Awareness, facilitators and barriers to policy implementation related to obesity prevention for primary school children in Malaysia

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ABSTRACT

Purpose. To assess the awareness, facilitators and barriers to policy implementation related to obesity prevention for primary school children.

Design. A cross-sectional study administered using an online questionnaire.

Setting. Conducted in 447 primary schools in a state in Malaysia.

Subjects. One school administrator from each school served as a subject.

Measures. The questionnaires consisted of 32 items on awareness, policy implementation; facilitators and barriers to policy implementation.

Analysis. Descriptive analysis was used to describe the awareness, facilitators and barriers of policies implementation. Association between schools’ characteristics and policy implementation was assessed using logistic regression.

Results. The majority (90%) of school administrators were aware of the policies. However, only 50% to 70% of schools had implemented the policies fully. Reported barriers were lack of equipment, insufficient training and limited time to complete implementation. Facilitators of policy implementation were commitment from the schools, staff members, students and canteen operators. Policy implementation was comparable in all school types and locality; except the policy on “Food and Drinks sold at the school canteens” was implemented by more rural compared to urban schools (Odds ratio 1.74, 95% Confidence Interval: 1.13, 2.69).

Conclusion. Majority of the school administrators were aware of the existing policies, however, the implementation was only satisfactory. The identified barriers to policy implementation were modifiable and thus the stakeholders should consider re-strategizing plans in overcoming them.
Keywords. school policies, school guidelines, facilitators, barriers, obesity, school children
INTRODUCTION

Overweight and obesity is a major public health problem in our country, Malaysia. In 2010, the prevalence of adult obesity in our country was ranked the first in South-East Asia and sixth in Asia\(^1\)\(^-\)\(^3\). There was a sevenfold increase in obesity from 1996 (4.4\%)\(^4\) to 2015 (33.4\%).\(^4\)\(^-\)\(^5\) The prevalence of childhood obesity (BMI for age >+2SD) in 2015 was 11.9\% (CI: 10.9-12.9).\(^5\) This trend is worrisome since Malaysia has a young age populations of 26\% \(^6\) and obesity is found to persist from childhood into adulthood.

In many countries, the rising prevalence of childhood obesity was recognized by their governments resulting in various initiatives and interventions implemented to promote healthy behavior among school children. Many national policies were specifically developed for school children, which had positive effects on their diet (e.g. the free flow of fresh fruits and vegetables in the school)\(^7\) and physical activities.\(^8\)\(^-\)\(^9\)

In view of the rising prevalence of obesity in our country, managing obesity among school children has been given a priority by the Ministry of Health.\(^10\) Many programs were introduced to implement various policies for school children such as the “Integrated School Health Program”, “Self-evaluation Program” and “School Health Promotion-Young Doctors Program.\(^11\)\(^-\)\(^16\) The Integrated School Health Program is implemented by the Ministry of Education in collaboration with the Ministry of Health to provide health services (such as the school health service, school dental service, and school environmental health service) to the school children. Self-evaluation program is
part of the initiatives under the implementation of Management of Healthy School Canteens guidelines to ensure that school canteen operators (who sell food and beverage at school canteens) provide safe and healthy meals for school children. The School Health Promotion-Young Doctors Program is part of health promotion initiatives in the school. Peer mentors were selected among the school children of Year 4, 5 and 6 as change agents in the schools to improve the students’ knowledge and skills. These “young doctors” will try to promote positive health behaviour among their own peers, school communities and family members.

The effectiveness of school-based policies (either written directives, documented programs, written guidelines) against childhood obesity depends on their implementation. Often, implementation is not optimal even when the policies are publicly mandated. Therefore, evaluation of policy implementation is essential. To date, only few studies have examined facilitators and barriers influencing the implementation of school-based obesity prevention policies. Therefore, the purpose of this study was to assess the awareness of the available related policies on obesity prevention for school children among the school administrators, the implementation status, and factors influencing its implementation.

METHODS

Policies are referred to written directives, guidelines, manuals and programs related to obesity prevention.
**Questionnaire development**

In-depth interviews (IDI) with key personnel were conducted by the principal investigator to identify the available policies related to obesity prevention for school children as well as to understand its process of implementation in Malaysia. The interviews were conducted from May to August 2014. The respondents were two policy makers from the Non-Communicable Disease division, Ministry of Health headquarters; seven school health team members (i.e. four medical doctors, two nutritionist and one school nurse) at district level and six school administrators from Malay-medium national primary schools (SK) (n=2) and non-Malay-medium primary schools (also known as vernacular schools) (n=4, two from SJKT and two SJKC respectively). The vernacular schools included the Tamil-medium national school (SJKT) and Chinese-medium national school (SJKC). The interviews were conducted at the interviewees’ premises to allow the interviewer to observe the actual environment and better understand any specific issues when they were raised.

Purposive sampling method was used in identifying and selecting participants for the IDIs. The IDIs were conducted using the guidelines designed by the research team. The guidelines consisted of 14 open-ended items with probing questions for a systematic interview (refer to appendix). The items included understanding the policies that are currently being implemented in primary schools, how policies were implemented and what were the factors that might facilitate or act as barriers to the implementation. Interviews were conducted until content saturation was achieved (when similar
comments were consistently repeated). Oral informed consents were given by the participants for permission to record all interviews. All tape recordings were transcribed verbatim. The transcriptions were imported into Nvivo7 for coding and analysis. Finally, the findings from the IDIs were used to design and develop an online questionnaire using the Google application. The created Google online questionnaire enabled us to compile the survey responses into the Excel spreadsheet for analysis.

The questionnaire included 32 items covering the topics on awareness, implementation process and factors that impeded or facilitated the implementation of the policy or guidelines. Awareness was measured by the responses of ‘yes, no, not sure”. The questions on implementation focused on items considered relevant to predicting the extent to which the school complied with the existing policies; while the questions on factors that facilitated or acted as barriers were based on the challenges faced in implementing the policies. The internal consistency (Cronbach alpha) of the questionnaire was 0.80.

The questionnaire was written in the national (Malay) language and was validated by three experts in the similar field of study for face and content validation. Pre-testing was carried out among 11 school administrators who were not involved in the study.

**Study design and Sampling Methods**

This was a cross-sectional study conducted from October 2014 to February 2015 involving all primary schools (attended by children age 7-12 years old) in the state of
Selangor Darul Ehsan. Universal sampling was carried out where all primary schools in the urban and rural areas of Selangor (n=641) were invited to participate.

**Data collection**

A self-administered online questionnaire was used to assess the respondents’ awareness on the existing policies related to obesity prevention among school children. All primary school administrators in Selangor were invited to participate in the study via emails and further followed up using official letters and telephone communication.

After agreement to participation was obtained, the school administrators (headmaster/assistance headmaster/physical education teacher) were briefed (via telephone communication) about the purpose of the research. Upon receiving verbal informed consent and verification of the schools’ email addresses, the questionnaire was emailed to the schools. The researcher made follow-up calls every two weeks to ensure the school administrators completed and returned the questionnaires.

**Statistical Analysis**

All compiled data in the Excel spreadsheet were exported into Statistical Package for the Social Sciences (SPSS) for Windows, version 22. Descriptive statistics were used to describe the awareness and factors that facilitated or acted as barriers to policy implementation. Logistic regression was used to examine the association between schools’ characteristics and policy implementation. The significant level was preset at p < 0.05.
**Ethics clearance**

Ethics clearance (Reference No: 989.27) was obtained from the University of Malaya Medical Centre Research Ethics Committee. Permission to conduct research at the schools was obtained from the Ministry of Education (Reference No: KP(BPPDP)603/5/JLD.13 (234). Informed consent was received from all the respondents.

**RESULTS**

The online survey was completed by 447 out of 641 school administrators, giving a response rate of 70%. Each school was represented by one respondent. Among the respondents, 56.6% were assistant headmasters, 36.9% were headmasters and 6.5% were physical education teachers. Among all the schools, 67.6%, 17.2%, and 15.2% were SK, SJKC and SJKT, respectively. Based on geographical location, rural and urban schools were 42.3% and 57.7%, respectively. There was no difference in school type and geographical location between the responded and non-responded schools.

**Awareness and Status of Policy Implementation**

The existing policies related to obesity prevention among school children were mainly developed by the Ministry of Education in collaboration with the Ministry of Health and local councils (Table 1). All national policies that were developed for the Ministry of Education were informed to all the government schools through circulars by their respective state education offices. Implementation refers to the execution of policies. There were six steps in the policy implementation identified during the IDIs. The
implementation of policies depends on the resources needed and availability of resources at schools. The timing of policy implementation varied. Some were implemented as soon as directives were given, such as healthy school canteen guidelines implemented by the canteen operators. However, some were implemented in the next academic year, such as “1 Sport 1 Student” when the school children were involved as there might be no vacant slots in the current school calendar. Monitoring of policy implementation was carried out by the stakeholders through annual meetings and written reports.

It is important for the implementers to be aware and get familiarized with the school-based-policies before any implementation process can be optimized. Figure 1 shows the level of awareness and status of full implementation of individual policies (P1 to P5) related to obesity prevention for school children. The majority of the respondents (96%) reported a good awareness and familiarity with the existing policies. However, the status of policy implementation was only acceptable, with P3 found to be highest (72%) followed by P1 (64.7%), P5 (56.6%), P2 (55.3%) and P4 (51%).

There was no difference in the status of policy implementation according to the types of schools (Table 2). Similarly, the rural and urban schools also showed no difference in the implementation of all policies, except for the Guidelines for Food and Drinks Sold
at the School Canteen (P3). Rural schools had higher odds of implementing the Guidelines for Food and Drinks Sold at the School Canteen (P3) than urban schools (OR: 1.74, 95% CI: 1.13, 2.69).

Table 3 shows the factors that facilitated or acted as the barriers to the implementation of the existing policies. Most of the school administrators reported that policy implementation was a priority (82.8%) and they had taken responsibility to implement the policies (71.1%). They also reported familiarity and had sufficient knowledge in the implementation process (60.6%). Overall, the school administrators had received good support from their staff (86.6%) and school canteen operators (81.7%) in policy implementation. They also received co-operation from the majority of their students (77.2%). Furthermore, 51.2% of the school administrators reported that their schools had sufficient funding to carry out the given mandate. Factors that acted as barriers to the implementation of the existing policies were lack of equipment (78.5%), followed by having limited time (71.8%), insufficient training (71.6%), no penalty given for non-compliance (61.1%), too much paperwork (60%) and lack of support from parents and community (51.7%).

DISCUSSION
We found that majority of the school administrators were familiar and understood the implementation process of the existing policies. However, only two policies; Policy 1 student 1 sport (P1) and Guidelines of Food and Beverage sold at the school canteen (P3) were implemented by more than 60% of the schools, which could be considered as satisfactory. It is difficult to get a hundred percent implementation of any policy. Durlak and colleague (2008) suggested that a perfect or near perfect policy implementation was unrealistic. Positive results to program adaptation have often been obtained with implementation levels around 60% to 80%, while no study has documented a 100% implementation.\textsuperscript{19} In our study, the implementation of other policies (P2, P4, and P5) was slightly lower than 60%. The implementation of the Guidelines in weight management of school children (P2) involved measurement of students’ BMI twice a year. However, issues with lack of equipment (weighing scale and stadiometer) and limited time had made its implementation difficult in some schools. In addition, the banning of the sales of food and beverages by mobile vendors outside the school perimeters (P4) needs the involvement and reinforcement of the local councils, while the School Health Promotion-Young Doctors Program (P5) was made optional for implementation by the authority.

We also found no difference in the status of implementation according to the location of schools, except for the policy on ‘Guidelines of Food and Beverage sold at the school canteen’ (P3). These guidelines aimed to guide the canteen operators and school administrators on the list of foods and beverages that are permitted, not encouraged and prohibited at the school canteens, and to provide information on the amount of energy in
food by displaying the total calories, as well as to highlight the methods of monitoring on selling food and drinks at the school canteens. These guidelines had been incorporated into the Healthy School Canteen Program and were distributed to all the schools in Malaysia. The canteen operators found the guidelines useful in preparing healthy meals for the school children. However, the foods and beverages recommended in the guidelines were not popular among the school children as these food and beverages tended to be lower in fat, sugar, and sodium. Therefore, canteen operators would tend to sell foods and beverages preferred by the school children, such as fast foods. The compliance to this policy (P3) was better at the rural compared to the urban schools since urban schools are usually located near the commercial areas which provide easy access to unhealthy food and snacks. With the high competition from the surrounding area and high demands from the school children, the urban school canteen operators may have opted to sell foods and beverages preferred by the school children. Although healthy food choices and eating behavior are incorporated in the school co-curriculum, the school authorities should reinforce its importance. In addition, it would be good if the government could subsidize healthy foods which are usually more expensive so that the canteen operators are ensured with better income. Furthermore, the schools are encouraged to ease the financial burden of the canteen operators by waiving or reducing the canteen premise rental or subsidize the price of healthy food choices such as whole-meal bread, fruits, vegetables and dairy products.

In this study, the co-operation from staff and school canteen operators in policy implementation was found to be above 80%. However, there was less support from the
Inter-sectoral cooperation is one of the key factors in successful policy implementation\textsuperscript{21}. Having parents to be actively involved would improve policy implementation. Parents need to be empowered through the Parents-Teachers Association that should promote and conduct school activities and programs related to healthy lifestyle. Although the school administrators showed their full commitment and had sufficient knowledge on policy implementation, they still need additional support in providing the facilities/equipment, as well as provide sufficient training to their staff. Moreover, the school administrators reported that the implementation of policies involved too much paperwork which increased their work burden in addition to the workload from their academic commitment. Similar results have also been reported by other studies which assessed the facilitators (e.g. leadership and effective communication)\textsuperscript{22} and barriers (e.g. parental support)\textsuperscript{23} of policy implementation.

We did not find funding to be a barrier to policy implementation. Most of the policies, except for P2, did not require financial assistance for implementation. Furthermore, most of the programs were supposed to be implemented by the school canteen operators. Identified factors that acted as barriers were modifiable and thus present clear opportunities for improvement in the implementation of policies. The issue on additional administrative work given to the teachers and time taken by them in recording the measurements of weight and height which then need to be submitted to the ministry could avoid duplication if the data could be directly keyed-in to an online system using a portable gadget. The issue of lacking in facilities and equipment raised
by the school administrators could be due to the poor maintenance of those facilities, which may be addressed by outsourcing its maintenance service. These recommendations could be considered by the policymakers in re-strategizing future planning.

Strengths and Limitations

This is the first study that assessed the implementation of related policies in Malaysia. It involved multiple stakeholders such as policymakers, school health team members, and school administrators which their views were included. On the other hand, this was a cross-sectional study, based upon perceptions of the respondents. In addition, we did not assess whether awareness and implementation of policies made a difference in children’s dietary and physical activity behaviors as well as the prevalence of obesity. However, our findings will assist researchers and policy makers in conducting further studies in improving the implementation of the current related policies and guidelines. Although only public schools from one state were studied, these schools were representative of schools from other states as the set-up of all the public schools in Malaysia is similar.

Conclusion

The majority of the school administrators were aware of the existing policies related to obesity prevention among primary school children; however, the implementation was only satisfactory. The identified barriers to policy implementation were modifiable and thus the stakeholders should consider re-strategizing plans in overcoming them.
SO WHAT? Implications for Health Promotion Practitioners and Researchers

What is already known on this topic?

The effectiveness of school-based policies against childhood obesity depends on their implementation. Therefore, evaluation of policy implementation is important. However, to date, only a few studies have examined the factors that facilitated or acted as barriers to the implementation of existing policies related to obesity prevention among school children.

What does this article add?

This study assessed and examined the facilitators/barriers to the implementation of existing policies related to obesity prevention among school children in primary schools in Malaysia.

What are the implications for health promotion practice and research?

Our study found that some of the identified factors were modifiable and thus present clear opportunities for improvement in the implementation stage.
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