - 6</b>   | Male   | 194  | 44.9               | 40.7          | 14.4                |
|                     | Female | 213  | 39.9               | 49.8          | 10.3                |
| <b>Total</b>        | Male   | 940  | 40.5               | 48.6          | 10.9                |
|                     | Female | 982  | 35.6               | 55.5          | 8.9                 |
| <b>All</b>          |        | 1922 | 38.0               | 52.1          | 9.8                 |
| <b>Year 7-8</b>     | Male   | 841  | 42.6               | 50.7          | 6.8                 |
|                     | Female | 634  | 43.4               | 50.5          | 6.2                 |
| <b>Year 9-11</b>    | Male   | 854  | 45.6               | 46.3          | 8.2                 |
|                     | Female | 697  | 41.8               | 50.5          | 7.8                 |
| <b>Total</b>        | Male   | 1696 | 44.0               | 48.5          | 7.5                 |
|                     | Female | 1333 | 42.5               | 50.5          | 7.0                 |
| <b>All</b>          |        | 3029 | 43.4               | 49.4          | 7.3                 |





Appendix D: Frequency of daily fruit consumption by age and SES

|                     | SES  | n    | 1 serve<br>or less | 2-3<br>serves | 4 serves<br>or more |
|---------------------|------|------|--------------------|---------------|---------------------|
| <b>EC 2 years</b>   | <50% | 126  | 36.5               | 58.7          | 4.8                 |
|                     | ≥50% | 295  | 31.9               | 60.3          | 7.8                 |
| <b>EC 3.5 years</b> | <50% | 128  | 49.2               | 44.5          | 6.3                 |
|                     | ≥50% | 379  | 33.3               | 60.2          | 6.6                 |
| <b>Total</b>        | <50% | 262  | 42.4               | 52.3          | 5.3                 |
|                     | ≥50% | 684  | 32.6               | 60.4          | 7.0                 |
| <b>All</b>          |      | 946  | 35.3               | 58.1          | 6.6                 |
| <b>Kindergarten</b> | <50% | 136  | 26.5               | 63.2          | 10.3                |
|                     | ≥50% | 81   | 24.7               | 63.0          | 12.3                |
| <b>Prep-Year 2</b>  | <50% | 510  | 40.6               | 52.0          | 7.5                 |
|                     | ≥50% | 227  | 29.1               | 58.6          | 12.3                |
| <b>Year 3 – 4</b>   | <50% | 366  | 40.7               | 51.9          | 7.4                 |
|                     | ≥50% | 182  | 42.9               | 45.6          | 11.5                |
| <b>Year 5 - 6</b>   | <50% | 285  | 45.3               | 42.8          | 11.9                |
|                     | ≥50% | 121  | 34.7               | 52.1          | 13.2                |
| <b>Total</b>        | <50% | 1297 | 40.2               | 51.1          | 8.7                 |
|                     | ≥50% | 611  | 33.7               | 54.0          | 12.3                |
| <b>All</b>          |      | 1908 | 38.1               | 52.0          | 9.9                 |
| <b>Year 7-8</b>     | <50% | 576  | 45.3               | 49.3          | 5.4                 |
|                     | ≥50% | 888  | 41.3               | 51.5          | 7.2                 |
| <b>Year 9-11</b>    | <50% | 640  | 45.2               | 48.0          | 6.9                 |
|                     | ≥50% | 889  | 42.9               | 48.7          | 8.4                 |
| <b>Total</b>        | <50% | 1218 | 45.2               | 48.6          | 6.2                 |
|                     | ≥50% | 1778 | 42.1               | 50.1          | 7.8                 |
| <b>All</b>          |      | 2996 | 43.4               | 49.5          | 7.1                 |



*Appendix E: Frequency of fruit servings by age and gender (SFC)*

|                    | Gender | n    | None | Less than or 1 serve | Less than or 2 serves | Less than or 3 serves | More than 3 serves |
|--------------------|--------|------|------|----------------------|-----------------------|-----------------------|--------------------|
| <b>Prep-Year 2</b> | Male   | 267  | 37.8 | 47.2                 | 12.7                  | 1.5                   | 0.8                |
|                    | Female | 289  | 30.1 | 54.3                 | 12.5                  | 2.8                   | 0.4                |
| <b>Year 3 – 4</b>  | Male   | 277  | 31.8 | 54.9                 | 12.6                  | 0.7                   | 0                  |
|                    | Female | 316  | 27.2 | 51.1                 | 14.9                  | 3.5                   | 0.3                |
| <b>Year 5 - 6</b>  | Male   | 393  | 37.4 | 47.8                 | 12.2                  | 2.0                   | 0.5                |
|                    | Female | 394  | 26.4 | 50.5                 | 18.8                  | 4.1                   | 0.3                |
| <b>Total</b>       | Male   | 937  | 35.9 | 49.7                 | 12.5                  | 1.5                   | 0.4                |
|                    | Female | 999  | 27.7 | 52.8                 | 15.7                  | 3.5                   | 0.3                |
| <b>All</b>         |        | 1936 | 31.7 | 51.3                 | 14.2                  | 2.5                   | 0.4                |

*Appendix F: Frequency fruit servings by age and SES (SFC)*

|             | SES  | n    | None | Less than or 1 serve | Less than or 2 serves | Less than or 3 serves | More than 3 serves |
|-------------|------|------|------|----------------------|-----------------------|-----------------------|--------------------|
| Prep-Year 2 | <50% | 374  | 38.5 | 48.7                 | 10.4                  | 1.9                   | 0.5                |
|             | ≥50% | 167  | 24.0 | 54.5                 | 18.0                  | 3.0                   | 0.6                |
| Year 3 – 4  | <50% | 405  | 32.4 | 53.6                 | 11.4                  | 2.5                   | 0.3                |
|             | ≥50% | 172  | 20.9 | 57.6                 | 19.8                  | 1.7                   | 0                  |
| Year 5 - 6  | <50% | 529  | 35.2 | 47.1                 | 14.0                  | 3.4                   | 0.4                |
|             | ≥50% | 235  | 26.4 | 53.6                 | 17.0                  | 2.6                   | 0.4                |
| Total       | <50% | 1308 | 35.2 | 49.5                 | 12.2                  | 2.7                   | 0.4                |
|             | ≥50% | 574  | 24.0 | 55.1                 | 18.1                  | 2.4                   | 0.4                |
| <b>All</b>  |      | 1882 | 31.8 | 51.2                 | 14.0                  | 2.6                   | 0.4                |



*Appendix G: Frequency of daily vegetable consumption by age and gender*

|                     | Gender | n    | 1 serve<br>or less | 2-3<br>serves | 4 serves<br>or more |
|---------------------|--------|------|--------------------|---------------|---------------------|
| <b>EC 2 years</b>   | Male   | 220  | 65.0               | 33.6          | 1.4                 |
|                     | Female | 198  | 64.1               | 34.3          | 1.5                 |
| <b>EC 3.5 years</b> | Male   | 239  | 64.9               | 29.3          | 5.9                 |
|                     | Female | 266  | 60.2               | 37.2          | 2.6                 |
| <b>Total</b>        | Male   | 467  | 64.7               | 31.7          | 3.6                 |
|                     | Female | 473  | 62.0               | 35.7          | 2.3                 |
| <b>All</b>          |        | 940  | 63.3               | 33.7          | 3.0                 |
| <b>Kindergarten</b> | Male   | 105  | 58.1               | 35.2          | 6.7                 |
|                     | Female | 116  | 52.6               | 41.4          | 6.0                 |
| <b>Prep-Year 2</b>  | Male   | 366  | 49.2               | 42.1          | 8.7                 |
|                     | Female | 379  | 48.3               | 40.1          | 11.6                |
| <b>Year 3 – 4</b>   | Male   | 278  | 41.7               | 46.4          | 11.9                |
|                     | Female | 274  | 44.9               | 43.8          | 11.3                |
| <b>Year 5 - 6</b>   | Male   | 196  | 44.9               | 39.3          | 15.8                |
|                     | Female | 213  | 40.9               | 47.4          | 11.7                |
| <b>Total</b>        | Male   | 945  | 47.1               | 42.0          | 10.9                |
|                     | Female | 982  | 46.2               | 42.9          | 10.9                |
| <b>All</b>          |        | 1927 | 46.7               | 42.5          | 10.9                |
| <b>Year 7-8</b>     | Male   | 841  | 20.8               | 57.3          | 21.9                |
|                     | Female | 634  | 22.6               | 56.9          | 20.5                |
| <b>Year 9-11</b>    | Male   | 854  | 24.9               | 57.7          | 17.3                |
|                     | Female | 697  | 25.3               | 54.8          | 19.9                |
| <b>Total</b>        | Male   | 1696 | 22.9               | 57.6          | 19.6                |
|                     | Female | 1333 | 24.0               | 55.8          | 20.2                |
| <b>All</b>          |        | 3029 | 23.4               | 56.8          | 19.8                |



Appendix H: Frequency of daily vegetable consumption by age and SES

|                     | SES  | n    | 1 serve<br>or less | 2-3<br>serves | 4 serves<br>or more |
|---------------------|------|------|--------------------|---------------|---------------------|
| <b>EC 2 years</b>   | <50% | 126  | 65.9               | 33.3          | 0.8                 |
|                     | ≥50% | 294  | 64.0               | 34.4          | 1.7                 |
| <b>EC 3.5 years</b> | <50% | 128  | 68.8               | 29.7          | 1.6                 |
|                     | ≥50% | 379  | 60.4               | 34.6          | 5.0                 |
| <b>Total</b>        | <50% | 262  | 66.4               | 31.7          | 1.9                 |
|                     | ≥50% | 683  | 62.1               | 34.4          | 3.5                 |
| <b>All</b>          |      | 945  | 63.3               | 33.7          | 3.1                 |
| <b>Kindergarten</b> | <50% | 136  | 57.4               | 36.8          | 5.9                 |
|                     | ≥50% | 82   | 53.7               | 41.5          | 4.9                 |
| <b>Prep-Year 2</b>  | <50% | 513  | 51.1               | 37.8          | 11.1                |
|                     | ≥50% | 226  | 44.3               | 47.4          | 8.4                 |
| <b>Year 3 – 4</b>   | <50% | 367  | 45.0               | 43.6          | 11.4                |
|                     | ≥50% | 180  | 41.1               | 47.2          | 11.7                |
| <b>Year 5 - 6</b>   | <50% | 286  | 44.1               | 42.0          | 14.0                |
|                     | ≥50% | 122  | 40.2               | 47.5          | 12.3                |
| <b>Total</b>        | <50% | 1302 | 48.5               | 40.3          | 11.3                |
|                     | ≥50% | 610  | 43.8               | 46.6          | 9.7                 |
| <b>All</b>          |      | 1912 | 47.0               | 42.3          | 10.8                |
| <b>Year 7-8</b>     | <50% | 576  | 21.0               | 56.8          | 22.2                |
|                     | ≥50% | 888  | 21.7               | 57.8          | 20.5                |
| <b>Year 9-11</b>    | <50% | 640  | 25.9               | 57.5          | 16.6                |
|                     | ≥50% | 889  | 24.9               | 55.7          | 19.5                |
| <b>Total</b>        | <50% | 1218 | 23.7               | 57.1          | 19.2                |
|                     | ≥50% | 1778 | 23.3               | 56.8          | 20.0                |
| <b>All</b>          |      | 2996 | 23.4               | 56.9          | 19.7                |



*Appendix I: Frequency of vegetable servings by age and gender (SFC)*

|             | Gender | n    | None | Less than or 1 serve | Less than or 2 serves | Less than or 3 serves | More than 3 serves |
|-------------|--------|------|------|----------------------|-----------------------|-----------------------|--------------------|
| Prep-Year 2 | Male   | 267  | 87.6 | 10.5                 | 1.5                   | 0.4                   | 0                  |
|             | Female | 289  | 88.6 | 6.9                  | 2.8                   | 1.0                   | 0.7                |
| Year 3 – 4  | Male   | 277  | 92.4 | 5.4                  | 1.1                   | 0.7                   | 0.4                |
|             | Female | 316  | 86.1 | 10.1                 | 2.9                   | 0.3                   | 0.6                |
| Year 5 - 6  | Male   | 393  | 85.0 | 12.5                 | 1.0                   | 0.5                   | 1.0                |
|             | Female | 394  | 81.2 | 15.0                 | 2.0                   | 0.8                   | 1.0                |
| Total       | Male   | 937  | 87.9 | 9.8                  | 1.2                   | 0.5                   | 0.5                |
|             | Female | 999  | 84.9 | 11.1                 | 2.5                   | 0.7                   | 0.8                |
| All         |        | 1936 | 86.4 | 10.5                 | 1.9                   | 0.6                   | 0.7                |

*Appendix J: Frequency of vegetable servings by age and SES (SFC)*

|             | SES  | n    | None | Less than or 1 serve | Less than or 2 serves | Less than or 3 serves | More than 3 serves |
|-------------|------|------|------|----------------------|-----------------------|-----------------------|--------------------|
| Prep-Year 2 | <50% | 374  | 90.4 | 6.4                  | 2.1                   | 0.5                   | 0.5                |
|             | ≥50% | 167  | 82.0 | 14.4                 | 2.4                   | 1.2                   | 0                  |
| Year 3 – 4  | <50% | 405  | 91.6 | 6.4                  | 1.2                   | 0.5                   | 0.3                |
|             | ≥50% | 172  | 83.1 | 11.1                 | 4.1                   | 0.6                   | 1.2                |
| Year 5 - 6  | <50% | 529  | 83.7 | 12.9                 | 1.7                   | 0.6                   | 1.1                |
|             | ≥50% | 235  | 81.7 | 15.3                 | 1.3                   | 0.9                   | 0.9                |
| Total       | <50% | 1308 | 88.1 | 9.0                  | 1.7                   | 0.5                   | 0.7                |
|             | ≥50% | 574  | 82.2 | 13.8                 | 2.4                   | 0.9                   | 0.7                |
| All         |      | 1882 | 86.3 | 10.5                 | 1.9                   | 0.6                   | 0.7                |



*Appendix K: Frequency of daily packaged snack consumption by age and gender*

|                 | <b>Gender</b> | <b>n</b> | <b>1 serve<br/>or less</b> | <b>2-3<br/>serves</b> | <b>4 serves<br/>or more</b> |
|-----------------|---------------|----------|----------------------------|-----------------------|-----------------------------|
| EC 2 years      | Male          | 220      | 95.9                       | 4.1                   | 0                           |
|                 | Female        | 198      | 96.5                       | 3.5                   | 0                           |
| EC 3.5<br>years | Male          | 239      | 92.9                       | 6.3                   | 0.8                         |
|                 | Female        | 265      | 95.5                       | 4.5                   | 0                           |
| Total           | Male          | 467      | 94.4                       | 5.1                   | 0.4                         |
|                 | Female        | 472      | 96.0                       | 4.0                   | 0                           |
| All             |               | 939      | 95.2                       | 4.6                   | 0.2                         |
| Kindergarten    | Male          | 104      | 90.4                       | 9.6                   | 0                           |
|                 | Female        | 118      | 96.6                       | 2.5                   | 0.9                         |
| Prep-Year 2     | Male          | 366      | 89.3                       | 9.8                   | 0.8                         |
|                 | Female        | 381      | 90.8                       | 8.7                   | 0.5                         |
| Year 3 – 4      | Male          | 279      | 87.1                       | 12.5                  | 0.4                         |
|                 | Female        | 277      | 91.0                       | 8.7                   | 0.4                         |
| Year 5 - 6      | Male          | 195      | 86.2                       | 13.3                  | 0.5                         |
|                 | Female        | 213      | 92.0                       | 7.5                   | 0.5                         |
| Total           | Male          | 944      | 88.1                       | 11.3                  | 0.5                         |
|                 | Female        | 989      | 91.8                       | 7.7                   | 0.5                         |
| All             |               | 1933     | 90.0                       | 9.5                   | 0.5                         |



*Appendix L: Frequency of daily packaged snack consumption by age and SES*

|                 | SES  | n    | 1 serve<br>or less | 2-3<br>serves | 4 serves<br>or more |
|-----------------|------|------|--------------------|---------------|---------------------|
| EC 2 years      | <50% | 126  | 95.2               | 4.8           | 0                   |
|                 | ≥50% | 294  | 96.6               | 3.4           | 0                   |
| EC 3.5<br>years | <50% | 128  | 93.8               | 4.7           | 1.6                 |
|                 | ≥50% | 378  | 94.4               | 5.6           | 0                   |
| Total           | <50% | 262  | 94.7               | 4.9           | 0.8                 |
|                 | ≥50% | 682  | 95.5               | 4.6           | 0                   |
| All             |      | 944  | 95.2               | 4.6           | 0.2                 |
| Kindergarten    | <50% | 137  | 92.0               | 7.3           | 0.7                 |
|                 | ≥50% | 82   | 96.3               | 3.7           | 0                   |
| Prep-Year 2     | <50% | 513  | 89.3               | 9.8           | 1.0                 |
|                 | ≥50% | 227  | 91.6               | 8.4           | 0                   |
| Year 3 – 4      | <50% | 369  | 87.3               | 12.2          | 0.5                 |
|                 | ≥50% | 182  | 92.3               | 7.7           | 0                   |
| Year 5 - 6      | <50% | 286  | 87.4               | 12.2          | 0.4                 |
|                 | ≥50% | 121  | 94.2               | 5.0           | 0.8                 |
| Total           | <50% | 1305 | 88.6               | 10.7          | 0.7                 |
|                 | ≥50% | 612  | 93.0               | 6.9           | 0.2                 |
| All             |      | 1917 | 90.0               | 9.5           | 0.5                 |

*Appendix M: Frequency of packaged snack servings by age and gender (SFC)*

|             | Gender | n    | None | Less<br>than or 1<br>serve | Less<br>than or 2<br>serves | Less<br>than or 3<br>serves | More<br>than 3<br>serves |
|-------------|--------|------|------|----------------------------|-----------------------------|-----------------------------|--------------------------|
| Prep-Year 2 | Male   | 267  | 65.2 | 30.3                       | 4.1                         | 0.4                         | 0                        |
|             | Female | 289  | 68.5 | 29.1                       | 1.7                         | 0.4                         | 0.4                      |
| Year 3 – 4  | Male   | 277  | 66.4 | 30.7                       | 2.5                         | 0.4                         | 0                        |
|             | Female | 316  | 66.1 | 29.8                       | 3.5                         | 0.3                         | 0.3                      |
| Year 5 - 6  | Male   | 393  | 61.1 | 34.4                       | 4.3                         | 0.3                         | 0                        |
|             | Female | 394  | 67.8 | 29.4                       | 2.3                         | 0.5                         | 0                        |
| Total       | Male   | 937  | 63.8 | 32.1                       | 3.7                         | 0.3                         | 0                        |
|             | Female | 999  | 67.5 | 29.4                       | 2.5                         | 0.4                         | 0.2                      |
| All         |        | 1936 | 65.7 | 30.7                       | 3.1                         | 0.4                         | 0.1                      |



*Appendix N: Frequency of packaged snack servings by age and SES (SFC)*

|             | SES  | n    | None | Less than or 1 serve | Less than or 2 serves | Less than or 3 serves | More than 3 serves |
|-------------|------|------|------|----------------------|-----------------------|-----------------------|--------------------|
| Prep-Year 2 | <50% | 374  | 63.9 | 31.8                 | 3.7                   | 0.3                   | 0.3                |
|             | ≥50% | 167  | 74.9 | 24.0                 | 0.6                   | 0.6                   | 0                  |
| Year 3 – 4  | <50% | 405  | 63.2 | 32.4                 | 4.2                   | 0.3                   | 0                  |
|             | ≥50% | 172  | 72.7 | 25.6                 | 0.6                   | 0.6                   | 0.6                |
| Year 5 - 6  | <50% | 529  | 62.4 | 33.1                 | 4.0                   | 0.6                   | 0                  |
|             | ≥50% | 235  | 69.8 | 28.1                 | 2.1                   | 0                     | 0                  |
| Total       | <50% | 1308 | 63.1 | 32.5                 | 4.0                   | 0.4                   | 0.1                |
|             | ≥50% | 574  | 72.1 | 26.1                 | 1.2                   | 0.4                   | 0.2                |
| All         |      | 1882 | 65.8 | 30.6                 | 3.1                   | 0.4                   | 0.1                |

*Appendix O: Frequency of EDNP servings by age and gender (SFC)*

|             | Gender | n    | None | Less than or 1 serve | Less than or 2 serves | Less than or 3 serves | More than 3 serves |
|-------------|--------|------|------|----------------------|-----------------------|-----------------------|--------------------|
| Prep-Year 2 | Male   | 267  | 4.9  | 13.5                 | 18.4                  | 21.7                  | 41.6               |
|             | Female | 289  | 9.3  | 13.5                 | 20.4                  | 17.0                  | 39.8               |
| Year 3 – 4  | Male   | 277  | 9.0  | 10.5                 | 18.1                  | 19.5                  | 43.0               |
|             | Female | 316  | 6.0  | 19.0                 | 18.7                  | 19.3                  | 37.0               |
| Year 5 - 6  | Male   | 393  | 11.5 | 16.0                 | 22.1                  | 15.3                  | 35.1               |
|             | Female | 394  | 9.6  | 20.3                 | 20.8                  | 17.3                  | 32.0               |
| Total       | Male   | 937  | 8.9  | 13.7                 | 19.9                  | 18.4                  | 39.3               |
|             | Female | 999  | 8.4  | 17.9                 | 20.0                  | 17.8                  | 35.8               |
| All         |        | 1936 | 8.6  | 15.9                 | 19.9                  | 18.1                  | 37.5               |

*Appendix P: Frequency of EDNP servings by age and SES (SFC)*

|             | SES  | n    | None | Less than or 1 serve | Less than or 2 serves | Less than or 3 serves | More than 3 serves |
|-------------|------|------|------|----------------------|-----------------------|-----------------------|--------------------|
| Prep-Year 2 | <50% | 374  | 4.6  | 10.7                 | 18.5                  | 19.0                  | 47.3               |
|             | ≥50% | 167  | 13.2 | 19.8                 | 21.0                  | 20.4                  | 25.8               |
| Year 3 – 4  | <50% | 405  | 6.7  | 13.1                 | 20.5                  | 18.0                  | 41.7               |
|             | ≥50% | 172  | 9.9  | 18.6                 | 14.5                  | 22.7                  | 34.3               |
| Year 5 - 6  | <50% | 529  | 8.7  | 17.6                 | 21.4                  | 17.2                  | 35.2               |
|             | ≥50% | 235  | 14.9 | 19.6                 | 21.7                  | 13.2                  | 30.6               |
| Total       | <50% | 1308 | 6.9  | 14.2                 | 20.3                  | 18.0                  | 40.7               |
|             | ≥50% | 574  | 12.9 | 19.3                 | 19.3                  | 18.1                  | 30.3               |
| All         |      | 1882 | 8.7  | 15.8                 | 20.0                  | 18.0                  | 30.3               |





*Appendix Q: Frequency of take away consumption by age and gender*

|              | <b>Gender</b> | <b>n</b> | <b>&lt; once a week</b> | <b>once a week</b> | <b>≥ once a week</b> |
|--------------|---------------|----------|-------------------------|--------------------|----------------------|
| EC 2 years   | Male          | 221      | 49.3                    | 39.8               | 10.9                 |
|              | Female        | 198      | 51.0                    | 43.4               | 5.6                  |
| EC 3.5 years | Male          | 239      | 40.2                    | 48.1               | 11.7                 |
|              | Female        | 268      | 48.9                    | 38.8               | 12.3                 |
| Total        | Male          | 468      | 44.7                    | 43.8               | 11.5                 |
|              | Female        | 475      | 49.9                    | 40.8               | 9.3                  |
| All          |               | 943      | 47.3                    | 42.3               | 10.4                 |
| Kindergarten | Male          | 105      | 33.3                    | 50.5               | 16.2                 |
|              | Female        | 118      | 39.8                    | 48.3               | 11.9                 |
| Prep-Year 2  | Male          | 367      | 39.8                    | 47.4               | 12.8                 |
|              | Female        | 383      | 36.0                    | 48.6               | 15.4                 |
| Year 3 – 4   | Male          | 281      | 37.7                    | 49.1               | 13.2                 |
|              | Female        | 278      | 37.1                    | 50.4               | 12.6                 |
| Year 5 - 6   | Male          | 197      | 41.1                    | 46.2               | 12.7                 |
|              | Female        | 213      | 40.9                    | 48.4               | 10.8                 |
| Total        | Male          | 950      | 38.7                    | 48.0               | 13.3                 |
|              | Female        | 992      | 37.8                    | 49.0               | 13.2                 |
| All          |               | 1942     | 38.3                    | 48.5               | 13.2                 |
| Year 7-8     | Male          | 837      | 36.0                    | 28.4               | 35.6                 |
|              | Female        | 630      | 34.1                    | 31.1               | 34.8                 |
| Year 9-11    | Male          | 854      | 35.3                    | 34.4               | 30.3                 |
|              | Female        | 697      | 25.5                    | 34.6               | 39.9                 |
| Total        | Male          | 1692     | 35.6                    | 31.5               | 32.9                 |
|              | Female        | 1329     | 29.7                    | 32.9               | 37.4                 |
| All          |               | 3021     | 33.0                    | 32.1               | 34.9                 |



*Appendix R: Frequency of takeaway consumption by age and SES*

|              | SES  | n    | < once a week | once a week | ≥ once a week |
|--------------|------|------|---------------|-------------|---------------|
| EC 2 years   | <50% | 126  | 51.6          | 40.5        | 7.9           |
|              | ≥50% | 295  | 49.5          | 42.0        | 8.5           |
| EC 3.5 years | <50% | 129  | 45.7          | 43.4        | 10.9          |
|              | ≥50% | 380  | 44.7          | 43.2        | 12.1          |
| Total        | <50% | 263  | 49.1          | 41.4        | 9.5           |
|              | ≥50% | 685  | 46.9          | 42.6        | 10.5          |
| All          |      | 948  | 47.5          | 42.3        | 10.5          |
| Kindergarten | <50% | 137  | 31.4          | 51.8        | 16.8          |
|              | ≥50% | 83   | 44.6          | 45.8        | 9.6           |
| Prep-Year 2  | <50% | 515  | 35.5          | 50.5        | 14.0          |
|              | ≥50% | 228  | 43.0          | 42.5        | 14.5          |
| Year 3 – 4   | <50% | 370  | 35.7          | 51.1        | 13.2          |
|              | ≥50% | 184  | 39.7          | 48.4        | 12.0          |
| Year 5 - 6   | <50% | 287  | 39.0          | 50.9        | 10.1          |
|              | ≥50% | 122  | 45.1          | 39.3        | 15.6          |
| Total        | <50% | 1309 | 35.9          | 50.9        | 13.2          |
|              | ≥50% | 617  | 42.6          | 44.1        | 13.3          |
| All          |      | 1926 | 38.1          | 48.7        | 13.2          |
| Year 7-8     | <50% | 574  | 37.6          | 25.3        | 37.1          |
|              | ≥50% | 882  | 33.6          | 32.7        | 33.8          |
| Year 9-11    | <50% | 640  | 31.9          | 33.4        | 34.7          |
|              | ≥50% | 889  | 30.6          | 35.6        | 33.9          |
| Total        | <50% | 1216 | 34.7          | 29.5        | 35.8          |
|              | ≥50% | 1772 | 32.1          | 34.1        | 33.8          |
| All          |      | 2988 | 33.1          | 32.3        | 34.6          |



*Appendix S: Frequency of daily sweet drink consumption by age and gender*

|              | Gender | n    | 0mls | < or =<br>250mls | ≥ 250mls |
|--------------|--------|------|------|------------------|----------|
| EC 2 years   | Male   | 219  | 32.4 | 53.0             | 14.6     |
|              | Female | 197  | 41.1 | 47.7             | 11.2     |
| EC 3.5 years | Male   | 238  | 24.8 | 56.7             | 18.5     |
|              | Female | 267  | 23.6 | 55.4             | 21.0     |
| Total        | Male   | 465  | 28.4 | 54.4             | 17.2     |
|              | Female | 473  | 31.1 | 52.2             | 16.7     |
| All          |        | 938  | 29.7 | 53.3             | 17.0     |
| Kindergarten | Male   | 102  | 22.6 | 20.6             | 56.9     |
|              | Female | 118  | 26.3 | 19.5             | 54.2     |
| Prep-Year 2  | Male   | 365  | 18.1 | 23.8             | 58.1     |
|              | Female | 381  | 21.5 | 23.9             | 54.6     |
| Year 3 – 4   | Male   | 278  | 17.6 | 19.1             | 63.3     |
|              | Female | 273  | 19.4 | 21.6             | 59.0     |
| Year 5 - 6   | Male   | 195  | 12.8 | 19.5             | 67.7     |
|              | Female | 213  | 22.1 | 28.2             | 49.8     |
| Total        | Male   | 940  | 17.3 | 21.2             | 61.5     |
|              | Female | 985  | 21.6 | 23.7             | 54.7     |
| All          |        | 1925 | 19.5 | 22.4             | 58.0     |
| Year 7-8     | Male   | 841  | 14.0 | 14.5             | 71.5     |
|              | Female | 634  | 16.3 | 16.9             | 66.9     |
| Year 9-11    | Male   | 854  | 16.9 | 14.9             | 68.3     |
|              | Female | 697  | 29.1 | 23.1             | 47.8     |
| Total        | Male   | 1695 | 15.5 | 14.7             | 69.9     |
|              | Female | 1333 | 23.0 | 20.1             | 56.9     |
| All          |        | 3028 | 18.8 | 17.1             | 64.2     |



Appendix T: Frequency of daily sweet drink consumption by age and SES

|                 | SES  | n    | 0mls  | < or =<br>250mls | ≥ 250mls |
|-----------------|------|------|-------|------------------|----------|
| EC 2 years      | <50% | 125  | 24.8  | 59.2             | 16.0     |
|                 | ≥50% | 293  | 41.3  | 46.8             | 12.0     |
| EC 3.5<br>years | <50% | 129  | 24.8  | 57.4             | 17.8     |
|                 | ≥50% | 378  | 24.1  | 55.6             | 20.4     |
| Total           | <50% | 262  | 25.2  | 57.3             | 17.6     |
|                 | ≥50% | 681  | 31.6  | 51.7             | 16.7     |
| All             |      | 943  | 29.8  | 53.2             | 17.0     |
| Kindergarten    | <50% | 135  | 24.44 | 19.3             | 56.3     |
|                 | ≥50% | 82   | 25.6  | 20.7             | 53.7     |
| Prep-Year 2     | <50% | 512  | 17.2  | 21.1             | 61.7     |
|                 | ≥50% | 227  | 26.0  | 30.0             | 44.1     |
| Year 3 – 4      | <50% | 365  | 16.4  | 18.6             | 64.9     |
|                 | ≥50% | 181  | 22.7  | 23.8             | 53.6     |
| Year 5 - 6      | <50% | 287  | 14.6  | 22.0             | 63.4     |
|                 | ≥50% | 120  | 25.0  | 29.2             | 45.8     |
| Total           | <50% | 1299 | 17.2  | 20.4             | 62.4     |
|                 | ≥50% | 610  | 24.8  | 26.7             | 48.5     |
| All             |      | 1909 | 19.6  | 22.4             | 58.0     |
| Year 7-8        | <50% | 576  | 15.6  | 12.0             | 72.4     |
|                 | ≥50% | 888  | 14.6  | 17.7             | 67.7     |
| Year 9-11       | <50% | 640  | 21.9  | 18.8             | 59.4     |
|                 | ≥50% | 889  | 22.8  | 18.0             | 59.2     |
| Total           | <50% | 1218 | 18.9  | 15.5             | 65.6     |
|                 | ≥50% | 1777 | 18.7  | 17.8             | 63.4     |
| All             |      | 2995 | 18.8  | 16.9             | 64.3     |



*Appendix U: Frequency of sweet drink servings by age and gender (SFC)*

|             | <b>Gender</b> | <b>n</b> | <b>None</b> | <b>Less than or 1 serve</b> | <b>Less than or 2 serves</b> | <b>Less than or 3 serves</b> | <b>More than 3 serves</b> |
|-------------|---------------|----------|-------------|-----------------------------|------------------------------|------------------------------|---------------------------|
| Prep-Year 2 | Male          | 267      | 58.4        | 15.4                        | 16.5                         | 8.2                          | 1.5                       |
|             | Female        | 289      | 66.4        | 13.8                        | 10.7                         | 8.3                          | 0.7                       |
| Year 3 – 4  | Male          | 277      | 70.0        | 14.1                        | 8.3                          | 6.9                          | 0.7                       |
|             | Female        | 316      | 69.0        | 13.3                        | 9.2                          | 6.3                          | 2.2                       |
| Year 5 - 6  | Male          | 393      | 70.7        | 9.9                         | 8.1                          | 9.9                          | 1.3                       |
|             | Female        | 394      | 74.4        | 11.9                        | 8.4                          | 4.6                          | 0.8                       |
| Total       | Male          | 937      | 67.0        | 12.7                        | 10.6                         | 8.5                          | 1.2                       |
|             | Female        | 999      | 70.4        | 12.9                        | 9.3                          | 6.2                          | 1.2                       |
| All         |               | 1936     | 68.8        | 12.8                        | 9.9                          | 7.3                          | 1.2                       |



*Appendix V: Frequency of sweet drink servings by age and SES (SFC)*

|             | SES  | n    | None | Less than or 1 serve | Less than or 2 serves | Less than or 3 serves | More than 3 serves |
|-------------|------|------|------|----------------------|-----------------------|-----------------------|--------------------|
| Prep-Year 2 | <50% | 374  | 60.2 | 14.4                 | 13.6                  | 10.2                  | 1.6                |
|             | ≥50% | 167  | 67.7 | 15.6                 | 12.6                  | 4.2                   | 0                  |
| Year 3 – 4  | <50% | 405  | 69.6 | 14.3                 | 8.9                   | 6.4                   | 0.7                |
|             | ≥50% | 172  | 69.8 | 9.9                  | 9.3                   | 7.6                   | 3.5                |
| Year 5 - 6  | <50% | 529  | 72.0 | 11.7                 | 7.8                   | 7.4                   | 1.1                |
|             | ≥50% | 235  | 73.6 | 9.4                  | 8.9                   | 7.2                   | 0.9                |
| Total       | <50% | 1308 | 67.9 | 13.3                 | 9.8                   | 7.9                   | 1.2                |
|             | ≥50% | 574  | 70.7 | 11.3                 | 10.1                  | 6.5                   | 1.4                |
| All         |      | 1882 | 68.8 | 12.7                 | 9.9                   | 7.4                   | 1.2                |

*Appendix W: Frequency of daily water consumption by age and gender*

|              | Gender | n   | 1 serve or less | ≥1 to <3 serves | 3 serves or more |
|--------------|--------|-----|-----------------|-----------------|------------------|
| EC 2 years   | Male   | 220 | 40.5            | 48.2            | 11.4             |
|              | Female | 198 | 29.8            | 54.0            | 16.2             |
| EC 3.5 years | Male   | 238 | 31.9            | 54.2            | 13.9             |
|              | Female | 268 | 35.5            | 51.5            | 13.1             |
| Total        | Male   | 466 | 36.7            | 50.6            | 12.7             |
|              | Female | 475 | 33.1            | 52.6            | 14.3             |
| All          |        | 941 | 34.9            | 51.7            | 13.5             |

*Appendix X: Frequency of daily water consumption by age and SES*

|              | SES  | n   | 1 serve or less | ≥1 to <3 serves | 3 serves or more |
|--------------|------|-----|-----------------|-----------------|------------------|
| EC 2 years   | <50% | 125 | 40.8            | 43.2            | 16.0             |
|              | ≥50% | 295 | 33.2            | 54.2            | 12.5             |
| EC 3.5 years | <50% | 129 | 30.2            | 47.3            | 22.5             |
|              | ≥50% | 379 | 34.8            | 54.6            | 10.6             |
| Total        | <50% | 262 | 35.9            | 45.0            | 19.1             |
|              | ≥50% | 684 | 34.4            | 54.2            | 11.4             |
| All          |      | 946 | 34.8            | 51.7            | 13.5             |



*Appendix Y: Frequency of water offered with snacks/meals by age and gender*

|              | <b>Gender</b> | <b>n</b> | <b>Often</b> | <b>Sometimes</b> | <b>Rarely</b> |
|--------------|---------------|----------|--------------|------------------|---------------|
| Kindergarten | Male          | 105      | 86.7         | 5.7              | 7.6           |
|              | Female        | 117      | 90.6         | 4.3              | 5.1           |
| Prep-Year 2  | Male          | 367      | 89.9         | 6.5              | 3.5           |
|              | Female        | 383      | 85.4         | 10.4             | 4.2           |
| Year 3 – 4   | Male          | 281      | 84.7         | 8.2              | 7.1           |
|              | Female        | 278      | 85.3         | 9.0              | 5.8           |
| Year 5 - 6   | Male          | 197      | 77.7         | 11.2             | 11.2          |
|              | Female        | 213      | 85.9         | 7.5              | 6.6           |
| Total        | Male          | 950      | 85.5         | 7.9              | 6.6           |
|              | Female        | 991      | 86.1         | 8.7              | 5.3           |
| All          |               | 1941     | 85.8         | 8.3              | 5.9           |

*Appendix Z: Frequency of water offered with snacks/meals by age and SES*

|              | <b>SES</b> | <b>n</b> | <b>Often</b> | <b>Sometimes</b> | <b>Rarely</b> |
|--------------|------------|----------|--------------|------------------|---------------|
| Kindergarten | <50%       | 137      | 84.7         | 7.3              | 8.0           |
|              | ≥50%       | 82       | 95.1         | 1.2              | 3.7           |
| Prep-Year 2  | <50%       | 515      | 86.6         | 9.3              | 4.1           |
|              | ≥50%       | 228      | 89.9         | 6.6              | 3.5           |
| Year 3 – 4   | <50%       | 370      | 84.9         | 7.8              | 7.3           |
|              | ≥50%       | 184      | 85.3         | 10.3             | 4.4           |
| Year 5 - 6   | <50%       | 287      | 81.5         | 10.5             | 8.0           |
|              | ≥50%       | 122      | 82.8         | 6.6              | 10.7          |
| Total        | <50%       | 1309     | 84.8         | 8.9              | 6.3           |
|              | ≥50%       | 616      | 87.8         | 7.0              | 5.2           |
| All          |            | 1925     | 85.8         | 8.3              | 5.9           |



*Appendix AA: Frequency of water servings by age and gender (SFC)*

|             | <b>Gender</b> | <b>n</b> | <b>None</b> | <b>Less than or 1 serve</b> | <b>Less than or 2 serves</b> | <b>Less than or 3 serves</b> | <b>More than 3 serves</b> |
|-------------|---------------|----------|-------------|-----------------------------|------------------------------|------------------------------|---------------------------|
| Prep-Year 2 | Male          | 267      | 64.0        | 4.9                         | 19.1                         | 10.1                         | 1.9                       |
|             | Female        | 289      | 57.8        | 9.0                         | 21.5                         | 10.4                         | 1.4                       |
| Year 3 – 4  | Male          | 277      | 72.9        | 2.9                         | 13.4                         | 10.1                         | 0.7                       |
|             | Female        | 316      | 63.6        | 6.0                         | 15.8                         | 14.2                         | 0.3                       |
| Year 5 - 6  | Male          | 393      | 74.8        | 1.3                         | 8.1                          | 14.0                         | 1.8                       |
|             | Female        | 394      | 63.5        | 3.3                         | 15.0                         | 17.5                         | 0.8                       |
| Total       | Male          | 937      | 71.2        | 2.8                         | 12.8                         | 11.7                         | 1.5                       |
|             | Female        | 999      | 61.9        | 5.8                         | 17.1                         | 14.4                         | 0.8                       |
| All         |               | 1936     | 66.4        | 4.3                         | 15.0                         | 13.1                         | 1.1                       |

*Appendix BB: Frequency of water servings by age and SES (SFC)*

|             | <b>SES</b> | <b>n</b> | <b>None</b> | <b>Less than or 1 serve</b> | <b>Less than or 2 serves</b> | <b>Less than or 3 serves</b> | <b>More than 3 serves</b> |
|-------------|------------|----------|-------------|-----------------------------|------------------------------|------------------------------|---------------------------|
| Prep-Year 2 | <50%       | 374      | 60.7        | 5.9                         | 19.0                         | 12.3                         | 2.1                       |
|             | ≥50%       | 167      | 59.9        | 9.0                         | 24.6                         | 6.6                          | 0                         |
| Year 3 – 4  | <50%       | 405      | 64.9        | 5.4                         | 15.6                         | 13.3                         | 0.7                       |
|             | ≥50%       | 172      | 74.4        | 2.9                         | 12.8                         | 9.9                          | 0                         |
| Year 5 - 6  | <50%       | 529      | 69.9        | 2.1                         | 11.2                         | 15.5                         | 1.3                       |
|             | ≥50%       | 235      | 66.4        | 3.0                         | 12.8                         | 17.0                         | 0.9                       |
| Total       | <50%       | 1308     | 65.8        | 4.2                         | 14.8                         | 13.9                         | 1.4                       |
|             | ≥50%       | 574      | 66.9        | 4.7                         | 16.2                         | 11.9                         | 0.4                       |
| All         |            | 1882     | 66.1        | 4.4                         | 15.2                         | 13.3                         | 1.1                       |

*Appendix CC: Frequency of daily plain milk consumption by age and gender*

|              | <b>Gender</b> | <b>n</b> | <b>1 serve or less</b> | <b>≥1 to &lt;3 serves</b> | <b>3 serves or more</b> |
|--------------|---------------|----------|------------------------|---------------------------|-------------------------|
| EC 2 years   | Male          | 221      | 60.2                   | 38.5                      | 1.4                     |
|              | Female        | 198      | 69.2                   | 28.8                      | 2.0                     |
| EC 3.5 years | Male          | 239      | 84.1                   | 15.1                      | 0.8                     |
|              | Female        | 268      | 85.8                   | 13.4                      | 0.8                     |
| Total        | Male          | 468      | 72.7                   | 26.1                      | 1.3                     |
|              | Female        | 475      | 79.0                   | 19.8                      | 1.3                     |
| All          |               | 943      | 75.8                   | 22.9                      | 1.3                     |





*Appendix DD: Frequency of daily plain milk consumption by age and SES*

|                 | SES  | n   | 1 serve<br>or less | ≥1 to <3<br>serves | 3 serves<br>or more |
|-----------------|------|-----|--------------------|--------------------|---------------------|
| EC 2 years      | <50% | 126 | 65.9               | 32.5               | 1.6                 |
|                 | ≥50% | 295 | 63.7               | 34.6               | 1.7                 |
| EC 3.5<br>years | <50% | 129 | 83.7               | 15.5               | 0.8                 |
|                 | ≥50% | 380 | 85.5               | 13.7               | 0.8                 |
| Total           | <50% | 263 | 74.5               | 24.3               | 1.1                 |
|                 | ≥50% | 685 | 76.2               | 22.5               | 1.3                 |
| All             |      | 948 | 75.7               | 23.0               | 1.3                 |

*Appendix EE: Frequency of milk servings by age and gender (SFC)*

|             | Gender | n    | None | Less<br>than or 1<br>serve | Less<br>than or 2<br>serves | Less<br>than or 3<br>serves |
|-------------|--------|------|------|----------------------------|-----------------------------|-----------------------------|
| Prep-Year 2 | Male   | 267  | 97.8 | 1.1                        | 1.1                         | 0                           |
|             | Female | 289  | 97.9 | 2.1                        | 0                           | 0                           |
| Year 3 – 4  | Male   | 277  | 97.8 | 1.4                        | 0.7                         | 0                           |
|             | Female | 316  | 97.2 | 1.6                        | 1.3                         | 0                           |
| Year 5 - 6  | Male   | 393  | 96.7 | 2.0                        | 1.0                         | 0.3                         |
|             | Female | 394  | 98.0 | 1.3                        | 0.5                         | 0.3                         |
| Total       | Male   | 937  | 97.3 | 1.6                        | 1.0                         | 0.1                         |
|             | Female | 999  | 97.7 | 1.6                        | 0.6                         | 0.1                         |
| All         |        | 1936 | 97.5 | 1.6                        | 0.8                         | 0.1                         |

*Appendix FF: Frequency of milk servings by age and SES (1 serve = 250ml) (SFC)*

|             | SES  | n    | None | Less<br>than or 1<br>serve | Less<br>than or 2<br>serves | Less<br>than or 3<br>serves |
|-------------|------|------|------|----------------------------|-----------------------------|-----------------------------|
| Prep-Year 2 | <50% | 374  | 97.9 | 1.3                        | 0.8                         | 0                           |
|             | ≥50% | 167  | 98.2 | 1.8                        | 0                           | 0                           |
| Year 3 – 4  | <50% | 405  | 98.5 | 1.0                        | 0.5                         | 0                           |
|             | ≥50% | 172  | 95.4 | 2.3                        | 2.3                         | 0                           |
| Year 5 - 6  | <50% | 529  | 97.5 | 1.9                        | 0.2                         | 0.4                         |
|             | ≥50% | 235  | 96.6 | 1.3                        | 2.1                         | 0                           |
| Total       | <50% | 1308 | 97.9 | 1.5                        | 0.5                         | 0.2                         |
|             | ≥50% | 574  | 96.7 | 1.7                        | 1.6                         | 0                           |
| All         |      | 1882 | 97.6 | 1.5                        | 0.8                         | 0.1                         |

