



Perspectives of teachers and food sellers on healthy canteens in Yogyakarta: A qualitative study

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ABSTRAK

Latar Belakang: Ketersediaan makanan sehat menjadi faktor penting dalam menjaga kecukupan asupan gizi harian anak di sekolah. Kantin sekolah berperan sebagai unit penting dalam menyediakan makanan bagi siswa. Namun, terdapat berbagai tantangan dalam penyelenggaraan kantin sehat, baik dari segi pemilihan makanan maupun pengelolaannya.

Tujuan: Penelitian ini bertujuan untuk mengetahui perspektif dan pengetahuan guru yang bertanggung jawab terhadap program kantin sehat serta penyedia makanan kantin di sebelas sekolah yang terpilih di wilayah Provinsi Daerah Istimewa Yogyakarta.

Metode: Penelitian ini menggunakan pendekatan kualitatif deskriptif. Penyusunan metode penelitian mengacu pada COREQ checklist. Sepuluh pertanyaan wawancara semi-terstruktur dikembangkan untuk menggali perspektif guru dan penyedia makanan kantin pada program kantin sehat di sekolah. Sebelas guru dan delapan penyedia makanan direkrut secara purposif dan diwawancara selama 20–40 menit pada April–Mei 2024 di sekolah. Sembilan sekolah negeri dan dua sekolah swasta dengan tujuh diantaranya adalah sekolah dasar dan empat sekolah taman kanak-kanak di wilayah Kota Yogyakarta menjadi lokasi penelitian ini. Analisis tematik digunakan untuk mengidentifikasi tema utama dan menginterpretasikan temuan penelitian.

Hasil: Empat tema utama yang mencerminkan tantangan dan strategi dalam pengelolaan kantin sehat diidentifikasi melalui respon dari partisipan. Sebagian besar partisipan menegaskan pentingnya komitmen sekolah dan regulasi yang jelas dalam menjaga kualitas dan kebersihan makanan dalam upaya mendukung keberhasilan program kantin sehat. Beberapa sekolah juga telah memiliki program makan bersama, baik itu program rutin resmi maupun bagian dari program lainnya. Belum semua kantin sehat sekolah termonitor secara rutin.

Kesimpulan: Keberhasilan implementasi kantin sehat bergantung pada komitmen sekolah yang kuat dan dukungan regulasi yang jelas. Sinergi antara pihak sekolah, penyedia makanan kantin, dan pemangku kebijakan diperlukan untuk keberlanjutan program kantin sehat di sekolah.

KATA KUNCI: kantin sehat; kebijakan sekolah; sekolah sehat



ABSTRACT

Background: Healthy food availability is considered an important factor in achieving daily nutritional adequacy among school children. School canteens play a vital role in providing food, yet face numerous challenges in serving healthy choices and effective management.

Objectives: This study aims to explore the view of responsible teachers for healthy canteen programs and canteen food providers at eleven schools in the Yogyakarta city area.

Methods: This descriptive qualitative study followed COREQ guidelines. Ten semi-structured interview questions were developed to collect perspectives from teachers and canteen food providers regarding the school's healthy canteen. Eleven teachers and eight canteen food providers were recruited and interviewed for 20-40 minutes on April-May 2024 in the schools. The study was conducted across eleven schools in Yogyakarta City, comprising nine public and two private institutions, with seven primary schools and four kindergartens. Thematic analysis was performed to extract the themes and interpret the result.

Results: Four main themes reflecting the challenges and strategies in managing a healthy canteen were identified from the responses of participants. Most participants emphasized the importance of school commitment and clear regulations in maintaining the quality and hygiene of food to support the success of the healthy canteen program. Some schools already implement lunch programs, either a regular formal lunch program or as supporting initiatives linked to other school programs. However, not all school canteens are regularly monitored.

Conclusions: The success of implementing a healthy canteen relies on the strong commitment of the school and well-defined regulatory support. Synergy between the school, canteen food providers, and policymakers is necessary to ensure the sustainability of the healthy canteen program in schools.

KEYWORDS: healthy canteen; healthy school; school initiatives

Article info:

Article submitted on February 02, 2025

Articles revised on April 17, 2025

Articles received on July 18, 2025

Articles available online on November 28, 2025

INTRODUCTION

Elementary school students in Indonesia spend around four to eight hours studying in school (1). Food provided in the school environment plays a key role in supplying energy for students' activities during school hours. The school management should consider balanced nutrition for students, particularly from foods available within the school environment (2). The availability of unhealthy food options, such as in the school canteen, may shape students' eating habits and influence their nutritional status. Poor nutritional status leads to malnutrition, which can decrease students' health status, productivity, and academic competence (1). Moreover, the school canteen serves more than just a place to eat; it also plays a role in educating students on healthy food habits (3).

Based on the Guidelines on School Canteen Development released by Southeast Asian Ministers of Education Organization Regional Centre for Food and Nutrition (SEAMEO

RECFON), food provided in school canteens should meet three main criteria: nutritious, hygienic, and safe (4). Conducting the nutrition guidelines or regulations for canteen vendors has been identified as a key strategy to support students in making healthier food choices (5). However, the mere existence of such guidelines is not enough. A study in Burkina Faso found that although food vendor regulations were available, vendors still sold energy-dense and processed snacks, while fresh fruits were rarely offered. Similarly, findings from South Africa and El Salvador reported only minor improvements in students' health outcomes following school food policy interventions [as cited in (5)]. A systematic review and meta-analysis also found that standardized school meals with fruits and vegetables significantly improved children's dietary behaviors, but most of the evidence came from high-income countries (5). These findings emphasize the need for stronger implementation

and contextual adaptation of school food regulations, particularly in low- and middle-income countries.

The infrastructure required for a healthy canteen includes proper facilities such as clean water, a designated canteen area, and visible nutrition information (6). Canteen management involves planning, organizing, implementing, and monitoring. However, a qualitative study in Indonesia found that although healthy canteen initiatives existed, challenges such as budgeting, facility availability, and scheduling still hindered implementation (7). While school principals are ideally responsible for canteen management (1), in practice, the duty is often delegated to teachers, especially those involved in the school health program (UKS) (1).

A qualitative study involving school principals, assistant principals, canteen managers, and food service staff found that three key elements supported the adoption of healthy canteen policies: value, knowledge, and support (3). Value included concerns about reduced profitability due to compliance with healthy food policies, while knowledge referred to aligning perceptions of what constitutes healthy food. Support, particularly from school leadership, was seen as essential for effective implementation.

In a separate qualitative study, vendors also expressed concerns about lower profit margins after discontinuing the sale of energy-dense foods (8). To promote healthy eating among students, several strategies have been proposed, including the use of choice architecture approaches such as improving food positioning, presentation, and providing clear information (9). However, despite efforts within the school environment, students continue to have access to street vendors beyond the school's control, which can undermine healthy canteen initiatives (1).

Although various school-level interventions have been conducted, there is limited research exploring how both teachers and food vendors perceive and implement healthy canteen practices in the Indonesian context. Most existing studies focus either on program design or on a single actor, such as the school principal, without combining viewpoints from those directly involved in daily implementation.

This study aims to address that gap by investigating the perspectives and knowledge of teachers responsible for the school canteen program and food vendors in selected elementary schools in the Special Region of Yogyakarta, Indonesia. This research adopts narrative study design with the inductive analysis approach, which explains health behavior as shaped by multiple interacting levels: individual, interpersonal, organizational, and environmental. This approach provides a comprehensive lens to understand the perspective of healthy canteen implementation influenced not only by the knowledge of teachers and food vendors, but also by school policy, vendor practices, and the broader food environment.

MATERIALS AND METHODS

A qualitative approach was applied to discover the findings in this study. This qualitative study employed a thematic analysis or content analysis approach to explore the perspectives of teachers and food sellers on healthy canteens in Yogyakarta. Semi-structured questions were developed to explore the participants' views regarding school-healthy canteens. There was no prior assumption or hypothesis in this study since principal investigators began by collecting data from the participants and defining the perceptions collected from the interviews in a more relatable and familiar context. Researchers used Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist to report important aspects of qualitative studies (23). Before this qualitative research began, the researchers had already established relationships with the participants at the school because this study is part of a five-year pilot project. This research was conducted in the third year.

Eleven schools in the Yogyakarta City area participated in this study, which consisted of seven elementary schools and four kindergartens. Nine of eleven schools are public schools, and the remaining are private. These eleven schools were selected and received permission from the Yogyakarta City government to conduct the pilot project. In addition, the purpose of this pilot project is to prevent dental caries and to develop healthy canteens in the area, as there have been cases of

dental caries and a decline in the nutritional status of students.

Responsible teachers assigned by the school principal were the people in charge of developing the healthy canteen programs, and canteen food providers were recruited as participants in this research. Eleven representative teachers and eight canteen food providers were interviewed in this study. There were only eight canteen food providers since three schools have no canteen, and the parents provide the food. The participants were chosen purposively. Participants were selected purposively based on their direct involvement in the development and implementation of healthy canteen programs at their respective schools. The inclusion criteria for teachers were: (1) being officially assigned by the school principal as the person in charge of the healthy canteen program, and (2) having at least one year of experience in the role. For canteen food providers, the criteria included: (1) being the main food provider at the school canteen, and (2) having regular interaction with students and teachers regarding food provision. These criteria ensured that the participants possessed relevant knowledge and experience to provide in-depth insights into the challenges and successes of healthy canteen program implementation.

Before the data collection, the data collector contacted the school representatives via messages to ask for permission regarding the data collection and the targeted person to be interviewed. After obtaining the interview schedule and the participant's consent, the data collector visited the school and gathered the interview data.

Measurement and Data Collection

Ten open-ended structured questions were developed as the interview questions. The questions were collected from the previous study, and the Indonesian government guidelines for a healthy school canteen. The ten constructed questions are about 1) perception of the ideal healthy canteen, 2) ideal role of the school in managing a healthy canteen, 3) school initiatives, 4) lunch program in school, 5) school's guideline of canteen food provider, 6) school regulation regarding the healthy school canteen, 7) school monitoring and evaluation of healthy school canteen, 8) school initiative to educate about

healthy school program, 9) school effort to provide infrastructure, and 10) school initiative to ensure the food quality. The time for the interview was between 20 and 40 minutes and took place in the school classroom or canteen building, which was the most comfortable place for the participants. Before the interview, the data collector asked for consent from the participants. If participants gave their permission to use the recorder, the conversation was recorded; however, if the participants were not willing to be recorded, the data collector would write a note to record the interview results. Interview data was collected from April - May 2024.

The interviewers were all female and had an educational background in nutrition. Before conducting the interviews, they received a briefing and training from the principal investigator and participated in team discussions. During the interviews, note-taking was mandatory by an assistant interviewer and/or audio recording was conducted with the participants' consent.

Data Analysis

Data from the interview is recorded or written as a note and transcribed manually by the data collector. The principal investigator then reads the transcribed data thoroughly. Thematic analysis was performed as the analysis method to gather the results and findings. The transcribed data from all schools were compiled in a template in the Microsoft Excel program created by the principal investigator before the data collection. The template format consisted of the questions, the response, the code, and the theme. Data was analyzed and coded manually, mainly by the principal investigator, and read together with the data collector to make an agreement and ensure that both parties were on the same understanding. The authors are involved in the interpretation to ensure the data analysis process is trustworthy. To increase validity and reliability for qualitative data, we used used prolonged engagement strategies for credibility (internal validity). It can obtain thick descriptions to enable readers to assess the transferability of findings. Researchers also used purposive sampling for transferability in this qualitative study, selecting informants who are most relevant to the research question about canteen at each school. According to

confirmability, researchers also used member check to confirm the accuracy of the finding information with related documents and peer debriefing with fellow researchers helped minimize potential biases.

Ethical Considerations

Before obtaining information from the interviews, each informant from nine schools was given an informed consent form to confirm their willingness to give information honestly about healthy canteen and to emphasize their participation in this qualitative study was voluntary. Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada ethics

committee approved the study protocol with KE/FK/1550/EC/2023.

RESULTS AND DISCUSSIONS

The distribution of the participants' characteristics is presented in **Table 1**. Females dominated the participants, and there were no male participants since the teachers responsible for the school canteen were all female. The school providers involved in this study are also all female. Most of the teachers and canteen food providers worked at the public schools. Moreover, most of the teacher staff and the canteen food providers involved in this study worked at the elementary schools since kindergartens rarely have a canteen.

Table 1. Demographic characteristics of the participants

	Teachers (n=11)	Food sellers (n=8)
Gender		
Female	11	8
Male	0	0
School type		
Public	9	7
Private	2	1
School level		
Kindergarten	4	1
Elementary school	7	7

Sixteen sub themes were identified from the ten open-ended questions. The interview questions were developed through an iterative process, starting with a review of literature to identify key themes related to healthy canteen. We aligned questions with our research objectives, ensuring they were open-ended to allow participants to share detailed responses. Since some of the questions had similar responses, several questions were combined to group the identified themes. Thus, themes of questions and sixteen subthemes resulting from the collected interview data were described as four wider themes and shown as written in **Table 2**.

Perception of the ideal healthy school canteen and role of the school

A healthy school canteen requires supportive conditions and a safe environment which include four pillars. First, the commitment and school management is important to ensure

the initiation as well as the continuation of a healthy school canteen. Second, the human resources are in charge of all activities related to the healthy school canteen. Third, the facilities and infrastructures surely have a big role in supporting the implementation of the healthy school canteen. Fourth, the food quality needs to be monitored and controlled thoroughly as it affects the outcome of the healthy school canteen which is to provide safe, healthy, and nutritious food in school (2).

The teachers' and food sellers' perspectives on what a school would do ideally to realize a healthy school canteen were identified. Various responses were collected using different themes, including the regulation of canteen policy regarding the type of food offered to students inside the school canteen. Also, the teacher stated the necessity of restricting the students from buying food outside the school canteen. As for the third pillar of a healthy school canteen, the teacher mentioned

that ideally, the school would provide the canteen's facilities and infrastructures. The food seller's statement on the ideal healthy school canteen was more focused on the absence of snacks containing MSG, food hygiene, and the usage of non-plastic packaging.

"Healthy canteen provides food and beverages from fresh ingredients and not instant products. Healthy food is better free from food additives and preservatives. It is better to cook by ourselves or home-cooked meals". Teacher 1

"School at least has a rule for the canteen food provider regarding the food they can sell. For instance, food should not contain artificial food preservatives, food colouring substances, too much sugar, salt, and fat. It is better to sell

one-dish meals or full meals like home-cooked food". Teacher 2.

"The school has implemented a restriction of food that cannot be sold at canteen which are high-salt snacks, and snacks containing MSG. The school also has enough canteen infrastructures such as table and chair, and food racks". Canteen food provider 6.

Other than regulating the school policy on the canteen and students' restriction to buy food outside the canteen, involving the stakeholders were also mentioned, such as holding parental socialization and the responsibility allocation among the parents and the school or the canteen and the school. The involvement of external stakeholders, such as the government and non-governmental organizations, is also mentioned.

Table 2. Identified theme from the interview

Theme	Subtheme
1. Perception of the ideal healthy canteen	Subtheme 1. Provide real and nutritious food Subtheme 2. Ensure the hygiene of the food Subtheme 3. Commitment of the school environment; educate school environment; parents and teacher involvement Subtheme 4. Follow the guideline for healthy school canteen
2. Ideal role of the school and school initiative in managing a healthy canteen and to ensure food quality	Subtheme 1. Restriction of buying food outside Subtheme 2. Monitoring food hygiene and quality Subtheme 3. Provide infrastructure and education Subtheme 4. Commitment and role distribution with teachers, parents, and canteen food provider Subtheme 5. Collaboration with the government and other institution Subtheme 6. Optimize school health program
3. Lunch program in school	Subtheme 1. Eat lunch box together
4. School's guideline and regulation regarding the healthy school canteen	Subtheme 1. Limitation of food list Subtheme2. Written rule for canteen food provider
5. School monitoring and evaluation of healthy school canteen	Subtheme 1. Frequent monitoring from school
6. School initiative to educate about healthy school program	Subtheme 1. Education/workshop/sharing session for the canteen food provider and teacher Subtheme 2. School support for teachers and canteen food provider to follow workshops about healthy canteen
7. School effort to provide infrastructure	Subtheme 1. School provides physical infrastructures needed

Monitoring of the canteen from the stakeholders inside and outside the school was also mentioned, including monitoring for hygiene

and sanitation, food quality, food safety, reducing plastic waste, and the canteen menu. Some schools were already involving parents as external

partners in selling the food for students. A parent of the student responsible for the canteen stated that ideally a healthy canteen would sell healthy food that uses the natural ingredients (less processed food), provide a proper and clean canteen space, and also deliver a friendly service to the students. "The school has an agreement with the integrated health centre, Regional Food and Drugs Authority Organisation (BPOM), and Regional Public Health Office to ensure that food hygiene and food quality is assured". Teacher 5.

Some teachers also mentioned holding projects related to eating behaviour. Some creative programs, such as bringing packed meals from home (for students), nutritional-focused parenting practices, collaborative cooking activities, healthy eating education, and optimizing the role of 'dokter kecil' (junior ambassador of health) inside the school, were also mentioned. The food seller mentioned some school programs including the school healthy breakfast program that makes the students buy the healthy food from the canteen. Training for the responsible teacher for the school canteen and training for food quality monitoring were also mentioned.

"Once in a three-month period, school authorities collaborate with the integrated health centre (Puskesmas) to conduct activities with the parents such as cooking healthy food and eating together with the children, the representative from Puskesmas will give an education session and followed by the activities with parents. ... the school has a program related to health which encourages students to be actively involved as a 'dokter kecil' (junior ambassador of health). They can be an agent to promote healthy school initiatives". Teacher 11.

"... school rules encourage canteen food providers to join a workshop about food safety and healthy food". Canteen food provider 5.

"... the principal shared information about a workshop or education session about a healthy canteen for teachers and gave permission for us to attend...". Teacher 8.

Implementation of school lunch programs and food provision

Interviews conducted at several elementary schools (SD) and kindergartens (TK) in Yogyakarta revealed that not all schools had

structured lunch programs or food provision systems. To meet students' nutritional needs, each school implements various alternative programs, such as bringing meals from home and communal eating programs. According to school representatives, these programs are expected to promote healthy eating habits and reduce the consumption of unhealthy foods within the school environment. However, implementing communal eating programs remains rare at both elementary and kindergarten levels. The practice of bringing meals from home is implemented in several schools, either as part of a formal school program or as an effort to support environmental awareness movements. One elementary school requires students to bring their meals and drinks in reusable tumblers to reduce plastic waste.

In contrast, another school organizes a monthly program introducing healthy foods through students' packed lunches. At the kindergarten level, some schools mandate students to bring meals from home on specific days, combined with communal eating programs involving parents taking turns preparing meals. Additionally, several schools enforce specific rules regarding the contents of students' lunches, such as prohibiting packaged snacks or foods with excessive additives, to encourage healthy eating habits from an early age.

Some schools have implemented food or snack provision programs for students. Several kindergartens provide lunch with a menu determined by the teacher. At the same time, snacks are obtained through vendors from students' parents, who supervise the quality and safety of the food ingredients used. On the other hand, several schools receive support from the government through the Pemberian Makanan Tambahan Anak Sekolah (PMT-AS) (Supplementary Food Program for School Children), which was implemented incidentally. Some schools also implement weekly programs, such as providing nutritious meals every Friday to promote healthy eating habits and encourage independent eating. Some institutions also provide healthy meals in bento boxes, funded by the government and distributed to students regularly. In several schools, fulfilling students' nutritional needs still relies on parental initiatives. One example is the "nutrition day" program, where

groups of parents take turns preparing and distributing meals to students on a designated day each week. Each class has a different "nutrition day" schedule based on mutual agreement. Various schools implement different food provision programs, from bringing meals from home and providing snacks to incidental government-supported programs.

These various approaches indicate the schools' commitment to promoting healthy eating, yet implementation remains complex due to students' preferences and external food environments.

In addition to the efforts made by schools and teachers, the presence of food sellers around the school also plays a role in shaping students' dietary habits. Some sellers even collaborate with teachers to align the food they offer with the principles of balanced nutrition. One seller emphasized their commitment to using fresh and natural ingredients.

"I don't store vegetables or use artificial seasoning. I cook fresh food every day using natural ingredients such as garlic, shallots, and salt." — Canteen food provider.

Menu adjustments are often made based on input from teachers or parents, reflecting a collaborative attempt to foster a healthier food environment. However, food sellers also face practical challenges. One provider shared their experience with students' lack of interest in healthy food.

"We try to offer healthy meals with vegetables and rice as suggested by the school. However, students prefer snacks like instant noodles or fried foods. Sometimes the healthier options we bring end up going to waste." — Canteen food provider.

Despite the efforts of food sellers to offer healthier options, students' low interest in nutritious meals remains a significant barrier. This challenge was also acknowledged by several teachers, who noted that although schools attempted to implement healthy food initiatives, the meals were often not well-received. Consequently, some school-based nutrition programs could not be maintained consistently.

"There is no specific program about healthy canteen in school, but school monitors. Although we don't have a healthy canteen program, there is

an agenda to have breakfast together once a week every Wednesday..." Teacher 9.

"In fact, the school tried to establish a regulation for canteens to sell full meals such as rice with vegetables and side dishes. The school also made the menu cycle for the canteen food providers. But students didn't like the menu so the program was not running well. So, after that, the school created a new program to have breakfast together once a week with the designated menu from school. In every class there is a student representative who is responsible for checking and listing the menu of the meal brought by the other students". Teacher 10.

School monitoring and evaluation of healthy school canteen

Through in-depth interviews, we concluded that not all canteens were regularly monitored and evaluated by the school itself or other parties outside the school. From the school side, monitoring and evaluation were done once in a month by the school principal and everyday by the teacher in charge. Not only did they check the expiration date of the food, but they also inspected the canteen's cleanliness. Feedback from students and student guardians played an important role when carrying out monitoring and evaluation. Some schools even implemented "Adiwiyata" regulations, focusing on minimizing food and drink waste. From other parties outside the school, monitoring and evaluation were also done by "Puskesmas" (integrated health center), a responsible health institution in an area to promote nutrition programs that went well, at least once in a year. On the other hand, there were some schools that did not have any plan yet to monitor and evaluate the school canteen. Monitoring and evaluation were one of many activities that required human resources as the second pillar of the healthy school canteen.

"The canteen in our school fully belongs to the school, so the controlling is done daily. Also, there is an evaluation forum with the canteen food providers every semester..." Teacher 9.

"Frequent monitoring has not been implemented and there is no written instruction about that. Teacher/school principal usually just checks around on types of food sold at the canteen daily". Canteen food provider 1.

"The school teacher who is responsible for the healthy canteen program will check the kitchen frequently. She usually observes the cooking process and the ingredients to ensure it follows the standard". Canteen food provider 2.

Schools' efforts to achieve safe, healthy, and nutritious food quality

As the fourth pillar of the healthy school canteen, one of the school's works to ensure the quality of the food was to enforce regulations for sellers who wanted to sell their goods in the canteen. The regulations were about the types of foods and drinks allowed to be sold, the packaging, how the sales system operated, and maintaining the canteen's cleanliness. Moreover, some schools have provided sufficient facilities and infrastructures such as clean water sources, washing bins, separated waste bins, clean tables and chairs, food shelves, and eating utensils and racks.

"...to ensure the canteen follows the healthy canteen guidance, the school provides bowls, plates, and a refrigerator at the canteen". Teacher 1.

"Infrastructure for the canteen is well enough; for example, the school provides a washing bin, hand soap, stove, and cleaning equipment". Canteen food provider 2.

"To be honest, the infrastructure provided by the school is not enough. But there is an improvement, we can feel that the school is trying to accommodate our suggestion". Canteen food provider 8.

Based on the in-depth interviews with the teachers, they mentioned how ideally a school should act to formulate policies supporting the actualization of a healthy school canteen. These include the prohibition of students buying food outside the school. Street vendors outside the school were still found in some study areas, but those were beyond the school's authority to control what they should sell to students. This also leads to discomfort for the sellers inside the school who tried to comply with the school canteen regulation that the food they sold was often not attractive products for the students and may generate economic losses (10).

Establishing more strict regulations for sellers, in particular, the vendors outside the

school area, and a restricted assortment of foods that do not follow regulations can be a possible opportunity to reach the aim of the healthy school canteen. Restricted food choices may encourage students to buy only available food provided by the canteen, which is better regarding food hygiene and nutrition value since schools implemented a regulation to not sell ultra-processed food and recommended home-cooked meals or nutrient-dense food. Limiting students' food options may influence their long-term behaviour in food choices and can be assumed as part of educating children to raise awareness of eating healthy foods (11,12). When discussing the strategy to improve the children's likeliness of healthy food, it is not only by reducing sugar, salt and fat levels but also by combining favourable and unfavourable food. Reducing sugar, salt and fat levels in food is generally well applied in many cases, so a new approach is needed, and combining two different types of foods into one menu is potentially applied. For instance, combining lasagna and eggplants (13). Another strategy to attract student interest in food is to modify the appearance of the food (14,15). School food providers can play with the colour, texture, and forms and not only focus on the ingredients and type of menu.

A study conducted in primary schools located in Bantul District, Indonesia found that school canteens with a formal decision letter for the canteen manager were 15 times more likely to be healthy than those who did not (16). A written rule or documented regulation may be necessary to force school food providers to ensure the hygiene and safety of the food products and show a strong commitment to all components of the school. It is in line with the finding reported in a study that food handlers at the canteen assumed that formal guidelines or policies by the school may be beneficial and improve the adherence of the food handlers (17). The documented regulation or collaboration between the school, the canteen vendors, and external stakeholders should be considered as implementing a healthy school canteen needs broader collaboration efforts. Teachers also mentioned how, ideally, the school would act to realize a healthy school canteen through stakeholder engagement, such as parents and the canteen vendors. It was also relevant to the first pillar of a healthy school canteen, "the

commitment and school management". Beyond that, the teachers mentioned the collaboration of the school with the government and non-government organizations. Interestingly, the previous study found it interesting that implementing guidelines for healthier canteens did not directly affect student behaviour (18). Therefore, regulating the policy involving only internal school management did not shape the student's healthy eating behaviour. The parent's role is crucial to ensure students apply value from school to home and vice versa. School efforts to shape student behaviour in consuming healthier food at school should be encouraged by the parents by nurturing the same habit at home. On the other hand, schools should create an environment that supports students in choosing healthy food. The responsibility must not come from a single component but a multi approach, a collaboration of principal, teachers, school food providers or tenants, and parents (14). A study in Malaysia reported that a school nutrition program (SNP) that incorporated nutrition education and a healthy school canteen environment had positive effects in improving eating behaviors, physical activity, and cognitive performance as well as in lowering body mass index-for-age (BAZ) among primary school children. This study stated that teachers and canteen food handlers also had major contributions to the success of the healthy school canteen implementation (22).

Besides regulation, teachers also mentioned that holding a program inside the school supporting a healthy school canteen implementation could also be the ideal school action.

One such initiative is school breakfast programs, which have been shown to enhance students' dietary habits while also contributing to higher attendance rates and academic performance. A study found that the implementation of the Universal-Free School Breakfast program was significantly associated with a reduction in student absenteeism, from an average of 11.5 days to 6.5 days per year, while also improving students' academic achievement by at least half a grade level in subjects like reading, mathematics, and science. These findings suggest that providing students with access to a nutritious breakfast at school can

reinforce the goals of a healthy school canteen by encouraging healthier food choices throughout the school day (19). In addition to school breakfast programs, other initiatives such as encouraging students to bring home-prepared meals have also been explored as a strategy to improve dietary habits among schoolchildren. A previous study about the school lunchbox program, which encourages students to bring home-prepared food to school, found that most students brought the lunchbox from home yet still bought the additional food from the school or shops around the school (18). School-aged children are at an age where their appetite grows, and the nutritional requirement increases due to growing factors and growth, so eating lunch only may still be insufficient. Having breakfast together has been implemented at several schools and can be a good approach to ensure students fulfill their nutritional needs in the morning since finding from a study showed that students frequently skip breakfast, resulting in their craving more food at the next mealtime and encouraging them to choose unhealthy food (20). Another program stated by the teacher was health monitoring by the Puskesmas workers. School canteens supervised by external offices, such as Puskesmas, were 2.9 times more likely to have a healthy canteen than those not supervised (16). "Puskesmas" also had a role in fostering healthy food. One of the actions was by providing training on making healthy food. It included aspects from the ingredients used, the manufacturing process, to the nutritional content (21). Supporting the implementation of a healthy school canteen also needs the facilities mentioned in the third pillar of the healthy school canteen.

The study was implemented at eleven schools with different scopes. Some of the schools were "Adiwiyata schools", which have a specific program regarding the sustainability of the environment and health implementation at school conducted by the government. This type of school obtained more exposure and became more familiar with the healthy canteen program, so it has a potential generalization bias. Moreover, since some schools mention collaboration and monitoring from the "Puskesmas", further study may involve representatives from the "Puskesmas" or any other organizations or community collaborating with the schools to

monitor the healthy canteen program. Further research is needed to investigate the role of school policies about student behavior and canteen handler experience in fostering a healthy canteen environment .

CONCLUSION AND RECOMMENDATION

The realization of an ideal healthy canteen in school must be supported comprehensively by the school itself. This includes the development of clear regulation and commitment to establish a structured and sustainable healthy canteen system. Moreover, frequent monitoring is key in managing long-term commitment to a healthy canteen implementation program. Besides, contributions from other parties, such as integrated health centres in the area, community, government, and non-government organisations, can be valuable support to achieve the goal of a healthy school as a place where students can grow safely and healthily.

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