Creating a Healthy Food Environment as a Radical Population Approach and Japanese Initiatives

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Summary Nutrition education is important to encourage people to promote a healthy diet; however, education alone exerts a limited effect. It is crucial to create a healthy food environment, including food systems that supply diversified, balanced, and healthy food options. Improving the food environment is a population approach. Radical population approaches necessitate removing the underlying impediments, such as high sodium products, sugar-sweetened beverages, and unhealthy ultra-processed foods. Negotiation and collaboration with the private sector is critical to tackle and solve these issues. In Japan, public-private-academic collaboration has been implemented since 2013 in the national health promotion action, termed Health Japan 21 (Second term). Recently, Japan has launched a novel initiative to create a healthy food environment.

Key Words food environment, healthy diet, population-approach, Japanese initiative

Based on a dietary risk assessment using the Global Burden of Diseases 2017 of 195 countries worldwide, dietary risk factors are globally responsible for 22% of all deaths among adults aged ≥25 y (1). The high intake of sodium was the most influential factor for deaths, followed by the low intake of whole grain and fruits. The high intake of sodium was the leading cause for deaths in Japan, China, and Thailand. These dietary factors are essential elements of the Healthy Diet recommended by the World Health Organization (2).

Nutrition education is essential for promoting a healthy diet; nonetheless, education alone exerts a limited effect. From the review of the history of modern nutrition sciences, Mozaffarian elucidated the limitation of education, which offers public nutrition information and encourages appropriate food choices (3). Moreover, he emphasized the necessity of broader systems, policies, and environmental strategies. It is crucial to create a healthy food environment, including food systems that supply diversified, balanced, and healthy food items.

Determinants of food choice People do not select and consume foods only for health benefits. Eating is a source of pleasure and is associated with a variety of social functions, including a means of communication with family and friends. Contento and Koch divided the determinants of food choice into four categories (4), namely biologically determined factors, factors of experiences with food, person-related factors, and social/environmental factors. Humans have built-in biologically determined behavioral predispositions, such as taste, a hunger/fullness mechanism, and genetics. Subsequently, they develop a liking for specific foods and food acceptance based on their experiences. These learning processes encompass physiological conditioning and social conditioning. In the person-related factors, there are intra-person factors (e.g., attitudes, beliefs, values, norms, knowledge, and skills) and inter-personal factors (family food practices and social networks). These person-related factors often deal with nutrition education. Social and environmental factors include the physical food environment (food availability and accessibility), social/cultural environment (social settings, cultural tradition, social structure, and policies), economic environment (resources, price, and time use), and information environment (media and advertising). These environmental and social factors are often more powerful influences on the food choice and behavior than nutrition education. Therefore, together with nutrition education, nutritionists and nutrition educators must identify strategies to improve the environment.

Strategies for creating a healthy food environment Previous studies reported on the means and efficacy of environmental improvement. For salt reduction, Hyseni et al. classified the intervention strategies according to their upstream/downstream continuum (5). They ranged from downstream interventions, such as dietary counselling (for individuals, worksites or communities), media campaigns, nutrition labelling, and voluntary and mandatory reformulation, to the most upstream regulatory and fiscal interventions. Comprehensive strategies involving multiple components (reformulation, food labelling, and media campaigns in the UK initiative) and upstream population-wide policies, such as mandatory reformulation, generally appear to achieve a larger impact in population-wide salt reduction than downstream policies, such as individually focused interventions in settings.

In terms of sugar intake, over 45 countries, cities,
and regions have instituted sugar-sweetened beverage (SSB) taxes (6). However, these taxes vary in design, and the tax rates are often considerably low for exerting an impact on public health. This necessitates increasing SSB taxation levels and expanding the tax base to include unhealthy ultra-processed foods and beverages.

Labelling is one of the most popular strategies for improving the information environment. Nutrition labelling on processed foods is mandatory in many countries. According to a systematic review and meta-analysis, color-coded labels perform better in encouraging consumers towards the choice of more healthful products, whereas warning labels have the advantage in discouraging unhealthful purchasing behavior (7). This study strongly suggested mandatory front-of-pack labelling policies in directing consumers' choice and encouraging the food industry to reformulate healthier products.

Creating a healthy food environment as a radical population approach

Rose reported on the importance of the population approach to reduce the risk of the entire population (8). He indicated three strengths of population methods, particularly those which were radical, powerful, and appropriate. He said, “A radical approach aims to remove the underlying impediments to healthier behavior, or to control the adverse pressure.”

High sodium products and high SSB are the underlying impediments. In addition, the high price of healthy foods, such as fruits and vegetables, are the underlying obstacles. To promote a healthy diet, we must tackle and solve these issues through public-private-academic partnership.

A conceptual framework of the food environment in Japan

In Japan, the food environment not only includes food access but also information access according to “Health Japan,” the national health promotion plan initiated in 2000. The concept of food environment encompasses two aspects, namely the access to food and information, and is based on the theoretical concept of nutrition ecology of Adachi (9).

Figure 1 depicts the community food environment developed by Adachi and the strategies of creating a healthy food environment, commonly implemented as described above. The food system (right side of the figure) includes all settings of food production, food processing, food distribution, and eating out. The strategies concerned with the food system are taxation, food reformulation by a food manufacturing company, the increasing availability of healthy options across retailers and restaurants, and food labelling. The left side of the figure depicts the nutrition information and communication system. People acquire information from their family, friends, school, worksite, medical institutions, and community health centers. Mass media, social media, and the advertisement of the food industry exert a large influence on food choice and dietary behavior.

Precedent collaborations exist in Japan where the industry and academia worked in collaboration for food reformulation and improving the availability of healthy options.

The Japanese Society of Hypertension has accredited reduced salt products since 2013. Food companies are responding to this accreditation, and approximately 270 reduced salt products with good taste, such as seasonings, numerous processed fish and meat items, pickled vegetables, noodles, and snacks, are being volun-
tarily developed by food companies. The total sales of these accredited products increase every year, and the market reached 45.5 billion yen in 2021. The amount of salt provided to consumers has reached 7,376 tons since 2013 (10). This strategy is a good practice of voluntary food reformulation to reduce salt intake.

Another example involves improving the availability of healthy options in the community. A recent certification system for “healthy meals and healthy environment” was initiated in 2018 for food retailers, restaurants, and worksite cafeterias, which continually provide well-balanced meals termed “Smart Meals”. The certification’s criteria were based on dietary reference intakes and other scientific evidence. A consortium consisting of 13 academic bodies related to nutrition and noncommunicable diseases judge and certify the retailers. At present, 536 retailers have been certified all over Japan (11).

**Japan’s recent initiative**

Based on the progress of the aforementioned efforts, Japan will implement a novel step for creating a healthy food environment (12). The Ministry of Health, Labour, and Welfare has convened a committee to discuss the role of multisector collaboration between private sectors, academia, and government in effectively promoting a healthy and sustainable food environment.

The novel initiative is to encourage business sectors to provide healthier food products, which the consumers can select and purchase at affordable prices regardless of their health consciousness. Both the nutritional aspects and environmental aspects are important in promoting this initiative. This initiative follows the global trend by supporting healthy eating, which can also contribute to the achievement of SDGs through public-private-academic collaboration, under the coordination of the government.

**Conclusion**

It is important to promote a healthy food environment worldwide. Improving the food environment as a radical population approach requires the removal of underlying impediments, unhealthy foods, and beverages. Public-private-academic collaboration is critical to tackle and solve these issues. The recent Japanese initiative for creating a healthy food environment will likely be shared with other countries, particularly those in Asia.

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**REFERENCES**