

# THE FIGHT AGAINST OBESITY IN SINGAPORE

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As in most developing countries, in the post-war years from the 1950s-1960s, Singapore faced many problems, including poverty, overcrowding, lack of hygiene and malnutrition. With Singapore's independence in 1965, the new government which came into place took on the role of systematically improving the standards of living through health awareness and health education, nutrition, the creation of school health teams, and the improvement of pediatric services. This was so effective that there was a change in Singapore's epidemiological pattern. From being faced with the earlier problems of malnutrition and infectious diseases, Singapore then encountered the problem of obesity from the 1980s to date.

Life in modern Singapore has become increasingly fast-paced with many food options, leading to the rising prevalence of obesity in Singapore over the past 35 years (Loke *et al*, 2008). Sixty percent of Singaporeans eat out as often as 4 times per weeks, with 70% exceeding their caloric requirements. Singaporeans are generally less physically active than previously. The prevalence of obesity in 6-7 year olds has increased 9 fold between 1976 and 2006, from 1.4% to 12.7%. This value in 11-12 year olds has similarly increased from 2.2% to 15.9%, a 7 fold increase (Loke *et al*, 2008). The National Health Survey looked at the prevalence of adults with a

body mass index (BMI) of more than 30 kg/m<sup>2</sup> and found that in 2004 this value of 6.9% had increased by 1.6 fold to 10.8% by 2010 (Vee, 2010).

In general, Asians tend to have a lower BMI for the same percentage body fat. This means that in Asians, the risks of complications for obesity occur at a lower BMI. For example, for Asian males to achieve 25% body fat, the BMI needs to be 23.7 kg/m<sup>2</sup> whereas in Europeans, this value is 30.0 kg/m<sup>2</sup>. Similarly for females, to achieve a 30% body fat, Asian females need to have a BMI for 21.2 kg/m<sup>2</sup>, whereas this value is 30.0 kg/m<sup>2</sup> in Europeans (Wang *et al*, 1996).

## **The fight against obesity in Singapore**

In 1992, the prevalence of overweight students whose BMI was more than the 90<sup>th</sup> percentile was 14%. This value continually reduced to 9.9% in 1997. (Institute of Health, personal communication). The prevalence has remained approximately at the same percentage to date, being contributed by the health strategies employed in Singapore.

At 18 years of age, every Singaporean male must enlist into the army for 2 ½ years. During the 1980s-1990s, it was realized that there were increasing numbers of males conscripted for national service who were obese, and thus deemed unfit for combat service. These obese enlistees

were relegated to vocational service. Because of this, the government set up a National Committee in 1991 to review the entire national health plan. In 1992, the National Healthy Lifestyle Program which was launched, spearheaded national strategies to control obesity through public educational campaigns focused on the benefits of physical activity and healthy eating. In line with this strategy, the Health Promotion Board was set up, with support from the Ministry of Health. This board developed programs for different segments of the population, conducted at schools, workplaces and communities. One of their first projects was to design national health promotion policies. One example of this was the National Dietary and Physical Activity Guidelines, which were the official health promotion guidelines for Singapore, with separate guidelines for adults and children. These guidelines formed the basis of all subsequent health promotion programs.

Following this, the National Awards and Funding Schemes were introduced, such as the CHERISH award for schools in 2000, which stands for Championing Efforts Resulting in Improved School Health awards. This award program was implemented in primary and secondary schools, junior colleges and academic institutions. It recognized schools with comprehensive health promotion programs for staff and students. To date, 80% of Singapore schools have received the CHERISH award. After receiving the CHERISH award, if schools demonstrate an improvement in their status, they are offered a Health Promotion Grant, which encourages schools to sustain their health promotion efforts. Schools are reimbursed up to 50% of the total cost of their health

promotion programs, with a maximum payout of SGD5,000 (Soon *et al*, 2008).

It was then realized that 60% of Singaporeans > 15 years of age constitute the workforce. It was therefore very important to make the workplace an effective setting to promote the health and well-being of employees. As such, Workplace Health Promotion (WHP) programs were introduced in 2001, offering any organization a grant of SGD5,000 to develop a WHP program, which can be used for any health education purpose or to purchase health related equipment (Soon *et al*, 2008). The next step taken was to create supportive environments. At the school level, the Model School Tuckshop Program (MSTP) was created in 2003, which increased access to healthier food choices in schools.

The Health Promotion Board provided the schools with healthier food service guidelines to limit the students' intake of fat, salt and sugar. Examples of this would be to limit the sale of deep fried food to once a week and having at least 2 working water coolers per school. Teams of nutritionists were sent to visit the schools to evaluate adherence to the guidelines. Schools which were found to adhere to it were offered the prestigious MSTP status. To date, 74% of schools have achieved MSTP status.

The program has also gone a step forward by offering culinary training workshops to educate tuckshop vendors to change their menus and prepare healthier food choices. In 2011, the health promoting school canteen program was launched, where dieticians and chefs came to teach canteen vendors how to cook healthy set meals of the right portions and how to make

the food to look appetizing. Some schools had lunch set meals with bento boxes, offering noodles or rice dishes in 4 food groups – carbohydrates, proteins, fruits, and vegetables – all cooked with reduced salt and oil (Soon *et al*, 2008).

Another branch focusing on physical activity was launched, called the Trim and Fit (TAF) Program in 1992. The aim was to improve the physical fitness of students and reduce the overall prevalence of overweight students. The main features of the TAF Program were healthy nutrition and regular physical activity.

All schools were equipped with sports facilities, outdoor fitness stations, and health and fitness rooms. A survey comparing students in 1993 and 2006 found that the TAF program was successful in increasing physical fitness levels and reducing obesity levels of school children and adolescents in Singapore. Research demonstrated that 61.5% of students passed the physical fitness test in 1993, which increased to 80.5% in 2006. The percentage of overweight students fell from 11.7% in 1993 to 9.5% in 2006 (Soon *et al*, 2008).

Spurred by the success in the schools, a similar program at the workplace called the Healthier Canteen Certification Program was adopted in 2006. This encouraged adoption of healthier dietary practices by appointing health facilitators and canteen vendors to work closely together with Health Promotion Board nutritionists in implementing and driving the program. Most importantly, the Health Promotion Board started a Community Wide Healthy Hawker Program in 2006. Hawkers in Singapore sell quick, affordable meals, but these meals are not always balanced and

often laden with saturated fat and salt. The program encouraged hawkers to prepare dishes with healthier ingredients without compromising taste or cost. For example, they substituted regular noodles with wholegrain noodles, white rice with brown rice and used less salt, oil and saturated fats in their food. The hawkers were also encouraged to sell drinks with less sugar, which were actually much cheaper.

The program provided incentives to the vendors to switch to healthier options, such as using cooking oils with lower percentages of saturated fats and using low fat milk instead of coconut milk. The HPB subsidized the costs of healthier ingredients - for example, they absorbed 10% of the cost of healthier cooking oils. Participating stalls were given the privilege of displaying the “Healthier Choice Symbol” (HCS) sticker on their Food Certificate and on their stalls. The number of participating stalls has increased from 32 in 2006 to 800 to date. There were also public education campaigns encouraging Singaporeans to choose these stalls. Politicians supported these healthy cooking programs. Because of its great success, the healthier choice symbol initiative spread to supermarkets and restaurants. To improve knowledge and awareness of healthier products, a sticker was placed on packaged foods and on menus in restaurants to show that these products contained less sugar, salt and saturated fat and more fiber and calcium. These products had to meet a strict criteria by the HPB to ‘earn’ the sticker.

Seventy percent of the community used the sticker to make purchasing decisions on almost 2,800 products (Soon *et al*, 2008). The HPB also worked with food

manufacturers. An example of this was to work with Abbott in developing a growing-up milk formula that had 25% less fat and sugar to earn the HCS label. They also worked with the Singapore Food Manufacturer's Association to create healthier alternative foods. They equipped local enterprises with knowledge on developing food products, such as sauces, fish cakes, and noodles with less salt and oil.

It engaged several large companies in Singapore to offer healthier alternative foods. The HPB also worked at the factory level to create healthier foods, such as creating a healthier version of noodles with 30% less salt (Health Promotion Board, 2011). In addition, there was also a Healthier Dining Program in 2006, which aimed to increase the availability of healthier dishes in restaurants. The HPB worked with restaurants to modify dishes to contain less oil, salt and sugar, to include more vegetables and fruit and to create new healthy dishes. It then promoted these restaurants in food magazines and national newspapers to encourage more patronage of healthy restaurants. The HPB also listed all of its 300 participating restaurants on its website. This promotion was so successful that the proportion of table orders with more than 1 healthier dish increased from 35% in 2004 to 63% in 2008 (Soon *et al*, 2008). The HPB also worked with fast food chains to provide healthier options for customers. Fast food chains offered at least one of the following healthy food options in 2008 – salad (dressing served separately), pure fruit juices, potato fries with no salt (at the customer's request) and extra lettuce with burgers.

With regard to physical activity, the HPB collaborated with fitness related as-

sociations to encourage Singaporeans to exercise. It organized brisk walking, running and jogging groups, aerobic workouts, and Tai Chi for the elderly in public places, parks, and residential heartlands. National planning included construction of exercise corners in every housing estate. Parks located near residential estates had tracks built separately for cycling, roller blading, jogging and walking and senior citizens' exercise corners. In 2009 a 'Lose to Win' Program was rolled out, where over 12 weeks, the program encouraged 285 participants to get healthy through exercise, diet and education on nutrition. After 3 months, 85.3% had completed the program, 93.6% lost 5-20kg, and 99.6% improved their fitness (Health Promotion Board, 2011). Many members continue to faithfully meet up every week for walks or runs on Sundays.

Despite all these measures, a national survey done in 2011 found that 54% of the population still did not engage in any regular physical activity because of time and or work constraints. As a result, the HPB developed other guidelines, which psychologically encouraged citizens to exercise. It advocated that any physical activity was better than none, and exercise was easier than people thought. The magic number was 150 hours of exercise per week, which it said could be done as 10 minute blocks of walking, jogging, or climbing stairs, or 2 lots of 75 minute exercises per week. It additionally encouraged that every single opportunity counted, whether it was choosing to use the stairs rather than lifts and escalators and doing household chores or gardening.

All the programs were successful in schools, and credited to reduce the obesity

rate in school children from 14% in 1992 to 9.8% in 2002 (Institute of Health, personal communication). The essential approach of all the programs could be summarized as the 'carrot and stick' approach. Schools were ranked annually based on how well targets were met at a national level. Cash incentives were then given to schools that exceeded fitness targets and created new strategies to reduce students' obesity levels. Pressure was applied to schools to meet targets of fitness and obesity set up by the Ministry of Education. Schools that failed the targets had to face consultation sessions with ministry officials who would suggest ways to improve the situation. Some of the schools were allowed to determine how the TAF program was implemented, which resulted in some schools segregating children who were grouped to sit at 'normal weight' and 'overweight' tables at recess. With the TAF program, students deemed overweight were subject to extra intense exercises for at least 1½ hours per week. These activities were organized during recess or at times set aside before or after lessons at the schools' discretion.

The problem was that some TAF participants reported that they felt stigmatized, teased and suffered from psychological stress and low self esteem, as they were singled out for being obese. The concern was that putting children in a club that said that they were fat may cause a stigma that would stay with them for a long time and can potentially affect their self-confidence. Around this time, there was a report of increasing numbers of people afflicted with anorexia nervosa in Singapore, with a six-fold increase of eating disorders from 1994 compared to 2002 (Lee *et al*, 2005). Of

the 126 cases seen at the Child Guidance Clinic and Eating Disorder Clinic, 11.1% were previously members of the TAF Club.

As a result of this, the government introduced the Holistic Healthcare Framework (HHF) that replaced the TAF program in 2007. It was realized that being healthy was not just about being fit, but being healthy had to take into account the total wellbeing of each and every student. The concept of the HHF encompassed 3 guiding principles – the first is that of total wellbeing, which encompasses the physical, mental and social health of students and should not be just a simplistic measure of weight and fitness statistics. Secondly, it considers inclusion an important aspect to good health and that every student should be given opportunities to access the knowledge and develop the skills and attitudes to live healthily. Finally, quality delivery involves building the capacity of teachers and engaging qualified para-educators to teach holistic health effectively. The aim of the HHF was to embrace the students' general well-being and develop their intrinsic motivation to lead a healthy lifestyle, even after leaving school.

Singapore's battle against obesity involves public health programs that demand national strategies targeted at health promotion policies and engage strategic stakeholders to implement social programs at school, work and in the community. One valuable lesson learnt from the programs was not be overzealous, as there are consequences to every action and policy. Efforts must be tempered with moderation, for success cannot always be measured in statistics, but in a mature overview of the issues encountered.

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