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Original Article

Process evaluation of a community-based intervention program: Healthy Youth Healthy Communities, an adolescent obesity prevention project in Fiji

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Abstract: Nearly one-half of the adult population in Fiji between the ages of 15–64 years is either overweight or obese; and rates amongst school children have, on average, doubled during the last decade. There is an urgent need to scale up the promotion of healthy behaviors and environments using a multi-sectoral approach. The Healthy Youth Healthy Community (HYHC) project in Fiji used a settings approach in secondary schools and faith-based organizations to increase the capacity of the whole community, including churches, mosques and temples, to promote healthy eating and regular physical activity, and to prevent unhealthy weight gain in adolescents aged 13–18 years. The team consisted of a study manager, project coordinator and four research assistants (RAs) committed to planning, designing and facilitating the implementation of intervention programs in collaboration with other stakeholders, such as the wider school communities, government and non-governmental organizations and business partners. Process data were collected on all intervention activities and analyzed by dose, frequency and reach for each specific strategy. The Fiji Action Plan included nine objectives for the school settings; four were based on nutrition and two on physical activity in schools, plus three general objectives, namely capacity building, social marketing and evaluation. Long-term change in nutritional behavior was difficult to achieve; a key contributor to this was the unhealthy food served in the school canteens. Whilst capacity-building proved to be one of the best mechanisms for intervening, it is important to consider the cultural and social factors influencing health behaviors and affecting specific groups. (Global Health Promotion, 2014; 20(4): 23–34).

Keywords: adolescents, community intervention program, faith-based organizations, Fiji, Fiji Action Plan, health education, Healthy Youth Healthy Community, obesity, schools, weight reduction

Background

Obesity is a significant public health issue both globally (1,2) and in the Pacific region (3,4), where prevalence rates are amongst the highest in the world. Nearly one-half of the adult population aged 15–64 years in Fiji is either overweight or obese (5), in particular affecting females and Fijians more than Indo-Fijians (5,6). In the Pacific region, obesity rates amongst school children have, on average, doubled during the last decade (5,7). The pattern of weight gain during adolescence is closely linked to overweight and obesity in adulthood (8,9), and it is

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a strong indicator for diabetes and other non-communicable diseases (NCDs) in later years (10).

NCDs account for almost 70% of deaths in Fiji and impact heavily on the country's healthcare system (5). The impact of obesity on NCDs globally, especially diabetes, is enormous and increasing (11), with overweight and obesity ranked as the seventh leading predicted cause of avoidable global disease burden for 2010 and 2020 (12,13). This highlights the importance of preventing obesity beginning at an early age, through healthy behaviors, including increased physical activity and healthy eating. Solutions require comprehensive approaches that are both educational and environmentally based that target individuals, families and communities to engage in healthier lifestyles and behaviors.

The Healthy Youth Healthy Communities (HYHC) intervention project was a community-based program implemented to address adolescent obesity in Fiji. HYHC was implemented in the context of the Pacific Obesity Prevention in Communities (OPIC) project, conducted in Australia, Fiji, Tonga and New Zealand (14,15). The aim of OPIC was to employ a capacity-building approach to reduce adolescent overweight and obesity using multi-faceted community-based interventions in a quasi-experimental design (1). It aimed to develop sustainable skills, organizational structures, resources and commitments to improve the dietary and physical activity behaviors of adolescents in Fiji, by increasing the range of people, organizations and communities who are able to effectively respond to the problem. This paper describes the process evaluation for the HYHC project, undertaken in Fiji between 2006 and 2008. Process evaluation is important to determine whether the intervention was implemented as planned; to describe the intervention activities in terms of dose, frequency and reach; and to identify any barriers to implementation (16).

Methods and materials

Project structure

Ethical approval for all aspects of the project was granted by Deakin University Human Research Ethics Committee, Fiji's National Health Research Committee and the Fiji National Research Ethics Review Committee. The HYHC project used the World Health Organization (WHO) healthy settings approach to health promotion, by targeting unhealthy weight gain in adolescents aged 13–18 years in key settings that are important in their lives, namely secondary schools, faith-based organizations (including churches, mosques and temples) and the home. HYHC was based at the Fiji School of Medicine in Suva, under the control of a Pacific study manager. Project staff included a coordinator and four research assistants (RAs); who planned, designed and facilitated the implementation of intervention programs, in collaboration with other stakeholders such as: the wider school communities, faith-based organizations, government and non-governmental organizations, and business partners.

A number of committees were activated to monitor the progress of activities in both schools and communities. Each school had a School Health Committee comprising between 5–20 students, plus two or three teachers. School Steering Committees were also established, and included the focal point (school teacher) from each of the intervention schools, and stakeholders from the Ministry of Health (MoH), Ministry of Education (MoE), the Agriculture Department of the Ministry of Primary Industries (MPI) of Fiji and two non-governmental organizations (NGO). A Community Steering Committee, comprising 21 representatives from eight different religious groups, plus stakeholders similar to the School Steering Committee, oversaw activities in the faith-based organizations.

Participants

The criteria used in the selection of the intervention population were detailed previously (15). The intervention sites were in a peri-urban area near the capital, Suva. The comparator schools were in or near the other key towns (Nadi, Sigatoka and Lautoka) on the main island of Viti Levu.

Design and development of the interventions

Students, teachers, community members and a local town council representative participated in a 2-day ANGELO (Analysis Grid for Elements Linked to Obesity) workshop in August 2004 (17). Potential behaviors, knowledge, skills gaps and environmental barriers relating to obesity were discussed, resulting

in the formulation of a draft 9-point action plan (18) that was later the subject of further consultation with the wider community. The action plan was comprised of behavioral objectives.

Four were based on nutrition:

- Reduce sugar drinks and increase water consumption;
- Reduce energy-dense snacks and substitute fruit as snacks;
- Increase fruit and vegetable consumption (during main meals); and
- Reduce skipping breakfast on school days.

Three were based on physical activity in schools:

- Increase walking to and from school;
- Reduce television viewing and increase active play during and after schools and on week-ends; and
- Support physical education teachers to develop and organize other forms of physical activities apart from the normal school sport sessions.

Two general objectives on:

- Capacity building; and
- Social marketing.

An additional objective (Objective 10) was developed to promote healthy eating and physical activity in communities (as distinct from schools).

Individual school action plans were developed by the School Health Committees, with the assistance of the RA designated for each school. This approach encouraged the students (School Health Committee members) to take a leading role and discuss proposals with their school principals and teachers, thereby taking ownership of the strategies to promote healthy eating and physical activity (19). The roles of the RAs were to collaborate closely with the school project focal point (assistant principal or a teacher) and to facilitate planning and implementation of intervention activities within the school. The School Health Committee members and the RAs explored opportunities to integrate HYHC activities into each of the classroom subjects, as well as delivering special whole-of-school programs within the school calendar.

The intervention programs in communities were developed in collaboration with the wider community, primarily through the faith-based organizations. The community intervention RAs worked through the umbrella group of different religious groups (religious leaders) to gain access to women's groups and youth groups affiliated with each denomination.

Data collection

A data collection pro-forma was developed to collate information about intervention planning and delivery activities (a description of the activity), processes (how the activity was conducted), dose (scale/duration of the activity), reach (how many and type of people involved in the activity), frequency (how often the activity was conducted) and associated resource use (for use in a subsequent economic evaluation). These data were supplemented by intervention reports, meeting minutes, correspondence and communication between the research team staff and other personnel involved. Data were entered into an Excel database: more than 600 entries were recorded throughout the 2-year duration of intervention activities. Entries in the database were assigned to one objective only, which meant that in collating the results in Tables 1–4 of this paper, actions are only counted once and are mutually exclusive. Costs were assigned to resource use, for use in a later economic evaluation. Frequency counts were undertaken of key activities, of dose and of reach, by strategic objective.

Results

We discuss the results under the four categories of objective set out in the HYHC action plan (18).

Nutrition

Nutrition was a particularly strong focus of the HYHC program, with more time and resources being expended in promoting the four nutrition-related objectives than the two physical activity objectives of the Action Plan. In terms of programs, 116 programs promoting breakfast, lunch, water and fruits/vegetables were delivered in schools, and 79 in communities, compared to only 20 physical activity programs across both schools and the

Table 1. Activity summary for the four nutrition objectives.

Category	*Description*	*Distribution and comments*
Policies (*n* = **14**)	11 schools and 3 churches implemented specific nutrition policies for their own communities.	Whole school community advised of new policy. School children required to bring their own fruit each Friday, allowed to bring bottled water to class.
Programs (*n* = **161**)	Delivery of 116 diverse programs in schools, aimed at promoting breakfast (26), lunch (29), water (36), fruit and vegetables (25). Delivery of 45 programs in communities: on breakfast (28), lunch (6), water (8), and fruits and vegetables (3).	More than 9000 healthy breakfasts provided; ~4000 lunches served. Demonstrations of multiple ways of using fruit. Bottled water provided as an incentive during programs.
Activities (*n* = **33**)	A series of activities were organized by different schools: annual OPIC day (5 schools), information booth at school events (7 sch.), essay competitions (2 sch.), assembly talks by students (7 sch.), survey of foods sold in canteen (1 sch.) and World Food Day (7 sch.). One FBO organized an oratory contest for the Sunday school students.	A variety of activities during lunch, and before or after school. Up to six assembly talks per term, per school. Seeds, manure and technical advice provided for school gardens. Role play performed by 30 students from 3 schools, promoting health messages, > 1000 students watched.
Infrastructure (*n* = **14**)	14 schools engaged: installed new water tanks (4), new water fountain (1), planted vegetable garden (7) and built/renovated canteens (2).	SHC prepared and submitted budget proposal.

FBO: Faith-based organization; OPIC: Obesity Prevention in Communities; SHC: School Health Committee.

Table 2. Activity summary for the three physical activity objectives.

Category	*Description*	*Distribution and comments*
Programs (*n* = **20**)	15 organized in the 7 schools; 5 in FBO attended by >300 members. Annual events: Sports competition, Tadra Kahani, cultural dances and Bollywood dances. Attended by > 700 students.	Included walking, traditional dances and aerobics.
Activities	More than 2000 students attended International Walk to School Day.	One-off event.
Infrastructure and equipment	> 200 netballs, rugby balls, volleyballs and nets provided to schools, which initiated physical activities.	Distributed at annual award nights.
Organizational development	Organized 3 physical activity workshops for PE teachers and selected health workers.	Jointly organized with MoE and MoH.

FBO: Faith-based organization; MoE: Ministry of Education; MoH: Ministry of Health; PE: physical education.

community (Table 1 and Table 2). In addition to ongoing programs, a range of one-off activities were conducted, particularly in schools, often to coincide with school events. Whilst such activities during lunch, and before and after school appealed to students, in retrospect, it may have been more

Table 3. Capacity building objective.

Category	*Description*	*Distribution and comments*
Additional resources		
Funds	$45,000 procured in 3 small grants; additional funds by 3 schools.	Multiple funding sources. Successful submissions to fund water tanks/fountain.
Personnel	Hired 2 consultants for Jump Jam training.	Conducted 1-week program for 30 teachers and community representatives.
Leadership		
Students	In 2 years, 200 champions trained in 7 schools, 100 SHC members trained on funding submissions.	
	Students chaired 168 SHC meetings.	Monthly meetings
Community leaders	Two sessions of 3 day-workshop (60 women), CSC meetings (30 members), 10 presentations at conferences (CSC members), business training (30 CSC members).	10 FBO represented in workshop.
Workforce development		
Students	105 students attended workshops locally, and a week-long Health Ministers Forum (3) and OPIC satellite (1) in NZ.	Workshops focused on social marketing, poster making, and communication on behavior change.
Other persons	Training in food handling (14 kitchen staff), canteen management (14 canteen managers), aerobics (40 teachers), healthy lifestyle (30 women), planting in pots (30 women), health-promoting communities (30) .	Workshops jointly organized by HYHC, MoE and MoA.
Staff	Seven project staff attended two 5-day training sessions.	
Partnerships and collaborations		
Government	700 attended 10 x 30-minute presentations.	Multiple presentations on project to stakeholders.
	Coordinator attended 14 committee meetings.	Committees jointly organized by MoE and MoH.
NGOs	Attended monthly SSC meetings (32 members) and bi- monthly CSC meetings (42 members).	Presentations attended by 60 leaders and 300 church members.
	Delivered 55 presentations (by HYHC staff).	
Organizational development		
Schools	5 schools and 2 church groups changed the menus of catering services.	Improved school food services for teachers' meetings. More vegetables incorporated in church menu.

CSC: Community Steering Committee; FBO: faith-based organization; HYHC: Healthy Youth Healthy Communities; MoA: Ministry of Agriculture; MoE: Ministry of Education; NGO: non-governmental organization; NZ: New Zealand; OPIC: Obesity Prevention in Communities; SHC: Student Health Committee; SSC: School Steering Committee; x: times.

Table 4. Social marketing objective.

Category	*Description*	*Comments*
Media reports and promotions		
Television	One 30-sec TV advertisement (screened 6 times), TV news items (9), live TV interviews (2)	Multiple sponsors, shown live during Fiji-Hong Kong 'Rugby Sevens' match; teachers and students interviewed in school programs; project staff interviewed in local church TV station.
Radio	One 10-min talk back show (replayed 2x), Sunday Health Programs (2), live local radio interviews (4, replayed 3x), live radio interviews with Radio NZ (3).	Projects' staff featured on radio stations.
Print	10 newspaper articles to 30,000 daily distribution.	Targeting whole community and adolescents' special newspaper.
Developed materials		
Printed/published	DVD on HYHC Jump Jam aerobics (60), posters posted for 3 mo (3 sets), stickers (2000), project newsletter (100), water bottles (1500), annual school calendars (3000 copies for 2 yrs). Articles in school magazines, 4 schools for 2 years (2000), leaflets (3000 copies) and breakfast pamphlets (3000).	Widely distributed to schools, teachers, students and stakeholders.
Other	Billboards erected at 3 different locations (4); project banners during promotions (4); project logos displayed on vehicles (2), on T-shirts (1000), on school billboard (1); school health notice boards (7).	Roadside billboards, featuring local students as actors.
Sourced materials		
Printed	1 Fat kit and set of posters	NZ Heart Foundation
Other	Posters and pamphlets (1000), bottled water (5000), crates of eggs (70), tins/cans of Milo (26), bars of cheese (26), crates of milk (30) used in event catering.	Materials from MoH, bottled water from Acquifer Company, others donated by local business partners.

DVD: digital video disk; HYHC: Healthy Youth Healthy Communities; Milo: Milo Miles connected to Nestle; min: minutes; MoH: Ministry of Health; NCHP: National Centre for Health Promotion; NZ: New Zealand; sec: seconds; TV: television; x: times.

productive to focus more on programs that offered repeated opportunities to reinforce key messages than to undertake activities which were not ongoing nor sustainable.

The HYHC project's achievements in terms of policy development and implementation around nutrition were limited. Whilst much of the work of HYHC focused on changing the food sold at school canteens, the development of individual school food policies was a long and difficult process: Only two of the schools introduced policies (not written) to change their canteen menu during the course of the project. The lack of 'top-down support' from MoE was a significant barrier to the HYHC project. Likewise, whilst faith-based organizations were also keen to integrate the promotion of healthy diets into their existing religious programs and activities, this was mainly driven by individual champions, and not through policy development.

Physical activity

As already mentioned, physical activity was less of a focus within the HYHC project than nutrition (Table 2). This was a product of school concerns about occupational health and safety issues; a reluctance to promote physical activity during morning recess and lunch time, because of the added supervision burden on teachers; and the priority placed by both schools and parents on academic studies.

No action was taken on physical activity policy initiatives, because as with nutrition, any changes would need to be mandated by the MoE. The 20 diverse programs conducted across the schools and churches focused primarily on walking, traditional dance and aerobics; however, physical activity was often integrated into the promotion of other strategies, such as the consumption of a healthy breakfast, fruit, vegetables and water, especially during athletics season, when students received a repeated dose of physical activity messages in a variety of formats. In addition, there was limited provision of sporting equipment to schools and some training workshops offered to physical education teachers and health workers.

Capacity building

The overall aim of the HYHC project was to build the capacity of and empower communities to tackle the issue of adolescent obesity. The New South Wales (NSW) Capacity Building Framework (20) was selected as a tool applicable to the capacity-building activities in each of the four OPIC sites. Table 3 documents the capacity-building activities undertaken within the HYHC project, using the same domains as in the NSW Framework, namely: partnerships, leadership, resource allocation, workforce development and organizational development.

A wide array of activities targeted the communities and strengthened community capacity to deal with the issue of adolescent obesity. Leadership training was a key focus: for example, more than 200 student champions were trained around promotion of healthy lifestyles and 100 School Health Committee members (teacher focal points and students) received special training on the identification of health issues and the preparation of funding submissions. Following the latter, three schools secured their own funding to install extra water taps and tanks, to provide students with easy access to safe drinking water as an alternative to buying sweet drinks from the school canteen.

In order to understand and be able to combat the increasing trend of obesity, substantial effort was invested in workforce development, with the aim of providing knowledge, skills and incentives to create more supportive environments, to allow better-informed choices and healthier lifestyles (21–23). Workforce training was provided to school food handlers, canteen managers, aerobics teachers and community groups, to up-skill them in issues related to the nutrition and physical activity objectives. The increased ability of students, teachers, community group members and other stakeholders to lead and be healthy role models resulted in them driving the implementation of the strategic initiatives in their schools and communities.

Another key component of capacity-building was the development of strong partnerships and collaborations through the engagement of both government and non-government organizations in project committees, participation of the project coordinator in a range of other external committees, and regular project presentations to external stakeholders.

Social marketing

The social marketing aspect of the HYHC project used a variety of methods and approaches (Table 4) to achieve a high awareness of the project's key messages. A social marketing plan was developed at the beginning of the project, using the results of the socio-cultural interviews and preliminary baseline survey (16,24). The first phase (2005–2006) aimed at raising awareness of the project through a series of meetings, presentations and networking with partners. The second phase (2006–2008) was driven by the students and concentrated on the production of targeted messages under each of the 10 strategic objectives in the action plan.

A variety of communication formats were used to target students and convey key messages, highlighting one specific theme at a time related to food and/or physical activity habits; these included speeches at school assemblies, notice boards, school newsletters, debates and activities incorporated into classroom lessons (25,26). Nine news items on national television,

including live interviews highlighting school initiatives, attracted substantial interest from students. Live radio interviews (replayed more than twice weekly) provided opportunities to educate both parents and adolescents on the importance of eating healthy and keeping fit. The messages were further reinforced by 10 newspaper articles targeting the whole community and adolescents. In retrospect, the effectiveness of the social marketing campaign would have been further enhanced, had more extensive use been made of the *Kaila* newspaper and the FM96 radio program, both of which specifically target adolescents.

In addition to media reports and promotions, the other main strand of the social marketing campaign was the development and distribution of a wide range of materials (such as posters, stickers, calendars, leaflets, T-shirts and billboards) designed to promote project messages (Table 4).

Evaluation against 'best practice' principles

This section draws on a set of 'best practice' principles developed specifically for community-based obesity prevention initiatives by the Collaboration of Obesity Prevention Sites (CO-OPS) at Deakin University, Australia (27). These principles are a tool used to guide the processes in developing community-based initiatives, by identifying elements that have underpinned successful projects, and investigating how this knowledge may inform current and future obesity prevention initiatives. These principles, which were used to guide the design of the HYHC program frame, are used here to frame and underpin the discussion as to whether the HYHC encompassed the ingredients of an effective community-based intervention program. Process evaluation is critical, as it examines the quality of program implemented and the extent to which participants are engaged, the objectives are met, and ways to improve and/or replicate the program (28–30).

Community engagement

The initial process of engaging the leaders of schools, faith-based organizations and other stakeholders was critical to gaining community access. Also, student engagement in the project was inherent to the overall success of the school-based interventions (26). Given that peer education has been successfully used within other adolescent health programs in low, middle-income (31) and high-income countries (32), the same approach was employed in HYHC; however, whilst a peer approach coupled with a student champion model had high impact potential, to be sustainable, the approach needed to be structured so that positive outcomes for both students and the schools (leadership and health promotion skills) were developed and maintained. While there were potential negative aspects (the time involved and the distraction from other school work), the strong emphasis placed on student involvement was instrumental in influencing school ownership of the project and its sustainability (26,33).

A major challenge for HYHC was to extend the project reach beyond the student community, to parents and the wider community. Information was regularly placed in school newsletters, but face-to-face contact with parents was necessarily restricted, given the limited involvement of secondary school parents in school life. To counteract this, project activities were built around events that were already in the school calendar (such as parent-teacher meetings, athletics competitions, school carnivals); thus, supporting existing school activities and linking in with organizations that had established connections with the schools. To ensure successful implementation, projects such as HYHC need to actively engage all groups in the school community, including management committees, principal, teachers, students and parents.

Program design and planning

In planning interventions in schools, it is important to consider the competing demands on staff and teaching times, and the emphasis on academic achievement (26,34). The implementation of the action plan was undertaken by the School Health Committee, with the support of the project team. This allowed an individualized approach and tailoring of the plan to suit the teachers, curriculum and structure of each school, thereby increasing ownership.

As a result, there was a diversity of strategic initiatives delivered across the different schools. For example, several School Health Committee members identified the need to improve the availability of water by installing tanks, extra taps and cool water fountains, whilst all seven schools developed a school garden. In retrospect, this was one of the few intervention activities which attempted to address

the root causes of environmental issues. Despite the fact that few of the schools taught Agricultural Science, the development of productive gardens in the schools was a welcome initiative that resulted in the harvesting of fruit and vegetables for use in both classroom teaching and the school canteen.

Evaluation

The evaluation component of the HYHC project was quite burdensome, meaning that the intervention activities were sometimes compromised during the intense data collection phases of the project, when the attention of the RAs was diverted (34). Whilst the School Health Committee members continued to plan and implement promotional programs themselves during such data collection phases, it would have been preferable for additional research staff to be engaged, specifically to conduct the evaluation measurements.

Implementation and sustainability

Student involvement and ownership of the program was a critical factor in the repeated dosing of the nutrition messages in different formats, like talks, demonstrations, food preparation and free breakfasts (26). The integration of activities within existing school programs was important, such as the use of food displays and oratory contests during the special subject week, held in five schools. This suggested that, despite limited resources, interventions can still be implemented through existing government structures when they are embedded in the school curriculum and existing school events.

Developing and implementing individual school food policy was not one of the successful HYHC strategies. The project worked primarily with schools and local communities, using a 'bottom-up approach,' whereas in reality, schools are more accustomed to responding to 'top-down' programming and mandated directives managed by the MoE. Another factor contributing to the lack of success in changing the healthiness of school food was the project's failure to engage with school management, which has ultimate control over school canteen menus. Whilst in seven schools workshops were conducted for canteen managers and food handlers, little change resulted, as these players were unable or reluctant to make changes of their own accord (26).

The interventions appeared to have some limited effect in terms of changing the environment, teacher behavior, etc. However, while some studies show that marketing plays an important role in encouraging behavioral changes around issues such as smoking (35,36) and drinking (37) in both young people and adults, other studies suggest the need to develop new strategies that target both the individual and social causes, which need to be equally marketed as potential solutions (38).

Curriculum

Whilst the project team did not endeavor to change nor develop the school curriculum at any stage, the HYHC project infiltrated the curriculum through agreement with school department heads to introduce obesity as a topic within the English program (essay writing competition, short quizzes, oratory contest and debates) and in other relevant subjects, such as Home Economics and Agricultural Science. The importance of the project being embedded in the curriculum was raised indirectly with the Curriculum Development Unit and Technical Vocational Education Training section of the MoE, following the presentation of baseline obesity prevalence and behavioral results.

Governance

The recruitment of teachers as school focal points supported by the champions from School Health Committees and the Community Steering Committees made this an effective model of ownership. The communication between these key stakeholders was frequent and transparent, with strong supporting roles from school principals; government departments such as education, health and agriculture; non-governmental organizations; business partners and the HYHC research staff.

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Discussion

The settings approach to health promotion in secondary schools may be effective in promoting

healthy eating and physical activity, if changes to the availability of nutritious foods within schools' canteens are effected, together with the provision of a diversity of programs and activities that promote and embed key health promotion messages. In particular, school nutrition policies are needed that consistently promote and support healthy dietary practices among young adolescents (39). Faith-based organizations were also an important partner in the health promotion activities; the logistics for future and extended collaboration need to be explored. Overall, the multi-component HYHC intervention achieved some success, but modifications to the design might have increased its effectiveness (40,41).

Whilst some social marketing was undertaken to address the availability of unhealthy foods in the school environment, the lack of social marketing expertise within the research team and of funding to buy into such skills made it difficult to implement a wider media campaign, thereby placing a reliance on opportunistic free advertising. This was coupled with a considerable gap in top-down policy approaches from the MoE; for example, canteen guidelines were not enforced and the absence of clear ministerial directions made it difficult to effect change in the types of foods available in the schools (42).

One of the lessons learned that helped to improve uptake and potential sustainability was the integration of school interventions with the existing plans and programs. In many cases, schools integrated behavior-modification education into the existing life skills curriculum, using a 'peer approach' or 'student champion' model when advocating for health messages. When designing strategies and programs, it is also important to consider the cultural and social factors influencing health behaviors and affecting specific groups. Capacity building proved to be one of the best mechanisms for intervening. The challenge for health promotion programs like HYHC is how to accommodate an essentially bottom-up community capacity-building approach within a school system that is conventionally managed top-down. Issues associated with these two diverse styles of programming need to be clearly thought through at the program outset, and be viewed as parallel, complementary tracks rather than as competing and creating tension (43).

While schools may seem a relatively easy setting in which to target adolescents, multiple issues arose around working in this setting. Despite strong collaborations and good working relationships with the schools, the HYHC project experienced multiple challenges in the implementation of different project components. Many of the lessons learned are of relevance to future projects, not only in Pacific settings, but generally to projects in secondary schools and other adolescent settings (34,44).

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Conflict of interest

The authors declare that there is no conflict of interest.

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