

Assessment of Dietary Pattern in Primary Schools 2008

Report Summary



小學飲食模式評估研究二一零零八 調查摘要



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引言

小學學童的肥胖比例有上升趨勢，從一九九七/九八年度的 16.4% 增至二零零六/零七年度の 21.3%。鑒於這種上升趨勢，衛生署在二零零六年第一季度開展了「小學推行健康飲食基線研究」（以下簡稱「基線研究」），以瞭解學校、學生和家長在推行健康飲食方面的需要。自二零零六年起，此基線研究的結果使用於制定「健康飲食在校園」運動的應對策略。爲了說明小學校內飲食環境的改變以及學生和家長在對健康飲食的認知、知識、態度和行爲上的改變，衛生署於二零零七年十二月至二零零八年一月開展了「小學飲食模式評估研究」（以下簡稱「研究」）。

是項研究的目的如下：

- (a) 評估小學生對健康飲食的知識、態度和行爲；
- (b) 評估家長對在小學推行健康飲食的態度、爲子女選擇食物考慮的因素和做法，及其自身飲食和煮食習慣；
- (c) 瞭解小學校內飲食環境，包括健康飲食政策、監管機制、學校午膳及小食供應；
- (d) 通過與基線研究結果作比較，說明小學校內飲食環境的改變以及學生和家長對健康飲食的認知、知識、態度和行爲改變；
- (e) 評估受學生歡迎的午膳是否符合衛生署的營養指引；及
- (f) 評估學生小食選擇是否符合衛生署的營養指引。

是項研究包括兩部份，第一部份爲學生、家長和學校問卷調查，主要針對首四項目的(a)至(d)而進行；而第二部份檢視學校供應的小食及午膳，主要針對第五及六項目的(e)至(f)而進行。

第一部分 學生、家長和學校問卷調查

研究方法

研究以分層群組抽樣方式，以學校數目和資金來源類別為基礎，按比例從香港 18 個區抽取 51 間小學的小四及小五學生、其家長以及校長／學校代表參與研究。研究針對學生、家長及校長／學校代表發出了三套不同的自填問卷。正式調查於二零零八年一月至二月期間進行。

本研究總共發出學生及家長問卷 11,180 套，成功收回的學生及家長問卷數目分別為 9,152 及 8,265 份，回應率分別為 81.9%和 73.9%。之後在成功配對出 7,921 份學生、家長和校方問卷後，並展開了比較分析以評估他們之間的關係。

參與者背景

在全部參與調查的學生中，小四學生佔48.0%，男生佔45.7%。大多數受訪家長為母親（77.6%）。58.6%的家長具有中學或以上教育程度，21.4%每月家庭總收入少於10,000港元。在受訪學校中，70.6%為官立或津貼學校。約五分之四（78.4%）為全日制小學。

調查結果

學生

知識、態度、觀念和行爲

是次研究結果顯示，學生對是較健康的食物擁有良好的認識，然而與他們選擇食物的喜好存在差異。在選擇食物時，學生認為「清潔及衛生」、「對健康有益」和「味道」是主要考慮因素。

雖然大部分學生認為他們的飲食習慣屬於「健康的」或「一般」，但只有 9.8%至 25.6% 的學生表示在調查前一星期沒有進食煎炸食物、高脂肪/高糖分/高鹽分食物或添加糖分的飲品。能夠符合水果、奶類和蔬菜之建議進食次數的學生比例分別為 57.5%、77.4% 和 78.7%。

行為變化

相比基線研究結束，本研究顯示學生對健康食物的選擇、進食蔬菜和奶類製品有正面的轉變，及減少進食高脂肪、高鹽分或高糖分食物／飲品。然而，在調查當天沒有進食早餐的學生人數比例則較基線研究時統計學上有顯著增加。

性別差異

無論在健康飲食的知識、態度、觀念和行為方面，男女存在明顯的差異，女生在大多數方面表現得更加優秀。與男生相比，較高比例的女生對什麼是較健康之食物擁有更良好的認識，以及更能達到建議的蔬果進食量。另一方面，較高比例的男生不吃早餐。同時，在知道「健康飲食在校園」運動的學生中，女生比男生更願意支持在學校推行健康飲食，及曾參與學校所舉辦的健康飲食推廣活動。

影響因素

子女對健康食物的正面認識與父母的教育程度、家庭收入、父母對健康飲食的知識以及支持學校採取有關小食部和學校午膳營養規定有直接關係。

學校在培養學生對食物的喜好和健康飲食習慣方面扮演著重要的角色。知道「健康飲食在校園」運動的學生，以及支持或曾參與學校健康飲食推廣活動的學生，有較大機會有健康的食物偏好和飲食習慣。就讀於校園至「營」特工計劃學校的學生更願意選擇較健康的食物。

家長

知識

約 70%的家長有一般的健康飲食知識，但懂得小食所屬營養類別的家長比例則較低。教育程度較高、家庭收入較高或子女就讀於直接資助學校或私立學校的家長在問卷調查中營養知識的部分之表現較佳。同時，表示支持學校對小食部供應的食物和午膳採取營養規定的家長、知道「健康飲食在校園」運動的家長以及曾經參與學校健康飲食活動的家長也顯示出較為豐富的營養知識。同時，子女的一般健康飲食知識及其對學校健康飲食推廣活動的認識和參與度與家長的一般健康飲食知識正面相關。

觀念

雖然大部分學生(91.4%)認為自己的飲食習慣屬於健康的或一般，但只有 71%的家長認為子女的飲食習慣是「健康的」。半數以上受訪家長認為養成健康的飲食習慣是不容易。

家長的教育程度較高、家庭收入較高、對小食分類擁有較豐富知識、子女認為其飲食習慣為不健康、父母及子女均不曾參加學校舉辦的健康飲食活動等因素，與家長認為難以養成健康的飲食習慣有關。這些父母較為希望獲取更多有關健康飲食的知識和支援。相反，在一些有支持性因素的學校裏，如有制定健康飲食政策或屬校園至「營」特工計劃的學校，父母感到較容易保持健康飲食習慣。

就學校食物供應採取營養規定

大部分家長(61.3%至 92.1%)表示支持採取小食部供應的食物和學校午膳營養規定。相比 2006 年基線研究，支持度顯著提高。

教育程度較高、家庭收入較高、知道衛生署推行的健康飲食在學校運動及曾參加學校健康飲食活動的家長對採取營養規定表示較高的支持度。另一方面，如果子女就讀的學校沒有任何形式的健康飲食推廣活動，或未參加校園至「營」特工計劃，這些家長則更支持對小食部和午膳採取營養規定。

飲食決策

父母是家中飲食的主要決策者。家長為子女選擇食物時的兩大考慮因素為「營養價值」和「清潔衛生」。研究亦發現 30.8%的兒童每週外出進食晚餐 2 至 4 次。

學校

飲食環境

所有全日制學校均有為學生安排午膳。35%的學校設有小食部，58.8%的學校設有自動售賣機。教師是午膳選擇的主要決策者，其後是家長。學校表示「營養價值」和「食物安全」是選擇午膳的兩大首要考慮因素，這與家長的意願一致。

健康飲食政策

儘管幾乎所有學校都認為健康飲食對於學校教育和學生發展十分重要，但只有 53.0%的學校有制定學校健康飲食政策。於有制定健康飲食政策的學校裏，政策內容主要是針對學校午膳，其次是小食。參與了校園至「營」特工計劃的學校較大機會有制定健康飲食政策。

應用營養指引

對午膳和小食營養指引的認知和將指引應用於學校環境之間存在著顯著的差距。大多數學校知道這些指引（午膳指引：92.2%；小食指引：82.4%），但只有一部份學校有將指引應用於與食物供應商的合約中（午膳：70.7%；小食部 50.0%；自動售賣機：40.9%）。

學校類別

與直接資助學校及私立學校相比，較大比例由政府學校及津貼學校參與健康飲食推廣活動（91.7%相對於 46.7%）或校園至「營」特工計劃（47.2%相對於 6.7%）。

「健康飲食在校園」運動的影響

學校方面

約 68.6%的受訪學校參加了至少一項由衛生署舉辦的健康飲食推廣活動，其中水果日最受歡迎。約十分之一的學校（9.8%）表示，有參與過由衛生署之外的其他機構舉辦的校園健康飲食推廣活動。另一方面，21.6%的學校在研究期間沒有參加任何健康飲食推廣活動。

學生方面

在所有受訪學生中，72.7%的學生支持在學校推廣健康飲食活動，但只有 15.7%表示記得曾參加過健康飲食推廣活動。約 56.4%的學生知道「健康飲食在校園」運動。學生對健康飲食的認知，其對學校健康飲食推廣活動的支持和參與具有相互關係，但其中的因果關係未能確定。

家長方面

約 55.9%的家長表示知道「健康飲食在校園」運動。然而學校舉辦的健康飲食推廣活動，家長的參與度卻很低，只有 7.6%。隨著家長教育程度、家庭收入以及對小食部和學校午膳採取營養規定支持度的提高，家長的參與度也相應提高。

家長的滿意度

在知道「健康飲食在校園」運動的家長中，有 3.5%的家長表示對是項運動不滿意及 22.2%表示一般。他們的原因包括「學校沒有強制午膳供應商和小食部承辦商遵守或執行午膳和小食營養指引」；「並非所有學校都參與」；「雖然學生的知識提高了，但不足以改變其行爲」；及「家長的參與度不足」。

擁有較高教育程度、較高家庭收入、擁有較豐富的健康飲食和小食分類知識、更加支持對小食部或學校午膳採取營養規定之家長，他們更大機會對「健康飲食在校園」運動表示不滿。相反，子女就讀於政府學校及津貼學校、或制定了健康飲食政策的學校、或參與了健康飲食推廣活動的學校或參加了校園至「營」特工計劃的學校，則家長對是項運動有較高的滿意度。

建議

1. 「健康飲食在校園」運動對提高學生的健康飲食知識、態度和行爲產生了正面影響。持續的政府領導和政治承諾對於促進協作和跨界別行動以加強和鞏固是項運動至為重要。
2. 政府應鼓勵所有學校積極參與「健康飲食在校園」運動或類似的健康飲食推廣活動。學校參與的步伐和程度取決於它們各自的情況，而衛生署應確保其技術能力和專業支援能夠滿足參與學校的需要。

3. 政府應開發新穎的方式讓家長瞭解健康飲食推廣活動，並吸引和動員他們支持此類活動。
4. 政府應加強對家長的教育，使他們有足夠的知識和技能可以按照衛生署的營養指引選擇午膳及小食。
5. 政府和學術界應考慮進行研究以了解男女學童於健康飲食知識、態度和行爲方面的性別差異。以及開發針對不同性別的教學模式，和針對男孩需要的健康飲食推廣方法。
6. 學校應以適合家長需要和情況的方式與家長溝通，並讓家長更全面地參與健康飲食推廣工作，以及按校情與持分者協商訂立執行健康飲食政策。
7. 學校應確保食物供應商遵守《小學午膳營養指引》和《小學小食營養指引》，為學生提供一個支援他們學以致用的環境。
8. 家長應密切配合學校以支持學生貫徹健康飲食習慣。

第二部分 學校供應的小食和午膳

研究方法

研究於二零零七年十二月派發小食部和自動售賣機食物的記錄表格以及學校午膳訂購資料表格給 51 所參與學校，以及收集在調查前一星期出售的最受歡迎食物及飲品資料，並根據衛生署於二零零六年發佈的《小學生小食營養指引》，將小食分為「宜多選擇的小食」、「限量選擇的小食」及「少選為佳的小食」三個類別。此外，研究在連續五個上課天向參與學校收集了每日最受歡迎的午膳餐款的樣本，根據衛生署在二零零六年發佈的《小學生午膳營養指引》，檢視樣本有否提供蔬菜水果、「鼓勵多供應」、「限制供應」及「強烈不鼓勵供應」的食物，以及量度當中蔬菜的重量。

調查結果

小食部及自動售賣機提供的小食（包括飲品）

在分析小食部出售的 450 種食物與 306 種飲品，而及自動售賣機售賣的 83 種食物及 398 種飲品後，發現大部分都屬於「限量選擇的小食」（佔小食部出售食物的 46.2%，佔自動售賣機出售食物的 20.5%）和「少選為佳的小食」（佔小食部出售食物的 47.1%，佔自動售賣機出售食物的 72.3%）。

小食部中最受學生歡迎的小食為魚肉燒賣、香腸和不同款式的三文治，而自動售賣機最受歡迎小食為點心麵、橡皮糖和威化餅。飲品方面，在小食部和自動售賣機所出售的最受歡迎飲品皆為檸檬茶、豆奶和朱古力奶（全脂）。這些食物及飲品皆屬「限量選擇的小食」或「少選為佳的小食」類別。

學校提供的午膳

在 51 所參與學校中，43 所有為校內所有年級之學生提供午膳。其中，小四及小五學生的午膳平均訂餐率為 69.1%（比率介乎於 28%至 97%）。而約 80%的學校午膳以飯盒形式提供。

大部分的午膳樣本（96.2%）含有蔬菜。其中 62.7%的樣本符合衛生署的建議提供了最少半個標準碗的蔬菜。研究亦發現 18.6%的樣本有隨餐附送水果，亦有 19 個樣本（9.0%）有用水果作烹調材料。在五穀類、蔬菜及肉類的比例方面，33.8%的樣本符合衛生署建議的 3:2:1 比例。在不符合建議的樣本中，大部分（89.6%）提供的蔬菜量較少。

鼓勵多供應的食品 - 就午膳用料而言，分別有 8.6%及 15.2%的樣本提供了全穀麥／加添蔬菜的五穀類和鈣質豐富的食品。

限制供應的食品 - 43.3%的樣本含有脂肪比例較高的肉類及連皮的禽肉，42.9%的樣本含有經加工或醃製的肉類、蛋類及蔬菜，31.4%的樣本有提供添加了脂肪或油分的五穀類，22.9%的樣本使用了全脂奶類作烹調之用，亦有 41.1%的午膳樣本含有高鹽分或高脂肪的醬汁或芡汁。

強烈不鼓勵供應的食品 - 15.2%的樣本含有油炸食物，15.7%的樣本含有添加了動物脂肪、植物性飽和脂肪或反式脂肪的食物。此外，15.7%的樣本有隨餐附送高糖分的飲品或甜品，亦有 2.9%的午膳樣本含有極高鹽分的食物。

每天午膳的餐款數目及午膳營養質素的關係

與每天提供三款或以上午膳的學校比較，只提供兩款或以下午膳的學校，其午膳樣本的營養質素明顯地較佳；無論在提供足夠分量的蔬菜、含有「鼓勵多供應」的食品及達到五穀類、蔬菜及肉類 3:2:1 建議比例各方面均明顯地較提供三款或以上選擇的學校為高。

建議

政府

1. 衛生署應廣泛地公佈是項研究的重要發現，以提升公眾對校園健康飲食的關注，特別是著重知會學校、家長和食物供應商，因為他們是決定兒童膳食營養質素的主要人物。
2. 衛生署應提高學校、家長和食物供應商對小食和午膳指引的認識，以及繼續為他們提供實際的支援，以幫助學校解決在使用小食和午膳指引時所遇到的問題和障礙。
3. 衛生署應與教育局緊密合作，尤其透過實施和跟從小食和午膳指引內的各項要求，以鼓勵學校積極地向學生推廣健康飲食。
4. 政府應持續進行類似的研究以跟進校內所提供食物的營養質素，以及評估健康飲食促進工作的果效。

學校

5. 所有小學應具備對小食和午膳指引有一定的認識，並盡力將其應用於小食部、自動售賣機和午膳供應中，並透過監察食物的品質以評估指引的實施情況。

6. 有見市面上「限量選擇的小食」選擇眾多，而且「宜多選擇的小食」愈來愈普及，學校應從小食部和自動售賣機中淘汰「少選為佳的小食」。
7. 學校應考慮限制午膳餐款的數目，以將更多的注意力投放於改善現時午膳餐款內的蔬菜質量及含鈣質豐富的食物方面。

家長

8. 家長應支持學校的決定，逐漸淘汰小食部和自動售賣機中的「少選為佳的小食」以及午膳中的「強烈不鼓勵供應的食品」。

午膳供應商

9. 午膳供應商應投資改善午膳餐款的營養質素以達到衛生署發佈的《小學生午膳營養指引》的各項要求。具體而言，不應使用「強烈不鼓勵供應的食品」作材料，而每星期亦不應在多於兩個上課天中供應「限制供應的食品」。
10. 小食部營運商及自動售賣機的供應商應留意《小學生小食營養指引》的內容及要求。為促進學生的健康，他們應從出售予兒童的食物和飲品中除去所有「少選為佳的小食」。

Introduction

A rising trend of obesity has been observed among primary school students, increasing from 16.4% in 1997/98 to 21.3% in 2006/07. In the light of this rising trend, a study titled ‘Baseline Assessment of Promoting Healthy Eating in Primary Schools’ (*the Baseline Assessment*) was conducted by the Department of Health (DH) in the first quarter of 2006 to identify the needs of schools, students and their parents in healthy eating promotion. Findings from the Baseline Assessment were used in the formulation of intervention strategies for the EatSmart@school.hk Campaign launched since 2006. In order to describe changes in primary schools’ nutritional environment and awareness, knowledge, attitudes and practices among students and parents on healthy eating, this “Assessment of Dietary Pattern in Primary Schools” (*the Study*) was conducted by the DH in December 2007 to January 2008.

The objectives of the Study included:

- (a) to assess the knowledge, attitudes and practices of primary school students in healthy eating;
- (b) to assess the attitudes of parents towards promotion of healthy eating in school, considerations and practices in choosing food for their children, and their own eating and cooking habit;
- (c) to understand the nutritional environments in primary schools, including healthy eating policies, their monitoring mechanism, school lunch and snacks provision;
- (d) to describe the changes in the primary schools’ nutritional environment and the awareness, knowledge, attitude and practice among students and parents on healthy eating by comparing findings with those of the Baseline Assessment in 2006;
- (e) to assess the concurrence of students’ popular lunch choices with DH’s nutritional

guidelines; and

(f) to assess the concurrence of students' snack choices with DH's nutritional guidelines.

This Study included two parts. The part 1 (Questionnaire Survey of Students, Parents and Schools) of the Study was carried out in accordance with the first 4 objectives (a) to (d).

The part 2 (Provision of Snacks and Lunch in School) of the Study was carried out in accordance with the objectives (e) and (f).

Part 1 - Questionnaire Survey of Students, Parents and Schools

Methodology

Primary 4 and Primary 5 students, their parents and principals / school representatives of primary schools in Hong Kong were selected to participate in the Study by stratified cluster sampling method. A total of 51 schools were drawn in proportion to the number and funding types of schools from 18 districts. Three sets of self-administered questionnaires for students, parents, and principals / school representatives were used in the Study. The Study was carried out between January and February 2008.

A total of 11180 sets of questionnaires for students and parents were distributed. And 9152 for students and 8265 for parents were returned with response rates of 81.9% and 73.9% respectively. By successfully matching the 7921 student, parent and school questionnaires, comparative analysis was conducted to assess the associations between student, parent and school parameters.

Demographics

Of all students participating, 48.0% were Primary 4 and 45.7% were males. Majority (77.6%) of parent respondents were mothers. Among parents, 58.6% attained secondary education level or above and 21.4% had a monthly household income of less than \$10,000. Among participating schools, 70.6% were Government or Aided primary schools. Nearly four-fifths (78.4%) were whole-day schools.

Key findings

Students

Knowledge, Attitude, Perception and Practice

Findings from the current study showed that students possessed good knowledge of healthier food options did not necessarily synchronise with what they chose in food preference. When choosing food, students considered 'cleanliness and hygiene', 'good for health' and 'taste' the key factors.

While most students perceived their eating habits as 'healthy' or 'acceptable', 9.8% to 25.6% reported that they did not have any fried/deep-fried food, food high in fat / sugar / salt, or drinks with added sugar in the week prior to the survey. Compliance with the recommended intake of fruit, dairy products and vegetables by the students was 57.5%, 77.4% and 78.7%, respectively.

Behavioural Change

Compared with the 2006 baseline data, positive changes were noted in students' preference for healthier food choices, consumption of vegetables and dairy products, and reduced consumption of high fat, high salt or high sugar food / drinks. There was a statistically significant increase in the rate of skipping breakfast on the day of the survey as compared with the 2006 baseline data.

Gender Difference

A marked gender difference was observed in healthy eating knowledge, attitude, perception and practice with girls performing better in most aspects. Girls were more knowledgeable

about the healthier food options and could meet the recommended intake of fruit and vegetables better than boys. In addition, boys were more likely to skip breakfast. At the same time, girls who were aware of the EatSmart@school.hk campaign, were more supportive of healthy eating promotion in school and were more likely to have participated in school-based healthy eating promotion activities.

Modifying Factors

Children's positive knowledge of healthy food choices was directly associated with parental education level, household income, parental knowledge of healthy eating, and parental support for schools to impose nutritional requirements on tuck shop sales and school lunch.

Schools played an important role in fostering students' food preference and healthy eating habits. Students who were aware of the EatSmart@school.hk campaign, and students who supported or participated in healthy eating promotion in school were more likely to have healthy food preference and eating habits. Respondents studying in School NutriAgent Project (SNAP) schools were also more likely to take healthier food choices.

Parents

Knowledge

About 70% of parents were familiar with general knowledge on healthy eating but a smaller proportion was familiar with snack categorisation. Parents with higher education level, household income or with children studying in DSS & private schools did better in the knowledge part of the survey. Meanwhile, parents who expressed a higher degree of support for imposing nutritional requirements on tuck shop sales or school lunch, parent who were aware of EatSmart@school.hk campaign and parents who had participated in

healthy eating activity in the schools also possessed better knowledge.

At the same time, parents' general healthy eating knowledge were positively associated with children's general healthy eating knowledge, children's awareness of and participation in healthy eating promotion activities in schools.

Perception

While most students (91.4%) perceived their eating habit as 'healthy' or 'acceptable', only 71.0% of parents perceived their children's eating habit as 'healthy'. Over half of responding parents thought that healthy eating habits were difficult to sustain.

Parents with higher education level, higher household income, better knowledge in snack categorisation, children perceiving their eating habit as 'unhealthy', or both parents and children not participating in school-based healthy eating activities were factors associated with parents' perception that healthy eating habits were difficult to sustain. These parents were more likely to demand more knowledge or support for healthy eating. On the contrary where supportive factors existed in schools, such as establishment of healthy eating school policies and membership of SNAP, more parents felt healthy eating were easier to sustain.

Imposing Nutritional Requirements on Food Served in School

Overall, majority of parents (ranged from 61.3% to 92.1%) indicated support for imposing nutritional requirements on tuck shop sales and school lunch. A significant increase in support as compared with that from the 2006 baseline data was noted.

Parents with higher education level, higher household income, parents who were aware of DH healthy eating campaign in school, or parent who had participated in healthy eating activities in the school showed a higher level of support for nutritional requirements. On the contrary, parents showed a high level of support for nutritional requirements on tuck shop sales and lunch when their children studied in a school without any form of healthy eating promotional activity or did not join SNAP.

Decision-making

Parents were the major decision maker on food choices at home. When choosing food for children, parents considered ‘nutritional value’ and ‘cleanliness and hygiene’ were the two most important factors. This study also found that 30.8% children dined out in the evening 2 to 4 times per week.

Schools

Eating Environment

All whole-day schools arranged lunch for their students. Tuck shops and vending machines were provided in 35.3% and 58.8% of schools respectively. Teachers were the key decision maker in lunch choices, followed by parents. Schools reported ‘nutritional value’ and ‘food safety’ as their top two considerations for choosing food for lunch, consistent with parents’ wishes.

Healthy Eating Policy

Although nearly all schools agreed that healthy eating was important for school education and student development, only 53.0% of them had developed their healthy eating school policy. Where policies existed, they focused primarily on school lunch, followed by

snacks. SNAP schools were more likely to develop healthy eating school policies.

Use of Nutritional Guidelines

A significant gap existed between awareness and incorporation of lunch and snacks nutritional guidelines in the school setting. While most schools were aware of the guidelines (lunch guidelines: 92.2%; snacks guidelines: 82.4%), only a proportion of them had incorporated into their contract with food suppliers (lunch: 70.7%; tuck shop: 50.0%; vending machines: 40.9%).

School Type

Compared with DSS and private schools, many more government and aided schools participated in healthy eating promotion activities (91.7% vs 46.7%) or took part in SNAP (47.2% vs 6.7%).

Impact of EatSmart@school.hk Campaign

On Schools

About 68.6% of responding schools had participated in at least one DH healthy eating promotion activity, with the Fruit Day being the most popular. About one-tenth (9.8%) of the schools reported that they had participated in activities organised by organisations other than DH to promote healthy eating in school. On the other hand, 21.6% schools had not taken part in any healthy eating promotion activity during the period of study.

On Students

Of all responding students, 72.7% supported healthy eating promotion at school but only 15.7% could recall participating in any of the healthy eating promotional activities. About 56.4% students were aware of the EatSmart@school.hk campaign. Students' awareness of healthy eating, their support for healthy eating promotion in school and their participation in school-based healthy eating campaign were inter-related, and the cause and effect could not be readily discerned.

On Parents

About 55.9% of parents responded that they were aware of the EatSmart@school.hk campaign. Parents' participation in healthy eating promotion activities organised by the school was low at 7.6%. Participation rate increased with parents' education level, household income, and degree of support for imposing nutritional requirements on tuck shop sales and school lunch.

Parents' Satisfaction

Among parents who were aware of the EatSmart@school.hk campaign, 3.5% expressed dissatisfaction and 22.2% rated it as 'fair'. Their reasons included 'school lunch caterers and tuck shop contractors had not been mandated to follow and implement nutritional guidelines on lunch and snacks', 'not all schools had participated in the campaign', 'students' knowledge had increased but was not sufficient to change behaviour' and 'lack of parents' involvement'.

Parents who had higher education level, higher household income, better knowledge of general healthy eating and snack categorisation, and higher degree of support for imposing nutritional requirements on tuck shop sales or school lunch were more likely to express

dissatisfaction towards the campaign. On the contrary, parents with children studying in government and aided schools, schools with healthy eating policies, schools participating in a healthy eating promotion activity or schools taking part in SNAP showed a higher degree of satisfaction towards the campaign.

Recommendations

1. The EatSmart@school.hk Campaign made a positive impact on improving knowledge, attitudes and practices in healthy eating among students. Sustained government leadership and political commitment are essential for enhanced coordination and multi-sectoral action to strengthen and consolidate the Campaign.
2. The Government should work towards encouraging all schools to take an active part in the EatSmart@school.hk Campaign or similar healthy eating promotion activities. The pace and extent of school involvement would depend on individual circumstance, and DH should ensure its technical capacity and professional support could fulfill the needs of participating schools.
3. The Government should explore innovative means to inform, engage and mobilise parents for supporting healthy eating promotion.
4. The Government should strengthen parental education to empower them with knowledge and skills in making lunch and snack choices in accordance with the DH's nutritional guidelines on lunch and snacks.

5. The Government and academia should consider conducting research to understand the gender difference in healthy eating knowledge, attitude and practice. It should also explore gender sensitive modes of education and ways to address boys' need for healthy eating promotion.
6. Schools should communicate with and engage parents more fully in healthy eating promotional efforts, through means which are sensitive to parents' needs and circumstances. Moreover, schools should establish and implement healthy eating policies with stakeholders according to their school situation.
7. Schools should ensure that food suppliers comply with the *Nutritional Guidelines on School Lunch for Primary School Students* and the *Nutritional Guidelines on Snacks for Primary School Students*, to provide a supportive environment for students to practice what they have learnt.
8. Parents should work closely with schools to continuously support children's healthy eating habits.

Part 2 - Provision of Snacks and Lunch in School

Methodology

Self-administered record forms on items sold in the tuck shops or the vending machines, as well as choices of school lunch were sent to all 51 participating schools in December 2007. Information on the most popular food and beverages sold in the week prior to the survey were collected. Three categories were used to classify snacks, namely ‘Snacks to choose more’, ‘Snacks to choose in moderation’ and ‘Snacks to choose less’ in accordance with the ‘*Nutritional Guidelines on Snacks for Primary School Students*’ issued by DH in 2006. In addition, the most popular lunch choices of five consecutive school days were collected from schools to check for the presence of vegetables and fruit, as well as ‘encouraged’, ‘limited’ and ‘strongly discouraged’ food items as defined by the ‘*Nutritional Guidelines on School Lunch for Primary School Students*’ issued by DH in 2006, and to weigh the content of vegetables.

Key Findings

Snacks Provided in Tuck Shops and Vending Machines (Including Beverages)

Of the 450 food items and 306 beverages from the school tuck shops, and 83 food items and 398 beverages from the vending machines analysed, most belonged ‘Snacks to choose in moderation’ (46.2% from tuck shops vs. 20.5% from vending machines) and ‘Snacks to choose less’ (47.1% from tuck shops vs. 72.3% from vending machines).

In school tuck shops, the most popular food items sold were fish dumplings (siu mai), sausages and sandwiches (various types), while in school vending machines, they were snack noodles, gummy candies and wafers. All these food items belonged to either the ‘Snacks to choose in moderation’ or ‘Snacks to choose less’ category.

Lunch Provided at School

Only 43 of the 51 participating schools provided school lunch to students of all grades. The percentage of P4 and P5 students of these 43 schools subscribing to school lunch was 69.1% on average, which ranged from 28% to 97%. About 80% of the school lunch were served in lunch boxes.

Most of the lunch samples (96.2%) contained some vegetables. Among them, 62.7% contained at least half a standard bowl of vegetables as recommended by the DH. There were 18.6% samples supplying extra fruit, and 19 such samples (9.0%) used fruit as the ingredient for preparation. On the proportion of grains / cereals, vegetables and meat, 33.8% samples met the ratio of 3:2:1 as recommended by DH. For those samples that did not meet the recommendations, the majority (89.6%) provided a relatively small volume of vegetables.

As far as ingredients are concerned, 8.6% and 15.2% of samples respectively contained whole grains / rice with added vegetables and calcium-rich food items. (Food items to be “encouraged”)

Some 43.3% samples had fatty cut of meat and poultry with skin; 42.9% contained meat, eggs or vegetable products that were either processed or preserved; 31.4% provided grains and cereals with added fat or oil; 22.9% used whole fat dairy products in cooking; and

41.4% had high-salt or high-fat sauce/gravy coming in the lunch sets. (Food items to be ‘limited’)

The percentages of samples containing deep-fried foods and food items with added animal fat/ plant sources of saturated fat or trans fat were 15.2% and 15.7% respectively. In addition, 15.7% lunch sets included high-sugar beverages or desserts and 2.9% contained items with very high salt content. (Food items to be “strongly discouraged”)

Relationship between the number of daily lunch choices and nutritional quality of lunch

Significantly higher proportions of samples from schools with two or fewer lunch choices had better nutritional quality than those from schools with three or more choices. Samples from schools with two or fewer lunch choices were more likely to have adequate amounts of vegetables, contain ‘encouraged’ food item(s) and meet the 3:2:1 ratio for grains /cereals, vegetables and meat.

Recommendations

For the Government

1. The DH should widely publicise important findings generated from this study to raise public awareness to the issue of healthy eating in schools, not least to schools, parents and food suppliers as they are key parties involved in determining the quality of food that are served to children.
2. The DH should enhance understanding of schools, parents and food suppliers on snack and lunch guidelines, and continue providing practical support to them with an aim of addressing limitations and barriers encountered by schools in the use of the snack and

lunch guidelines.

3. The DH should work closely with the Education Bureau to encourage schools to take a keen interest in promoting healthy eating among students especially through the application of and compliance with the snack and lunch guidelines.
4. The Government should conduct similar studies on an ongoing basis to track the nutritional quality of food served in the school setting, and as an aid to assess effectiveness of healthy eating promotional work.

For Schools

5. All primary schools should acquire an understanding of the snack and lunch guidelines, apply them diligently (to tuck shops, vending machines and lunch supply) and monitor their use by checking on the quality of food provided as a result.
6. Schools should go for elimination of “Snacks to choose less” items from school tuck shops and vending machines when “Snacks to choose in moderation” items are readily available from the market and “Snacks to choose more” items are gaining in popularity.
7. Schools should consider limiting the number of lunch choices to a small number so that increased attention could be put on improving the content of vegetables and calcium-rich ingredients in these lunch choices.

For Parents

8. Parents should support schools' decision to phase out "Snacks to choose less" from tuck shops and vending machines and 'strongly discouraged food items' from lunch supply.

For Lunch Suppliers

9. Lunch suppliers should invest in improving the nutritional quality of lunch choices to meet the requirements of the '*Nutritional Guidelines on Lunch for Primary School Students*' issued by DH. Specifically, 'strongly discouraged food items' should not be used as ingredients and 'limited food items' should not be served for more than two school days per week.

For Snack Suppliers

10. Tuck shop operators and vending machine suppliers should be made aware of the content and requirements of the '*Nutritional Guidelines on Snacks for Primary School Students*'. To promote the health of children, tuck shop operators and vending machine suppliers should remove all "Snacks to choose less" from the list of food and beverages offered for sale to children.

