A qualitative study to explore the current practices to curb obesity among secondary school students in Malaysia

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Abstract—Malaysia has the highest number of obesity cases in South-East Asia. The National Health and Morbidity Survey which was carried out in 2019 shows a startling statistic, in which 50.1% of Malaysians were either overweight or obese. The systematic review from the year of 1990 to 2014 shows an increasing prevalence of obesity among Malaysian secondary school students. This indicates that obesity or overweight develops gradually from childhood, in which an obese child could develop into an obese adult. The demand to develop and execute various practices to reduce obesity among secondary school students grows as the number of obesity cases continues to rise. Hence, this qualitative study of semi-structured interviews is undertaken to examine the current practices available in Malaysia to curb obesity among Malaysian secondary students.

Index Terms—Obesity, secondary students, current practices, Malaysia

I. INTRODUCTION

The term “obesity” is used to indicate the presence of excessive adipose tissue coexisting with some diseases. A man with 20-25% body fat, and a woman with 30% body fat is said to be obese [8]. The World Health Organization (WHO) defines an adult as obese if the Body Mass Index (BMI) is 30 or higher. On the other hand, a child of five to 19 years old with a BMI of more than two standard deviations above the WHO growth reference median is defined as obese [11]. The incidence of obesity among secondary school students was at 24.1% according to a study that was conducted in Selangor’s secondary schools. The male secondary school students are more obese compared to the female students. According to an analysis of the pattern of obesity incidence across the various ethnic groups, Malay students had the highest rates of obesity, followed by Indian and Chinese students [1]. Comprehensive research that was carried out from 1990 till 2014 found an upsurge in the prevalence of adolescent obesity in Malaysia [4].

II. LITERATURE REVIEW

Several health campaigns were carried out since 1991 till 2013 [3]. In 1991, Love Your Heart campaign was kick-started to create awareness among Malaysians on the importance of healthy heart by promoting healthy lifestyle, physical exercise, balanced diet and meeting appropriate nutritional needs [3]. In 1993, Clean Food Healthy Family campaign was implemented to expose the public to safe and clean method of handling food. More programmes went on with several other campaigns such as Healthy Children Pillar of the Nation’s Future in 1994 which served a purpose to send in the message to the children on the importance of optimal health, whereas in 1995 and 1996, the focus was on cancer awareness and diabetes prevention respectively [3]. Considering the significance of healthy eating habit and importance of physical exercise, the next two campaigns namely Eat for Health (1997) and Basic Health Exercise (1998) took off [3]. Preventing Injury and Promoting a Healthy Environment came soon after, to create mindfulness among public on the significance of family health and happiness [3]. In 2010, 10,000 Steps project was carried out to promote physical activeness among Malaysians [3]. There were many campaigns to promote health but unfortunately, there is no single campaign solely emphasising on the childhood obesity whereby all the three elements namely balanced diet, physical activeness and stress-free lifestyle are fully established and implemented [3].

In Kota Kinabalu, a marathon with a theme “#LessSugar because #ImSweetEnough” was carried out to promote healthy eating habits in order to curb obesity among children. Marianne Clark-Hattingh, UNICEF representative of Malaysia had stressed on the deleterious effect that obesity and overweight had on children, which indirectly causes negative impact on the development of nation, because these children are affected academically and socially due to their lower self-esteem [9]. Although this initiative of reducing sugar intake could be advantageous, other measures such as high-quality school meals and health education campaigns would be even more effective [7]. Several guidelines and strategies are available in Malaysia to tackle childhood obesity namely Global Strategy on Diet, Physical Activity and Health 2004, Action Plan for the Global Strategy for the Prevention and Control of Non-Communicable Disease 2008, Aerobic Exercise Programme, Weight Control Intervention Programme: Diet, Exercise and Physical Activities, Obesity Prevention plus Parenting Support, Planet Health Programme: Diet and Physical Activities, “Jom” Mama Initiatives, Guideline on Marketing of Food and Drinks for Children, Guideline on Enforcement of the Prohibition of Selling Food and Drinks outside the School Premise, Outline on the Management of a Healthy Canteen, One Child One Sport, Obesity Awareness Campaign Programme 2008, The Active and Productive Community Programme, Guideline on the Implementation of Healthy Food and Drinks in the Government Service, Servings of Healthy Food during Meeting, 10,000 Steps a Day, Clinical Practice Guideline Management of Obesity 2004, My Body Fit and Fabulous (My BFF) and National Strategic Plan (NSPNCD 2010-2014) [10]. Although there are several national guidelines and strategies available, some studies conducted in Massachusetts and Malaysia produced a result which indicates that the school-based intervention programme has had a positive impact in managing and reducing obesity. The researchers had suggested that the Ministry of Health should identify the potential role that Malaysian schools have in curbing obesity among school children [10].
National Physical Fitness Standard for Malaysian School Students (SEGAK) was introduced by Ministry of Education (MOE) in 2005 to be conducted among Year 4 to Year 11 students. SEGAK is an assessment created to assist learners or students to assess their state of fitness, as well as to monitor their BMI. The study which was conducted in Kedah showed that the teachers contracted to the truth that SEGAK will be more efficient in terms of its implementation and impact, if it is shepherded by experts who are skilled and educated in that field [5]. Currently, the teachers who are carrying out the tests were trained by MOE but their measurement varies a little bit compared to those measured by experts, and this is because many teachers had to unlearn and relearn the skills required for SEGAK test, due to the fact that they have different educational background [5]. On the other hand, students are aware of the existence of SEGAK test in their school but claimed that they did not fully understand the impact that SEGAK has had on their health apart from the scoring purposes [5].

III. RESEARCH METHOD

Five teachers, parents, students and health officials were interviewed to collect information related to current practices in Malaysia to reduce obesity cases among secondary school students. The parents, students and teachers from a private school, and health officials from several private medical centres in Negeri Sembilan have volunteered for the study. Semi-structured in-depth interview was carried out through 9 stages namely, Stage 1: determining the purpose and scope of the study, Stage 2: identifying participants, Stage 3: considering ethical issues and showing respect, Stage 4: planning logistics and testing equipment, getting informed written consent, decide interview times and venue, Stage 5: developing semi-structured interview guide, Stage 6: listening carefully and showing respect towards the information shared, Stage 7: conducting the semi-structured interview privately with a non-judgemental attitude, Stage 8: taking notes through reflection, and Stage 9: analysing the data and carrying out thematic analysis [2]. The thematic analysis of the qualitative semi-structured interview was carried out in 6 stages namely, Stage 1: reading and re-reading the prepared transcripts and writing preliminary thoughts, Stage 2: generating codes relevant to the purpose of study, Stage 3: generating themes by identifying the patterns, Stage 4: revising the themes to support the purpose of the study, Stage 5: defining themes by generating the thematic map, and Stage 6: scripting the report [6].

IV. RESULTS AND DISCUSSION

Profile

Five medical practitioners, students, teachers and parents respectively took part in the semi-structured interview. Key Informant 1 with the nickname, Dr Nick is a medical doctor who is working as a general practitioner. Key Informant 2 with the nickname Dr Ella, is also a medical doctor who is working in a private medical centre. Key Informant 3 with the nickname, Dr Tim, had worked in various government hospitals and currently working in a private medical centre. Key Informant 4 with the nickname Dr Sarah had working experiences both in government hospitals and private medical centres. Key Informant 5 with the nickname, Dr Bern is now practising as a medical practitioner in a private medical centre. Key Informant 6, with the nickname Mawar, is a primary school teacher who had 10 years of teaching experience. Key Informant 7 with the nickname Tanjung, is a teacher cum school counsellor with the working experience of 10 years. Key Informant 8, with the nickname Elsa, is a science teacher, who has experiences teaching in both private and international schools for more than 5 years. Key Informant 9, with the nickname Amy, has working experiences of more than 6 years in government and private schools. Key Informant 10, with the nickname Anna had been teaching for almost 6 years. Key Informant 11, with the nickname Jenny is a parent, who is doing business. Key Informant 12, with the nickname Ethan is a 17-year-old student. Key Informant 13, with the nickname Chan is a 16-year-old student. Key Informant 14 with the nickname Cindy is a parent who is working as an admin manager. Key Informant 15, with the nickname, Mark is a 16-year-old student. Key Informant 16 is a parent, with the nickname Merry. Key Informant 17 with the nickname Jane, is a parent who is also a businesswoman. Key Informant 18 with the nickname Jess is a 16-year-old student. Key Informant 19, with the nickname Wick, is a 16-year-old student. Key Informant 20, with the nickname Sally is a parent who is a housewife.

Practices to Create Awareness

Campaigns, promoting sport activities, online health seminars, Healthy Kids Programme, health awareness programmes of the Ministry of Education (MOE), 3K (Kebersihan, Kesihatan dan Keselamatan or in English, Cleanliness, Healthy and Safety) programme, face-to-face health seminars, aerobic exercise programmes, obesity programmes, 8-hour hunger programme, awareness initiatives through social media and Tabata programme, are the examples of practices that were carried out to create awareness among the secondary school students. These practices would be able to teach students on how to keep their body healthy, and to prevent obesity. Ministry of Health (MOH) does carry out some mobile health awareness campaigns but they seemed to be a little sporadic, as many states nationwide are not practically included in such campaigns. Dr Nick has stated “In fact, I know that Ministry of Health sometimes do have mobile health awareness campaign from time to time, but I think it’s not so well rounded to cover nationwide actually.”

At times, health authorities from the Health District Office, would conduct campaigns in which they give talks about obesity. Ministry of Youth and Sports (KBS) on the other hand organises various sport activities for students to participate. Dr Nick has stated “Ministry of Youth and Sports, I think they are also organising from time to time some sport activities, to involve more people doing sports.” The trend has changed nowadays, in which people are more inclined to online programmes and seminars to gain or create awareness. As such, some doctors even create channels in YouTube to provide online seminars or talks. Some even do it through Google Meet sessions. Through such actions, not only the students but even the whole society is exposed to relevant information related to obesity. Dr Ella has stated
“I think nowadays there are a lot of programmes, which mostly are online. There are a lot of school talks, as well as YouTube video channels. Some doctors, they actually give talks through YouTube and also give talk through Google meet with the students and the public.”

There was also a programme called Healthy Kids Programme, which was organised by Nestle to create awareness on obesity among the students. This programme provided students with the health intervention module to be implemented for a certain period of time. The students get to use these educational modules to enhance their understanding. After implementation, the students were assessed in terms of their understanding and knowledge. In fact, through this programme, healthy management of school canteen has been encouraged too. Dr Sarah has stated “There’s a Healthy Kids programme by Nestle. They did use educational modules throughout the semester and then they reassess the student’s knowledge and then there’s also management of healthy school canteen.” The Ministry of Education had also organised an awareness programme, in which the parents were educated adequately so that they can monitor their child at home, especially those involve diet plan and control. Through this programme, the parents are exposed to some information related to obesity. Tanjung has stated “There is also a programme where the Ministry of Education, share information with the parents, where the parents are encouraged to monitor their children's diet at home.”

Face-to-face seminars are sometimes carried out in various schools at certain months, where the experts will visit different schools, giving talks and providing flyers for the students. Such seminars are sometimes conducted for a period of one month in which students are educated through talks and flyers distributions. Anna has stated “I know the programmes that the government actually does, just like they have a whole month or something, where their own people will just go to different schools and then give talks. They give up flyers.” Apparently, there was once where obesity programme was conducted in some selected primary schools 4 to 5 years back. Such programme would expose students to obesity only if they choose to attend. As this programme is not compulsory, students have the alternatives in which they can choose not to attend the programme. Chan has stated “At my primary school, they did carry out a programme on obesity but I didn’t join. It was about 4-5 years ago. Some of my friends join that programme but not me.” 8-hour hunger programme was conducted in some of the schools. This programme would restrict students from excess eating. This might prevent obesity although it might not be true in all cases. Mark has stated “Earlier in our school, we had this 8-hour hunger programme in which students did not eat for almost 8 hours. This maybe can reduce obesity, I think.”

Social media plays an important role as well in enhancing awareness with regard to effects and prevention of obesity among the secondary school students. Such an enhanced awareness would assist to reduce the prevalence of obesity among the students. Ideas related to prevention and effects of obesity are posted in Facebook sometimes. As most of the students have Facebook accounts, they would be exposed to the preventive strategies of obesity, only if ideas related to the preventive strategies are accurately shared. Some account holders of Instagram had advertised healthy foods that could be consumed in order to prevent obesity. Such social media efforts could be useful when it comes to prevention of obesity among youngsters, who are more inclined towards social media networking activities. Mark has stated

“I think social media helps to avoid obesity especially, when they post ideas on the ways to prevent obesity and effects of obesity. Through this, people can understand why obesity should be prevented. I have seen some posts in Facebook talking about how to prevent obesity. In fact, through Instagram, some people sell foods to avoid obesity.”

Tabata programme is another form of programme, that would cultivate the culture of being physically active among the secondary school students, by promoting intensive physical exercises. Wick has stated “I have heard about Tabata in which students are encouraged to do physical exercise.” Nevertheless, there has been also in the past, whereby students carry out exercises in schools through the Aerobic Exercise Programme. Anna has stated “Sometimes the school also does aerobic exercises. Because during my time also, those kinds of programmes used to happen in school.” There is also a programme termed 3K organised in government schools. This programme fosters the importance of cleanliness, maintaining health and instilling safety values among the students. Amy has stated “At government schools, they have something called 3K programme.”

School Curriculum Practices
BMI inclusion in report card, teaching and learning processes, Physical Education and Health Education (PIDK), SEGAK, One Child One Sport policy, school sports competition and co-curricular activities in schools, are the examples of school curriculum practices that are done to curb obesity among the secondary school students. Incorporating BMI results in the school academic report cards are indeed a good effort to enable parents to monitor their children’s BMI at home. With the students’ BMI recorded in the students’ report cards, the parents can detect their children’s body weight status and if possible, they could take some initiatives to improve their children’s BMI. Dr Sarah has stated “There was a BMI programme, which they ensure that everyone’s BMI is recorded especially in the report cards, so that the parents know their condition.” Students spent most of their time at school whereby they are involved in the process of teaching and learning. Students learn about the nutritional values of foods and how consumption of food exceeding their daily calorific requirement would lead to obesity. Such information is included in their textbooks. Nevertheless, students are also exposed to some risk factors contributing to obesity. Certain schools encourage students to be physically active by organising events like daily morning aerobic exercises. The students are encouraged to do aerobic exercises before they start their lessons. Dr Bern has stated
“They also include some nutritional facts in their textbook. They can learn, about what are actually the contributing factors, in developing obesity, they can act accordingly. And they also do some aerobic exercise in the morning before the class started in certain school.”

Students are also exposed to some ways or strategies, that they can use to maintain their body weight during their science lessons. Mark has stated “Students also learn how to maintain their body weight during science lessons.”. When students are in lower secondary forms, students are taught about obesity and balanced diet during their science lessons. Jess has stated “During science lessons, if I am not mistaken when I was in Form 2 or 3, we were taught about obesity and balanced diet.” Nevertheless, PJDK also plays an important role in educating children about obesity. During PJDK lessons, students are encouraged to carry out physical exercises. PJDK lessons have health and fitness elements incorporated in it, which helps students to keep their body fit and healthy. Students have PJDK lessons for at least 1 hour per week at school to promote physical activeness, in which students are allowed to carry out their favourite sports. Ethan has stated “They give some physical activities for students to do at schools. We have 1 hour of Physical Education (PE) lesson per week. During that 1-hour PE lesson, we can play sports like badminton. This can reduce body weight.”

SEGAK is also carried out in schools as one of the assessment requirements for students. SEGAK assesses students’ fitness level, BMI, body movement, physical conditions and physical abilities. The results are often recorded and documented. The data would be able to show the body weight status among the secondary school students. The data can be used to monitor students’ lifestyle as an initiative to curb obesity. Anyway, the SEGAK score is not utilised efficiently, unless the students take control of their lifestyle, by monitoring their daily diet and physical activeness consistently. SEGAK would be able to inform students about their body weight status. If students take action to improve their BMI, then it might help to reduce obesity among the secondary school students. Chan has stated “SEGAK is a test to check how much exercise you can do. It can be used to monitor BMI but the students have to consider some actions after seeing their results, if they want their score to be better.” Elsa has stated “SEGAK is one type of test or measurement to see the physical abilities or conditions of primary and secondary students. From there, they can see how many students are obese or overweight.”

One Child One Sport policy is a government initiative to promote active lifestyle among students. One particular day is chosen per week, whereby students wear their sports attire the whole day, carrying out their favourite physical exercise for a fixed period of time. The physical exercises be it aerobic exercise or any forms of physical activities that students prefer, are carried out usually in the morning before they start with their lessons. Mawar has stated “Government had encouraged healthy lifestyle through the One Child One Sport policy. They call it 1M1S. This is to encourage students to wear sports attire on certain days and they carry out sports in the morning. It could be aerobic exercise or any sports that the students like. Students do sports before the lessons starts.”

There are also various sports competitions organised by the government schools that encourage the participation of secondary school students. These competitions may draw interest among some of the students to be physically active. Elsa has stated “In government schools, they encourage students to participate in sports competitions.” Co-curricular activities on the other hand, could promote physical activeness among the students. All secondary school students are required to choose at least 1 sport for their co-curricular or extra-curricular activities. With such compulsory requirement of co-curricular practices, students are left with no choice other than getting themselves involved in sports. During the co-curricular sessions, students would be engaged in sports of their interest for at least 1 hour. Mark has stated “The school also provide extracurricular activities in which students are required to do at least 1 sport during the extracurricular activity sessions. During these sports sessions, students can carry out physical activities.”

Health Related Practices

Health screenings and medical consultations are the two common initiatives taken to curb obesity among secondary school students. Health screenings are provided in the clinics for any age groups. Some secondary students are also benefiting from such screenings. They get to check their blood sugar level, blood cholesterol level, body weight and BMI. This might enhance awareness among secondary school students on keeping their body healthy and fit. Dr Ella has stated “A lot of them, they actually come for blood screening, to check their cholesterol level, how it’s their sugar level and also, they would come and check for body mass, body weight and also their BMI basically.”

Secondary school students are incorporated in a medical based preventive setting, in which they are provided with medical consultations, as they visit several multidisciplinary stations. These stations are occupied by various medical experts who are trained to provide appropriate advices and suggestions. A team formed by the Ministry of Health personnel, would practically lead such consultation sessions. Medical doctors would basically initiate the consultation session, by counselling the students on the complications of obesity and some policies available to combat obesity. After seen by the medical doctors, students will visit the next station, meeting a medical nurse. The medical nurse will start off with an act of building a good rapport with the students. The nurse then will analyse the students’ interest and desire, on whether or not they intend to reduce their body weight. It is seemingly quite challenging to alter the behaviour of the secondary school students compared to the primary school students. This is when the psychologist come into the picture, taking responsibility in evaluating and providing feedback to these students through positive reinforcement. After that, the students will visit another station, in which a nurse trained in obesity together with a dietician would
analyse students’ calorie intake. After analysing the individual calorie intake of a student, they will suggest a suitable dietary plan for this student. Finally, these students will be advised on the physical exercises that they need to carry out. Suggestions related to the frequency, duration and intensity of the physical activities would be provided as a guideline for the students to adhere. Dr Tim has stated

“In clinical setting, they do have a multi-disciplinary approach. Our patient will go through stations. For example, they will meet our medical doctors first, where the doctor will actually see, counsel regarding the complication, address the policy for the complications of obesity. Which is subsequently followed by a nurse where they actually will give a closer relationship with the patient in trying to find their understanding in terms of, whether do they have the will to reduce their weight rather than forcing them, because the behavioural change is more difficult in secondary school age compared to primary school age. Psychology team will actually comment and evaluate as well, because the positive reinforcement is better than negative reinforcement. At technical and clinical station, our obesity nurse and dietician calculate the required calorie for that child. They introduce the relevant diet that is suitable for the patient rather than just introducing blindly to them. And lastly, it will be the exercise prescription. Exercise prescription is very vital because study actually shows persistent training is more important and should be done greatly. This actually involves a few factors which is frequency, duration, and training persistence.”

Collaborative Efforts by Ministry of Education (MOE) and Ministry of Health (MOH)

Outreach programmes, Obesity Run programme, school visits by health clinics personnel, Health Youth Programme, collaborative campaigns and health module intervention are some examples of collaborative effort practices, which were carried out to curb obesity among secondary school students. Outreach programmes are done by either government health clinics or private clinics. Medical officials will carry out the outreach health screening programmes among the students at the schools. Some incidental findings of obesity may come about through this outreach screening programme. Only through such services, the health status of students could be identified and monitored. Dr Ella has stated

“Some of the clinics, they actually go for outreach programme. Meaning they do health screening in schools itself. A lot of abnormalities are actually incidental findings through the blood reports. Health screenings actually are done in schools by either hospitals or health clinics or even some private sectors.”

Paediatric department at times carry out an Obesity Run programme. This programme is a weight loss programme organised collectively by paediatricians, dieticians and nurses trained in obesity management. Around twenty to thirty participants will be recruited for the programme, though it seems a little difficult to get the students involved in such programmes. This Obesity Run programme is carried out during the school breaks. Recruited student participants will be brought to an outdoor based programme, in which some activities are carried out to benefit the students. The students will be exposed to weight target setting techniques, apart from being counselled by a dietician with regard to their diet management plan. Students will camp out for about 5 days in which they undergo pre-evaluation process before they start off with the programme. After they complete the programme sessions, they will undergo a post-evaluation process. This most probably would help in the process of measuring the impact of the programme implemented. Dr Tim has stated

“In the hospital where I used to practice in Maar, programmes used to be run by paediatric department, we have this thing called Obesity Run. It is a weight loss programme which is led by our paediatrician, dietician and staff nurse, which was actually trained in this obesity management. They will try to recruit twenty to thirty candidates because it’s difficult to actually recruit them. Most of the time, it’s actually done during school breaks. They go for outdoor activity programme, dietary counselling, and then they set a target goal. It's more like a camp rather than a programme. They usually join the programme for 5 days. We have the pre- and post-evaluation after the event.”

Doctors and nurses are sent to schools for a visit. Some government health clinics and private clinics are taking constant initiatives to send their doctors and nurses to the schools, with an intention to create awareness among the students. Such awareness is very essential for students. When the students are aware of pertinent details about obesity, they would seek doctors’ and nurses’ advice not only at schools, but also by visiting the health clinics by themselves. When school visits are done constantly, students could be allured to go to the clinics for further screening and action. Students need to be told about health, otherwise they would take things for granted. Dr Tim has stated

“In a health clinic setting, they do actually send doctors and nurses for school programmes. Where they will send us along with our nurses and assistant, to basically give awareness. Once they have this awareness, then they will actually have the will to come to health clinics. At the clinic, we can give more detailed idea regarding what we can offer for obesity.”

Health Youth Programme is a teenage health programme, which is carried out in schools, targeting mainly the secondary school students. This programme is carried out by the primary care centre under the Ministry of Health. Through this programme, students are taught on physical activities and counselled on food consumption. The family members are counselled too. Further screenings will be carried out on the students, before additional decisions on whether referrals are needed or not, are made. Dr Sarah has stated “In primary care under Ministry of Health, the ones that I know are a few like the Health Youth Programme. It involves everything, such as physical activity, food counselling, family counselling, screening and referral.” Some campaigns are done
collaboratively by the Ministry of Health together with the Ministry of Education. Ministry of Health has exposed us to healthy eating habits such as the healthy plate system, which is called Quarter-Quarter-Half plate system. This healthy plate system is introduced by the Ministry of Health, but it was incorporated into the Malaysian school curriculum. With this effort, students would be better exposed to healthy eating habit. Some physical activities are implemented in schools as sports programmes or during co-curricular sessions, after considering the encouragement and reinforcement given by the Ministry of Health. Some of the elements in the national curriculum are basically inspired by the Ministry of Health. Tanjung has stated

“There are a few campaigns that has been done by the Ministry of Health and together with the Ministry of Education as well. The Ministry of Health has been like, talking a lot about how we supposed to take our diet, they call it the programme, Quarter-Quarter-Half. If I'm not mistaken it is about how we supposed to have the amount of food on our plates and then I think they are also giving a lot of encouragement and also set of programmes for students to do in school, through their physical activities, sports programme, and also their co-curriculum.”

There was indeed a module intervention in which the Ministry of Health had worked closely with the Ministry of Education, to set a module to be implemented in schools. This module was created for the physical educators in schools to instigate healthy lifestyle among students in the schools. This module served as a guideline for the physical educators to monitor and control their students’ dietary intake. Physical educators are required to advise, guide and support students in order for them to monitor their diet both in school and home. As such, students would be able to lead a healthier lifestyle. Tanjung has stated

“I come across this one module where Ministry of Health together with the Ministry of Education, created this module, for the PE teachers, in school, as a guideline for the PE teachers in school to monitor the students diet programme. The PE teachers, as part of their syllabus, supposed to monitor the students’ diet at home and also in school, and then encouraging them to take a healthier food. And also, healthier lifestyle.”

Food Related Practices

Healthy foods are required to be served in the schools. There are some foods which are banned to be sold in schools. Only certain kinds of foods are allowed to be sold in schools. Dr Sarah has stated “There are the type of foods allowed to be sold and then food that are not recommended and foods that are not allowed to be sold, in the school canteens.” Schools should adhere to the canteen guideline policies when they handle and sell the food. Ministry of Education monitors the nature of foods sold in school canteens. School canteen operators are required to follow and adhere to the guidelines provided, in order for them to provide healthier food options to the students. Foods that contain artificial colouring or junk foods are not allowed to be sold in schools. Tanjung has stated

“Ministry of Education is monitoring the food that should be sold or not supposed to be sold in the school canteen. The school canteen operators supposed to follow certain guidelines that has been set and they are supposed to sell more healthy food and they're not allowed to sell any junk food, or any food that contain a lot of maybe colouring or stuff like that.”

Snacks, chips, candies and other unhealthy foods are also prohibited from being sold in schools. Fried foods are also minimised in schools. Elsa has stated “They actually try to offer more healthy foods. It means no junk foods or snacks like chips and candy. They try to minimise the fried food.”

There are also healthy food programmes implemented in certain government schools. Amy has stated “At government schools, they also have healthy food programmes.” The school management also plays an important role in managing and controlling the food sold in the school canteen. Only healthy foods are allowed to be sold in the canteen. Unhealthy foods like French fries and nuggets are prohibited. Jenny has stated “I think the foods sold in canteen is controlled by the school management, hence the foods served in schools should be healthy. So far, in the school canteen, fast-foods like French fries and nuggets are not sold”. Canteen operators are required to prepare students’ individual diet based on students’ daily caloric requirement. They are not allowed to sell prohibited foods like sausages and nuggets. The food sold in the school canteen is regulated by the government, and all the school canteen operators are bound by the rules set by the government. Only healthy foods are to be sold in the school canteen. Merry has stated

“Malaysian government has prohibited the selling of unhealthy foods such as hotdogs and nuggets at school canteen. The canteen operators are required to prepare foods based on the daily calorie requirement of the students. Government had controlled the food served in schools. I think the canteen operators obliged to provide healthy foods at schools.”

Nevertheless, the foods sold in the school canteens should be a balanced diet, meeting the students’ daily nutrient requirement. Vegetables, meats and other food products that contain carbohydrates, vitamins and other essential nutrients are sold in the school canteen following a well-balanced ratio. This balanced diet will supply adequate nutrients to the students for them to carry out their daily life activities. Mark has stated

“Some schools serve balanced diet and it is quite nice. They serve meat and vegetables as the side dish at school. I think it is balanced diet. When the food is balanced, we can get all the common nutrients like carbohydrates, vitamins and other nutrients needed by the body.”
V. CONCLUSION
Numerous strategies were employed to reduce obesity among secondary school students. Some programmes target on the act of promoting healthy eating among secondary school students, while others target on the act of encouraging physical activity. Additionally, there were procedures to raise awareness among secondary school students through formal education, in which students are exposed to obesity issues and supervised through SEGAK and curriculum implementation. It's interesting to note that the Ministry of Education and the Ministry of Health have frequently worked together to take various steps to reduce obesity among secondary school students. Despite numerous initiatives, there is an increase in obesity cases among Malaysian students, therefore, more research on the causes of obesity among secondary school students in Malaysia should be conducted.

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