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Published in:
Health Education Journal

DOI:
[10.1177/0017896919880575](https://doi.org/10.1177/0017896919880575)

Published: 01/04/2020

[Link to publication](#)

Citation for published version (APA):
CHAN, K. K. W., SIU, J. Y. M., & Lee, A. (2020). A school-based programme promoting healthy eating. *Health Education Journal*, 79(3), 277-289. <https://doi.org/10.1177/0017896919880575>

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A school-based programme promoting healthy eating

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Abstract

Objective: Many school-based health education programmes adopt a one-way, top-down communication approach that students tend to consider boring and ineffective. In contrast, this study tested a pilot school-based health education programme designed to engage students through the creation and production of health-related advertising.

Design: Participatory action research

Setting: A secondary school located in the most deprived district in Hong Kong

Method: A ten-month health education programme was implemented which included health talks and a parent-child cooking workshop. The highlight of the programme was a contest to design a healthy eating public service announcement with professional production of the winning advertisement. A convenience sample of 67 secondary school students participated. Self-administered food diaries and focus group interviews were administered before and after the programme for evaluation.

Results: Among all the health education activities conducted during the programme, the participating students found the advertisement design contest the most interesting. They appreciated the opportunity to see their creative ideas consolidated in a professional manner. Dietary patterns reported in food diaries did not show any significant change, but the post-programme focus group interviews reported a remarkable increase in healthy eating knowledge. There were some self-reported changes in dietary behaviours.

Conclusion: In the digital age, engaging students in content creation is a possible way to interest them in adopting healthy eating behaviours.

Keywords: creativity; content creation; community-based education programmes; diet; healthy eating; Hong Kong

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Citation: Chan, K., Siu, J.Y.M., and Lee, A. (2019). A school-based intervention in promoting healthy dietary practice among adolescents in Hong Kong, *Health Education Journal*

DOI: <https://journals.sagepub.com/doi/abs/10.1177/0017896919880575>

Introduction

Schools are promising places for health promotion because of their ability to reach important target audiences. Young people spend about seven to eight hours of their weekdays at school. Schools therefore serve as a key institution for their socialisation, including with respect to dietary behaviour. With support from their schools, students can sustain exercise and a healthy diet more easily (Pittman et al., 2012). Health promotion in schools can foster positive norms and values among students (Lee, 2009).

There is evidence that school-based interventions can be effective in promoting healthy eating. Work by Amini and his colleagues has shown that a school-based intervention which included nutrition education, increased physical activity, encouraged lifestyle modification for parents, and brought about a change in the food items sold at the schools' canteens demonstrated significant improvement in body mass index (BMI) among elementary school students (Amini et al., 2016). A two-year school-based intervention which included nutrition education, nutrition policy, social marketing and parent outreach at 10 schools with high percentages of students from low-income families resulted in a significant reduction in the incidence of overweight among students in grades 4 to 6 (Foster et al., 2008). A recent study in Hong Kong also found that the implementation of a Health-promoting School scheme was able to encourage secondary school students to adopt various health behaviours (Lee et al., 2018).

However, school-based interventions aimed at limiting obesity could have limited effect when there is a lack of motivation and commitment among school leaders and teachers (Blaine et al., 2017). Some school-based interventions for obesity have achieved desirable outcomes in the short-term basis but then found that the effects were not

sustainable (Shukri et al., 2019). A meta-study to evaluate school-based childhood obesity prevention programmes that reported BMI or skinfold thickness as outcome measures generated no significant overall effect (Hung et al., 2015). Some treatment groups showed a significant reduction in their consumption of “unhealthy” food and significantly increased consumption of vegetables, but these effects were not sustained.

A major difficulty to promote healthy eating among adolescents is that most secondary school students find healthy eating dull and unappealing (Chan et al., 2009a). Adolescents’ dietary habits are shaped by different factors, including parental, peer and media influences. Apart from preparing their meals, parents serve as role models in making dietary choices. And they to some extent have the authority to correct their children’s unbalanced nutritional habits (Scaglioni et al., 2011). However, peer influence is also important. Adolescents are more prone to unhealthy eating behaviour during peer social gatherings (Chan et al., 2009a; 2009b). Institutional factors such as school rules and policies have also been found to be closely associated with students’ dietary behaviour (Lee et al., 2010; Townsend and Foster, 2011).

Mass media can influence how adolescents perceive their body image, which may lead to dissatisfaction with their own bodies. Such perceptions can lead to unhealthy dietary patterns and make adolescents more prone to eating disorders as a result (Schembre et al., 2011). Exposure to media can result in internalisation of the idea that a slim appearance is the ideal shape, and that can be a significant contributor to eating disorders among young females (Nouri et al., 2011).

There has been a noticeable increase in eating disorders among young people in Asian countries (Chang et al., 2011). A study among students aged 12-18 years old in Hong Kong found that 27% of female respondents and 19% of male respondents were at risk of

disordered eating (Mak and Lai, 2011). Shape and weight concerns are factors that can account for much of adolescents' unhealthy dietary behaviour (Darcy et al., 2012). A fear of fatness (Lai, 2000) and body dissatisfaction (Lee and Lee, 2000; Lai, 2000) are the primary culprits. Although secondary school students in Hong Kong are reported to be slimmer than those in other Chinese communities, many still desire a lower body mass index and are reported to have more body dissatisfaction in general than Chinese adolescents elsewhere (Lee and Lee, 2000).

As young people start to gain more independence and autonomy on entering secondary school, it is vital to help them establish healthy and balanced dietary habits. Empowering them with sufficient knowledge to choose healthy foods wisely should help a lot. Research has shown that establishing a healthy diet at a young age can result in a greater tendency to sustain healthy dietary habits into adulthood (Lee et al., 2010).

Given the importance of adopting healthy dietary practices from an early age, and given the crucial role of schools in adolescents' socialisation, many school-based health intervention programmes have been designed to promote healthy dietary practices. Typically, they have adopted a top-down approach with one-way communication (Amoah et al., 2000). Students often find these programmes boring, and as a result they are often not particularly successful (Rosenbaum, 1998; Senanayake et al., 2001).

Moreover, most reported school-based interventions related to dietary habits have been implemented in North America (Warren et al., 2003); there is a lack of empirical evidence in Asian contexts. This study therefore assessed a school-based health education programme in Hong Kong designed to implement a more interactive and creative approach thought likely to engage young people. It was conducted in a secondary school in a district with low household income. The issue of interventions creating bigger health disparities has

gained attention as some interventions have failed to accommodate the special needs of disadvantaged communities (Huang and Story, 2010). People living in poor communities find it difficult to eat healthily. Perceived barriers included lack of time, lack of quality food at schools, contradictory health advice, community norms and the influence of advertising (O'Neill, 2004).

Methods

A new health promotion initiative was implemented on a small scale to test its potential. Qualitative methods including food diaries and focused group discussions were used to evaluate it because of the exploratory nature of the study. The study was approved by the Research Ethics Committee at Hong Kong Baptist University.

Participants

A co-educational, government-subsidised secondary school with a religious background agreed to participate in the new health education programme. The population studied comprised all of the students studying at the school. Due to the tight school calendar, a convenience sample consisting of altogether 67 students from one secondary 1 (grade 7) class and one secondary 4 (grade 10) class was selected to participate in the programme. The students in the sample were from 12 to 16 years old. They were allowed to make their own food choices for lunch with minimal influence from parents and teachers. The school was located in a district with Hong Kong's lowest median monthly household income

(Anonymous, 2016). A majority of the school's students were living in public rental housing in the same district, and presumably some of them were from economically-deprived families. According to the Student Health Service of Hong Kong's Department of Health, a below- normal body mass index and skipping breakfast are such students' most common diet-related problems. Younger children studying in elementary schools in Hong Kong mostly consume food ordered by the school or prepared for them on the school premises. The school studied did not provide lunch on the premises, and not many students brought their own lunches. Most of them ate out at fast food restaurants nearby.

The health education programme

The school-based healthy eating promotion lasted for ten months from March to December 2015. The activities and the participants are summarised in Table 1. The education programme had the following components:

- Three talks for the students about healthy diet and healthy eating delivered by a registered dietician
- A talk for parents titled "adolescents' nutrition and problematic eating behaviour" delivered by a doctor
- A parent-child healthy cooking workshop delivered by a registered dietician
- A workshop and competition in which students designed a public service announcement (PSA) about healthy eating
- Professional-standard production of the winning public service advertisement
- A Facebook page for the project

[Insert Table 1 about here]

Pre-programme food diary and focus group interviews

Each student kept a food diary and participated in a focus group interview before the education programme began. The information collected helped the speakers of the health talks to have a basic understanding of the dietary practices, experiences and needs of the participants. The second author provided a 20-minute briefing session explaining the purpose of this study as well as the method of filling out the diary. Consent forms were distributed together with the food diaries to be returned with signatures from the students and their parents before the data collection. Students in the sample were required to record all the food consumed at breakfast, lunch, afternoon tea and dinner and also any snacks and late-night food for 3 consecutive weekdays from March 4 through 6, 2015. Three questions were posted with respect to each meal: a) have you had the specific meal, b) what have you consumed in your meal, and c) who did you eat it with? The first question was dichotomous; the second was open-ended; the third was a multiple-choice question with 8 options including 1) Alone; 2) Parents; 3) Siblings; 4) Grandparents; 5) a Maid; 6) a Classmate; 7) Teachers and 8) Others. All of the self-administered diaries were returned. Filling in a food diary was considered to be a valid method of data collection. In a recent study among adolescent girls, respondents reported that the completed diaries represented their lives accurately (Metos et al., 2018).

Two focus group discussion sessions were conducted after the food diaries had been completed. Each session had three male and three female students of the same grade. The

questions for discussion are listed in online Appendix 1 (Siu et al., 2019). The second author acted as the moderator. Each session took about 45 minutes. The interviews were audio-taped with the participating students' consent.

Health talks

Three health talks for students were delivered by a registered dietician. Each talk lasted about 45 to 50 minutes with the use of audio-visual materials. The first health talk was delivered to the secondary 4 students at a campsite during a school recreational camp. The talk addressed how to achieve life goals with healthy eating habits. The speaker talked about the mechanisms of nutrient absorption and the undesirable consequences of skipping meals, especially breakfast. During the question and answer session, many girls raised questions about food choices for losing weight and keeping fit. The second talk was delivered in a classroom at the school to the secondary 1 students. As before, the theme of the talk was achieving life goals with healthy eating habits. The speaker introduced the concept of BMI and addressed some common misconceptions about body weight. Compared to the senior students, the junior students were more active and willing to interact with the speaker. Questions about diet and nutrition were asked.

The third talk was delivered to all secondary 1 to secondary 5 students as well as their teachers in a hall at the school campus. The talk was about skills in healthy eating practices. The audience learned how to read nutrition labels and calculate calories in food items. The fourth talk was for parents and lasted 90 minutes. Entitled "Adolescents' nutrition and problematic eating behaviour", it was delivered by a doctor on a Saturday

morning. It was interactive, and questions about eating disorders such as identifying symptoms and how to handle children's eating problems were raised.

Healthy cooking workshop

The intended learning objective of the healthy cooking workshop was to encourage students' parents to try out affordable yet healthy dishes using easily-available ingredients. The workshop was held on a Saturday afternoon at the school by a registered dietician. The workshop was announced through the school Parents' Association.

Public service announcement design workshop and competition

This activity was aimed at engaging the students' initiative, creativity and interest in the cause of healthy eating. It provided them an opportunity for participating and advocating the idea of healthy eating to their peers. The workshop lasted for 90 minutes, including about 20 minutes of practical content, and was hosted by the first author. It introduced the students to the basic concept of the PSA, the process of designing a video PSA, and to presenting an idea in the form of a storyboard. The workshop was delivered to the junior and senior students separately. The students formed groups of six or seven. They brainstormed healthy diet promotion ideas and prepared a draft storyboard under guidance. The collaborating school operates a Television Club as a co-curricular activity, so creating a PSA aligned with the school's existing facilities and know-how.

The PSA design competition was conducted about two weeks after the design workshop. Each group was required to present using a storyboard an idea for a one-minute video PSA about healthy diet. Two professors who teach communications at a local university and the vice-principal of the school served as judges. Three awards were presented: a Most Creative award; a Most Effective Message Delivery award; and a Best

Presentation award. The latter was presented to the overall winning PSA, which was then produced as a one-minute video with professional-standard production.

With the resources available to produce a professional version of the winning piece of work, the students were able to see how their creative idea could be transformed into a real piece of professional work. This presumably gave them a sense of fulfilment. The storyboard for the winning PSA was presented to a production team made up of 15 final year Master of Fine Arts students from a film school at a local university. The students of the winning group who were members of the Campus TV Club were involved in the professional-standard shooting. They met with the production team several times before the shoot to discuss auditions and casting as well as the logistics of the shooting process. Two sessions of auditions and training were conducted by the shooting team to brief the students about acting and setting up the venue. Professional-standard shooting and drama performance training for the students was provided on-site as well. The shooting took place over one full day from 10am to 10pm on a Saturday on the school campus. Members of the Campus TV Club turned up on the day to help out with decorating the venue and other tasks. The footage was professionally edited and background music was added by the production team. The final, one-minute-long version of the PSA was officially launched on the project's Facebook page about three weeks after the shooting. It can be viewed at <https://www.facebook.com/bthc.healthyeat/videos/1826005634292942/>

Healthy eating Facebook page

A Facebook page was also created (<https://www.facebook.com/bthc.healthyeat>) to document all the activities of the health education programme. A project assistant updated

the page at least twice a week during the programme period. Students, teachers and parents were encouraged to follow the activities on the page.

Post-programme food diary and focus group interview

Self-administered food diaries and focus group interviews were again organised after the education programme. The same group of students were requested to record all of their food consumption for another 3 consecutive weekdays as before. The period was July 6 thorough 8 2015. One focus group session was conducted with eight students, four from secondary 1 and four from secondary 2, after the completion of the health education programme. The objective was to gather feedback and the students' overall impressions of the programme, as well as to explore perceptions of its effectiveness. The first author served as the moderator. The focus group session was audio-recorded and transcribed. The questions for discussion are contained in online Appendix 2.

Results

The effectiveness of the healthy eating education programme was evaluated based on the information collected from the 67 students who participated in the entire programme.

Three measures were used: the dietary habits reported in the food diaries before and after the programme, as well as the participants' impressions of the programme and their views about healthy eating before and after the programme collected through the focus group interviews.

Evidence from the food diaries

Altogether 67 sets of food diaries were collected before the programme, and 58 sets were collected after the programme. However, only 45 of the post-programme diaries were

usable as there were many missing entries in the other 13 diaries. There were ample details about the type and quantity of food consumed, but the study's focus was on whether the participants consumed meals and snacks regularly. Figure 1 summarises the percentages of participants consuming meals and snacks every day, on at least one day, or not at all during the reporting period. The results indicate that most participants claimed to eat lunch and dinner regularly. Skipping lunch or dinner was rare. However, about 30% of the participants reported skipping breakfast before as well as after the education programme, despite of the importance of breakfast having been emphasised in the health talks. Before the education programme, two or three participants reported that they consumed a snack before lunch, took afternoon tea, or ate a late-night snack every day. No participant reported that they consumed snacks or tea every day after the education programme.

Since there was no control group in the study, no comparative statistical analyses were performed. Overall, though, the daily dietary patterns in terms of meals taken did not demonstrate significant change before and after the programme.

[Figure 1 about here]

Evidence from the focused group interviews

Analysis of the pre-programme focus group interviews reveals that participating students often engaged in unhealthy dietary practices such as skipping breakfast, having an irregular dining schedule and consuming unhealthy food under peer influence. Many participants perceived healthy eating to be unattractive and as tasting awful. They also perceived healthy eating as expensive, out of reach and impractical. These students reported that their dietary patterns were heavily influenced by their parents, who were experiencing financial strain and could not afford expensive food items. A few students reported that their parents

were not able to serve as role models as they had unhealthy eating habits. Some students reported that they seldom received parental advice on healthy eating practices. During lunch hour, the students often chose food from retailers offering a low price even though they were aware of its low nutritional value. Many students perceived healthy food as expensive and lacking in variety. They reported that not many restaurants in the district offered healthy foods (Siu et al., 2019).

Female participants expressed strong concern about achieving a good body shape. They reported that they tried to avoid taking carbohydrates and meat in order to keep fit. Even though most of them seemed to have a normal-range BMI, all of them considered themselves fat based on comments from their peers or family members.

Analysis of the post-programme focus group interviews revealed a definite increase in respondents' knowledge about healthy eating. They reported that they had learned from the health talks about the importance of having breakfast and drinking sufficient water. They were able to identify the 3+2+1 (cereal; vegetable; meat) components of a healthy meal articulated in the health talk.¹

They were aware of the health risks of consuming too much sugar, salt or fats. They were able to recall why deep frying is an unhealthy food preparation technique. Some students were able to explain that deep-fried foods can increase blood cholesterol. Students explicitly identified the health talks as the source of their knowledge. One student reported that she sought out healthy eating information online when she searched for ideas for designing the PSA.

¹ The 3+2+1 rubric refers to the Hong Kong government's advocacy that a healthy lunch box should be well-portioned, with grains taking up three parts, vegetables taking two parts, and meat, fish or egg taking one part (Department of Health, 2019).

The participants reported mixed feelings about filling in the food diary. Most reported that recording food items for each meal was tedious and troublesome. However, three students reported that filling in the food diary helped them identify their unhealthy eating habits, such as consuming deep-fried foods and skipping breakfast.

When asked about changes in their dietary habits, nearly all of the participants reported some change in their dietary practices. One student reported that he bought bread on the way to the school and another reported that she purchased something for breakfast the night before. Two students reported that they consumed more water than before. One of them brought a water bottle to school. One student reported that he got rid of midnight snacks by going to bed earlier. Another student reported that she would order more healthy choices when eating out. Two students reported that they had not made any major dietary changes.

The participants reported that a lack of affordable and healthy choices at nearby restaurants was a major barrier to practicing healthy eating. This was reported in the pre-programme interviews and did not change. Another barrier was peer influence. One student reported that she failed to eat according to the programme's guidelines to accommodate her classmates' unhealthy tastes.

The creation and production of a healthy eating PSA was identified as the programme's most memorable and engaging activity. The students said they enjoyed working as a team in writing the script. Two students reported that preparing a storyboard was a new idea for them. They commented that the PSA workshop was able to provide them with a better understanding of the design of advertising messages. One student remarked that he was able to appreciate his classmates' creative ideas in the PSA competition. They also enjoyed the team spirit generated in the shooting process. Indeed,

the students were observed to show remarkable enthusiasm on the shooting day. Despite of the long hours of work on that day, none of the students complained or left early.

Participants found the health talks to be the least interesting part of the programme. One student reported that there are many similar talks available in the media. Only one student considered the health talks the most interesting part of the programme. She complimented the speakers' vivid delivery.

Participants offered many suggestions for improvements if the programme were to be re-run. Strangely, they suggested that the food diary needed a more interesting cover design. A student suggested that the cooking methods and the food content could better be combined as a single item in the reporting. Two students suggested involving all secondary forms in the PSA competition and one student suggested adding a cooking competition to the programme.

Overall, participants reported that they perceived the programme as successful. All of them reported that they gained some knowledge about healthy eating. Two participants reported that they had adjusted their dietary practices to incorporate more healthy choices (at least temporarily). One participant said that she had started to consider nutrition values in making dietary choices. Three students reported that the programme helped them develop healthy eating habits.

Other evaluations

The number attending the parent-child healthy cooking workshop was used as another, less subjective indicator of the programme's success. Altogether eight parents and three students participated in the workshop. Not many parents signed up, ostensibly due to work

commitments, but probably for lack of interest. This activity was not effective for engaging this group of parents.

Facebook analytics provide another relatively objective indicator of the programme's effectiveness. The one-minute PSA produced by the students was a hit. As of December 2017, it had been viewed 2,100 times, garnering 59 likes and 35 shares. The high volume of views suggests that the PSA was able to reach beyond the participating students. But despite regular updating, the reach of the Facebook platform was limited. All other posts received less than 100 likes or shares in total. Interaction was minimal, as no written comments were posted.

Discussion

This school-based education programme has demonstrated an innovative and engaging way to promote healthy eating, at least in Hong Kong. While the food diaries did not provide evidence of positive change, evidence from the post-programme focus group discussion showed that the participating students gained knowledge about healthy diet and that some had tried out healthy eating behaviour. Evidence from the programme's Facebook activity suggests that the professionally-produced PSA was well received among the students.

Many health promotion programmes adopt a one-way, top-down, authoritarian communication approach in delivering health messages (Amoah et al., 2000). That is known to have limited efficacy with adolescents (Rosenbaum, 1998; Senanayake et al., 2001). Also, the top-down approach ignores the diverse characteristics, abilities and beliefs of adolescents, failing to address their individual needs and to properly contextualise what a healthy diet might mean in adolescents' lives (Senanayake et al., 2001).

Despite social-media usage being popular among adolescents, the Facebook page for this school-based health education programme received only a lukewarm welcome from the students. Only the activities related to the public service advertisement and its creation received an enthusiastic response. This again illustrates that healthy eating is not an interesting topic for this target group. Organisations that aim at disseminating healthy eating messages through social media need to find ways to overcome the lack of attention to be expected from adolescents. In this specific case the students' low involvement with the Facebook page may be in part attributable to the school's mobile phone policy. The students were not allowed to use mobile phones on campus, so they could not take pictures of the programme's activities and post them on social media.

The popularity of the PSA activity confirms that students are interested in activities that they own or in which they have a strong presence. This interest can be extended to health promotion activities. Future healthy eating promotions should make use of events or activities that encourage student engagement.

The health talk to the parents and the parent-child healthy cooking workshop were not well-attended. This may be due to a lack of interest among the parents, although it also could be because the day of the week (Saturday) did not fit well with the parents' schedules. In Hong Kong, most salaried workers need to work on Saturday. Attempts to recruit parents as change agents in influencing adolescents' dietary habits need to make use of other initiatives to engage them.

According to Farmer (2003), health inequality originating from social inequality and the uneven distribution of wealth is inevitable. The upper social classes, because of their higher social status, better education and economic power have greater health literacy and thus are in a position to enjoy good health if they choose. The less-educated tend to have

less health literacy and thus are in a more disadvantaged position with regard to health. While most of the healthy eating intervention studies in the West have focused on reducing obesity, orthorexia was not a problem for the participants in this study. The students were not concerned about “clean” eating. They were much more influenced by their strong perception that healthy foods are expensive and perhaps out of reach. This was demonstrated in both the pre-programme and post-programme focus groups. There is a need to tackle this perception in future interventions. Effort is needed to convince students that healthy dietary practices and good health are not necessarily related to social class and financial condition. A sense of empowerment will be crucial in sustaining adherence to health-conscious behaviour (Van Dyk, 2011).

In view of the perceived difficulty of filling out a food diary for even three days, future study using this method may need to consider a better design or provide incentives for completing the food diary honestly. Computer-based programmes such as Windiets and apps such as myfitnesspal may be considered in future studies as a method to collect dietary information, but they too provide no verification of data’s correctness.

The study confirmed students’ tendency to skip meals and to select food items in response to peer pressure. Health promotion professionals seeking practical interventions which change behaviour might consider providing a healthy breakfast at school, restricting access to unhealthy snacks on school premises, or establishing a healthy eating social norm through role modelling.

The excitement and enthusiasm generated in creating and producing a PSA in competition followed by professional production suggests a technique which might be useful in future school-based interventions. This is especially valuable as healthy eating was often perceived by adolescents as boring and unenjoyable, though beneficial and desirable

(Chan and Tsang, 2011). The success of this education programme indicates that content creation can be a way to engage students in health promotions. Future promotion of healthy eating can capitalise on this successful experience in designing creative and engaging programme activities such as inventing healthy recipes, healthy cooking competitions, writing blogs about healthy eating or constructing healthy eating collages.

The knowledge the students gained through the health talks indicates that traditional educational talks can still induce awareness and positive attitudes toward healthy eating. The low attendance at the health talks and healthy cooking workshops for parents suggests that reaching out to parents and soliciting parents as socialising agents in healthy eating constitutes a big challenge. It is unclear if this has to do with the socio-economic background of these particular parents. Future studies need to examine how best to engage parents in health promotion.

The success of the programme studied relied heavily on the participation of the professional production team from the film school. Many universities are now looking to develop innovative service-learning projects for their students, so it may be less difficult to duplicate this programme than it at first appears.

In interpreting these results it is important to note that the data were self-reported and unverified. Socially acceptable responding may have been a serious distortion among these young students. The accuracy of the food intake data may be especially problematic, since the students reported difficulty in completing the food diary. It is important to note too that none of the intervention's outcomes were measured quantitatively.

Conclusions

An innovative school-based healthy eating intervention programme with a marketing component was designed and implemented. The participating students showed improved knowledge of healthy eating, though their behaviour was little altered. The PSA design competition was an effective motivator. Engaging students in content creation is a promising technique for improving the effectiveness of future intervention programmes.

Funding

This project was funded by Quality Education Fund, Education Bureau, the Government of the Hong Kong Special Administrative Region, Grant Number: EDB/QEF/2013/0831

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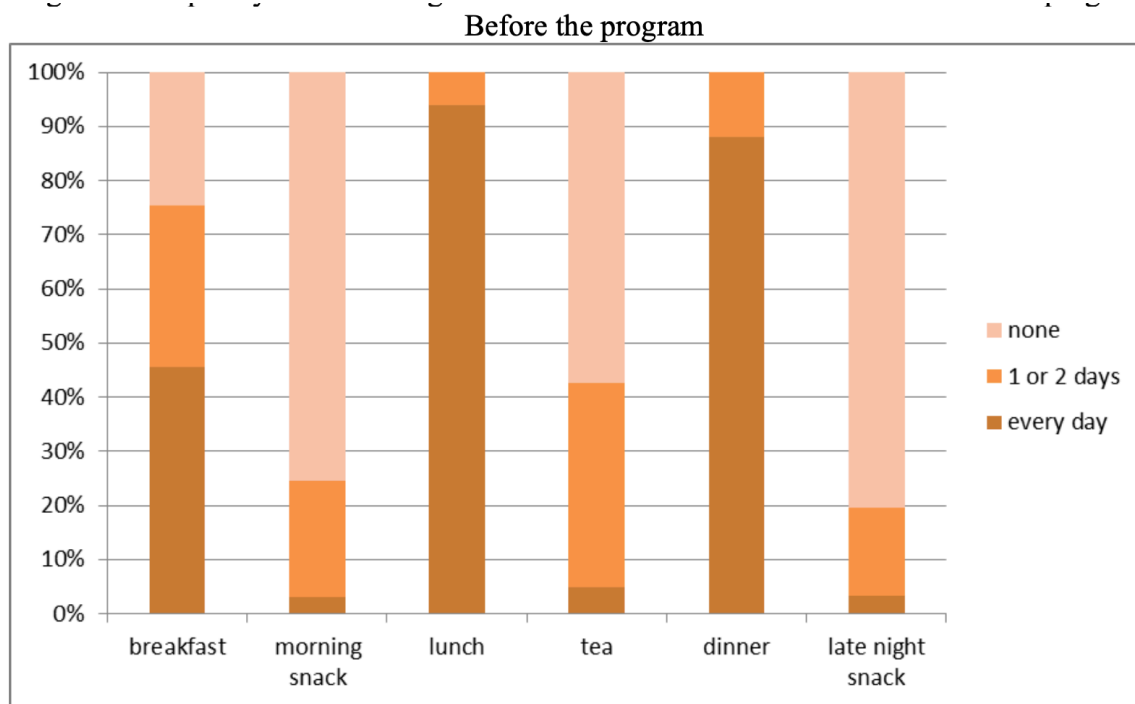
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Table 1. Activities and participants of the school-based intervention

Date	Activities	Participants
Pre-programme		
4–6 Mar 2015	Self-administered food diary	S.1, S.4 students
6 Mar 2015	Focus group interviews	S.4 students
13 Mar 2015		S.1 students
Activities of the education programme and post-programme evaluation		
12 Mar 2015	Health talk 1	S.4 students
25 Mar 2015	Health talk 2	S.1 students
26 Jun 2015	Health talk 3	S.1–S.5 students, teachers
30 Jun 2015	Healthy eating PSA design workshop	S.1, S.4 students
6 Jul 2015	Healthy eating PSA competition	S.1, S.4 students
6–8 Jul 2015	Self-administered food diary	S.1, S.4 students
11 Jul 2015	Health talk for parents	Parents and students
11 Jul 2015	Healthy cooking workshop	Parents and students
21 Nov 2015	PSA shooting	PSA competition winning team, Campus TV Club members, S.4 students
10 Dec 2015	Launch of the PSA on Facebook	PSA competition winning team, Campus TV Club members, S.4 students
Mar–Dec 2015	Healthy eating project Facebook page	All students, teachers, parents and others who log in
6 May 2016	Post-programme focus group interviews	S.1 and S.4 students

Figure 1. Frequency of consuming meals and snacks before and after the education programme



After the program

