HEALTHY FOOD CHOICES AND DIABETES

SCHEMA CASE STUDY #2

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The SCHEMA project seeks to improve decision-making for health and sustainability in Malaysian cities through the application of systems thinking and place-based methods. The SCHEMA Case Study Series describes a set of urban challenges and the actions that have been taken to address them, highlighting where systems thinking and place-based perspectives can shed light on underlying complexity and lead to more effective policies and interventions.

Overview

In 2014, the World Health Organization estimated that 422 million adults were living with diabetes, making it one of the four most prevalent non-communicable diseases (NCDs). In most countries, including Malaysia, this prevalence is rising. Addressing the key risk factors for Type II diabetes-unhealthy diets and physical inactivity is critical to taming this trend. In turn, this depends on remaking our daily environments, which, whether at home or in the workplace, strongly influence our decisions on what, where, when, and how to eat and be active.

Local Context

Diabetes is a major health concern in Malaysia, affecting almost one in five Malaysian adults. By 2025, 7 million Malaysian adults are projected to develop diabetes (Figure 1). To counter this trend, the National Strategic Plan for Non-Communicable Disease 2016-2025 established a national target for diabetes prevalence of 15% in 2025. Healthy food choices are essential to reaching this goal.

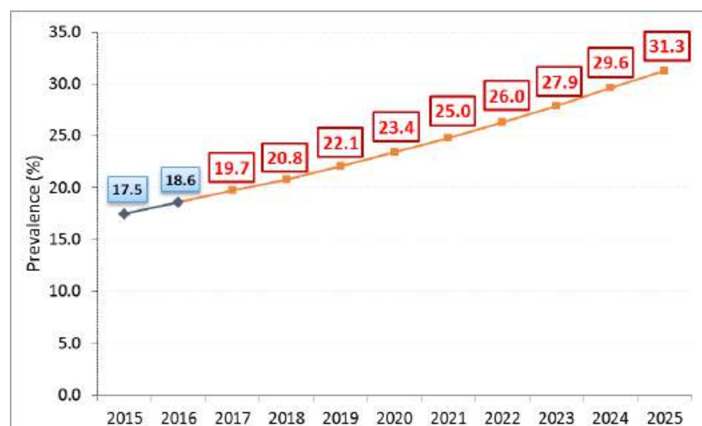

Figure 1: Projection on the Prevalence (%) of Diabetes in Malaysia, 2015-2025, National Strategic Plan for Non Communicable Disease NSP-NCD 2016-2025.

Exploring the System

Food choices do not occur in isolation, but are influenced by

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Box 1: Malaysian Food Culture

Food is so central to Malaysian society, that 'Dah makan?' (i.e., 'Have you eaten?') or the equivalent in other local dialects is a common greeting. Many towns are known for particular dishes, and day trips to savour these culinary specialties are not uncommon. Twenty-four hour eateries have become a key part of the urban night life. Striking a balance between maintaining a vibrant food culture and creating a healthy eating environment is a challenge.

many different factors. One such factor is simple familiarity (Figure 2). We tend to choose foods we are accustomed to, which in turn reinforces our preference for those foods—we become habituated to a certain diet (R1). When lifestyle factors or dietary norms lead us to healthy food choices, this reinforcing feedback relationship can act to help us maintain healthy diets; under these circumstances, we are also less enticed by unhealthy foods (R2). However, when other factors lead us to unhealthy food choices, these will also be reinforced, eroding our healthy eating habits.

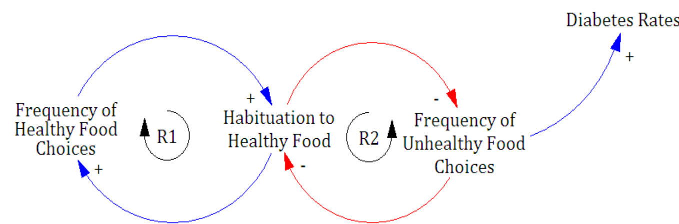


Figure 2: Food choices are an important factor in surging diabetes rates. When individuals are highly habituated to healthy food, they tend to choose such foods and avoid unhealthy foods. Each of these sets of food choices involves a reinforcing loop (R1 and R2) that strengthens the habit of eating well. However, when the extent of habituation to healthy food is low, these same causal structures can further erode the tendency to eat well: low habituation leads individuals to choose unhealthy foods and avoid healthy ones. These reinforcing loops form a "Success to the Successful" systems archetype, in which one outcome tends to dominate, making it hard to shift to the alternate state. In situations where unhealthy food choices are frequent, R2 will dominate, leading to lower habituation. Where healthy food choices are frequent, R1 will dominate, leading to higher habituation.

Food choices are also influenced by convenience and cost. The pressures of urban life, work demands, traffic congestion, and the rise of dual-income households have led to a decline in home cooking. Consequently, 64% of Malaysians eat at least one meal per day outside of the home. Such meals are less likely to be healthy than home-cooked food. Time pressure also reduces willingness to look for outlets serving healthy food, with many people making such choices based on time and cost alone. Increasing the number of healthy food options could make healthy food choices easier. However, food options are generally driven

Figure 3: Malaysian 'kuih'—bite-sized desserts.

by market demand (Figure 4), with collective food choices creating another set of competing loops (R3 and R4) that influence whether healthy or unhealthy food options dominate. Indeed, healthy foods remain a niche market, with most products competing, instead, on the basis of cost and convenience—criteria that tend to favour unhealthy options.

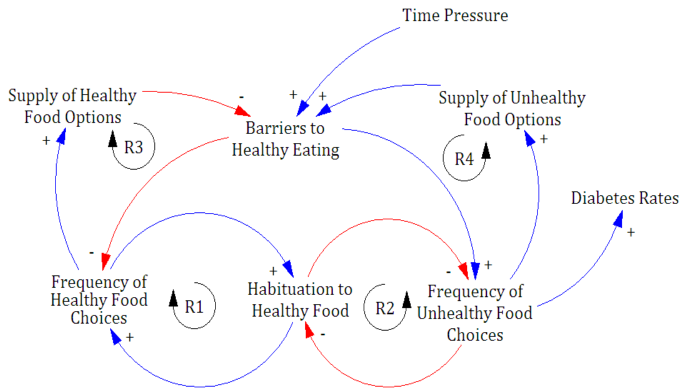


Figure 4: Modern urban life creates challenges for maintaining healthy diets. Time pressure from hectic lifestyles discourages home cooking, which is usually healthier than eating out. Also, healthy foods often cost more, and healthy food outlets are often scarce. These barriers to healthy eating encourage a higher frequency of unhealthy food choices. The supply of healthy or unhealthy food options is driven by demand, i.e., by the frequency of healthy or unhealthy food choices. Increased supply makes for easier access, thus making it easier (R3) or more difficult (R4) to eat healthily, and further reinforcing existing food choices.

Health Promotion and Knowledge

The foregoing suggests that maintaining the status quo with respect to food choices in Malaysia is likely to entrench unhealthy dietary habits and contribute to rising diabetes. Various groups have undertaken health promotion campaigns, assuming that increased knowledge of the consequences of unhealthy eating will motivate people to

Box 2: Sugar Intake

Average sugar consumption in Malaysia was 26 teaspoons a day in 2005—more than four times the recommended allowance. A large fraction of this sugar comes in the form of local 'kuih,' often consumed with meals and as snacks throughout the day, and condensed milk, added to tea or coffee.

make healthier choices (Figure 5). Similarly, regulations for nutrition labelling and claims have been enforced since 2003, to improve food choices by supplying consumers with better information. However, most Malaysians do not read food labels, and those who do may not understand the implications. Furthermore, the continuing rise in obesity and diabetes rates in the face of increasing health literacy highlights the limitations of information as a mechanism for behavioural change.

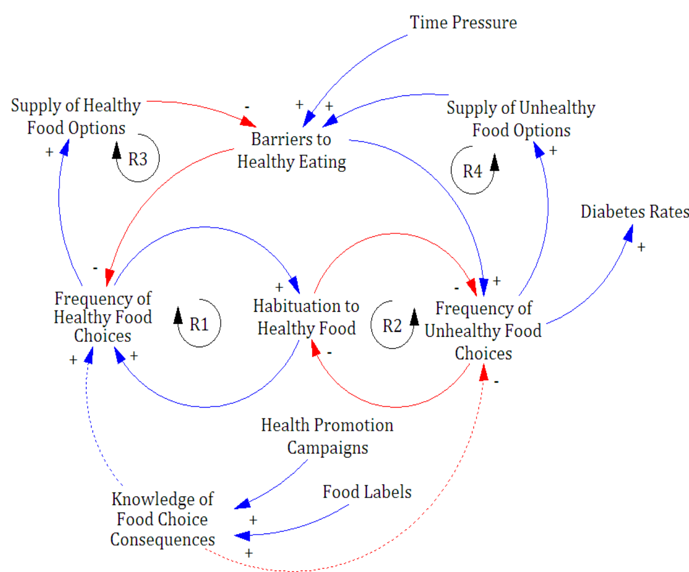


Figure 5: A variety of actors have made efforts to change individual dietary choices by providing better information—for example, through health promotion campaigns or food labels. The assumption is that better knowledge of the consequences of food choices will increase motivation to make healthy choices. However, in general, the strength of the knowledge on food and health has limited ability to affect healthy food choices—the dotted arrows in this diagram reflect this weak relationship.

Systems Solutions

Experience suggests that health information alone is insufficient to motivate healthier food choices at the levels necessary to reduce obesity and health consequences like diabetes at the societal level. In all likelihood, the solutions to these problems require structural changes to urban living environments that make healthy food choices simple and straightforward. The complexity of such environments and the persistence of these problems imply that multiple simultaneous points of intervention by many actors will be needed for effective change. A few possibilities are described here (Figure 6).

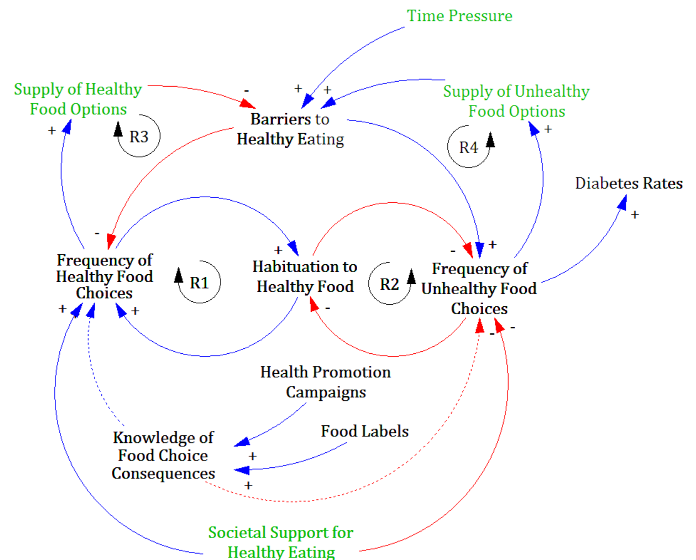


Figure 6: Changing food choices requires changing our relationship with food and the environment in which we made these choices. Some points for interventions, shown in green, include the supply of health and unhealthy food options, time pressure, and societal support for healthy eating.

Establishing new relationships with and around food may also affect the motivations that influence food choices. Community cooking activities can enhance cooking skills

Box 3: Fast Food—Symptom and Cause

The popularity of fast food, increasing among Malaysia's youth, is both a symptom and cause of broader unhealthy food choices. On the one hand, it reflects a desire for convenience and a reduced appreciation for healthy food, factors that also drive other unhealthy food choices. On the other, accessible, affordable fast food increases habituation to unhealthy diets.

Various solutions have been suggested. Limiting exposure during formative childhood years may be important—fast food commercials are already banned during television programming aimed at children, and further restrictions could be considered. Another step could be restriction of local authority-issued operator licences, such as in the vicinity of schools. However, broader attempts to restrict fast food outlets may have unintended consequences—for example, they may lead to fewer but larger outlets and expansion of delivery services, counteracting the intended effect. Moreover, without addressing the factors that drive food choices, consumers may simply be diverted to other unhealthy foods.

and provide peer support, inspiring sustained interest in cooking in some individuals. Involvement with community gardens can also shape perceptions of and connections with food in ways that motivate healthy food choices, as can increasing awareness of traditional foods and food cultures.

Because the work environment is the site for a substantial fraction of food choices, employers have important roles to play. Dining spaces and kitchen facilities can be designed to encourage employees to bring homecooked food. Flexibility in scheduling can provide time needed for cooking, while worksite programmes can encourage healthy lifestyles and support community activities.

There may also be better channels for delivery of diet-relevant health information than health promotion campaigns. Indeed, primary care providers can build relationships and provide targeted advice, linking diets to specific patient health issues. Primary care may thus strengthen the link between knowledge and behavioural change, while providing other health benefits.

These and other solutions (e.g., Box 3) take place at different scales and involve a variety of actors that may not be typically considered in health promotion efforts. Creative engagement and policy design will be needed to enable the multiple points of intervention necessary to change existing environments to support healthy food choices.

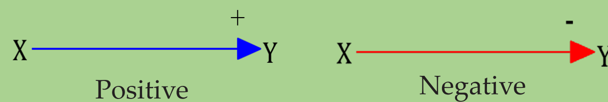
Figure 7: Morning greetings from a fast food giant tempt road users along a busy highway in the Klang Valley.

Further Reading

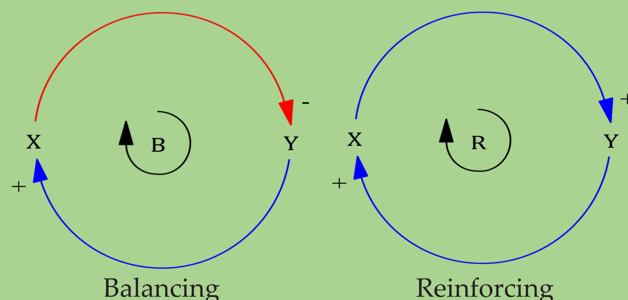
1. "Knowing is not half the battle: Impacts of the National Health Screening Program in Korea." http://ftp.iza.org/dp10650.pdf
2. "Obesogenic environments: exploring the built and food environments." http://citeseerx.ist.psu.edu/viewdocad?doi=10.1.1.470.7110&rep=rep1&type =pdf
3. "The results of a worksite health promotion programme in Kuala Lumpur, Malaysia." https://academic.oup.com/heapro/article/21/4/301/687954
4. "Obesity systems influence diagram." http://www.visualcomplexity.com/vc/project.cfm?id=622
5. "Consumers' preference and consumption towards fast food: Evidence from Malaysia." https://www.researchgate.net/publication/277076342_Consumers%27_preference_and_consumption_towards_fast_food_Evidence_from_Malaysia

Reading Causal Loop Diagrams

Relationships between two variables are represented with arrows. Here, positive relationships (change in X results in a change in the same direction for Y) are described with blue arrows and a "+" sign; negative relationships (change in X results in a change in the opposite direction for Y) are described with red arrows and a "-" sign.



When two or more variables interact in a loop, the effect can be reinforcing (acting to amplify change), or balancing (acting to oppose change and maintain equilibrium). These loops and their interactions with each other drive systems behaviour, often in surprising ways.



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