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Public Health Nutrition Policies and the Role of the Government: International Examples and the Need for Action in the Republic of Korea

Katrin Engelhardt[§] and Hyojee Joung
School of Public Health Seoul National University, Seoul 110-779, Korea

Many of the non-communicable diseases, which are now the major causes of death and disability worldwide, can be linked to our lifestyles, and thus to what eat. The life-style related risk factors are – to a great extent – preventable. Public health nutrition (PHN) policies are means through which governments can have an enormous impact on the reduction of nutrition-related non-communicable diseases, such as diabetes, hypertension, obesity, cancer and cardiovascular disease, by creating and supporting environments which enable healthier food choices and which are conducive to healthy nutrition behavior. More and more countries are developing nutrition policies. Nutrition policies are tools through which governments can intervene and control nutrition-related concerns throughout all levels of society. The need for more concerted action in the Republic of Korea is demonstrated, by showing the lack of priority for nutrition issues. Four recommendations for action are made; the first recommendation places emphasis on the need to implement a structure at the political level, through which nutrition concerns can be addressed, such as a nutrition unit within the Ministry of Health and Welfare. The second recommendation stresses the need for a strong nutrition advocacy strategy, to raise the awareness of the gains that can be achieved by promoting healthy nutrition. The third recommendation calls for more vigorous regulations and stricter enforcement of food and nutrition advertisement, and the fourth recommendation emphasizes the need for a settings-based approach to nutrition interventions. Acknowledging the developments that have already occurred in Korea, public health nutrition has yet to become a priority on the agenda of policy makers in Korea. (259 words)

Key words: Public Health Nutrition, Policy, Government

NUTRITION AND NON-COMMUNICABLE DISEASES

Many of the non-communicable diseases (NCD), the major cause of death and disability worldwide, can be linked to what we eat.[1-3] Non communicable conditions, including cardio-vascular disease, diabetes, obesity, cancer and respiratory diseases now account for 59% of the 56.5 million global deaths annually, and for 45.9% of the global burden of disease.[4] It must be noted that relatively few risk factors, including high cholesterol, hypertension, obesity, smoking and alcohol, cause the majority of the NCD burden. Considering that these risk factors are lifestyle related, they are to a large extent preventable.[2,5-7]

As stated in the fact sheets of the WHO Global Strategy on Diet, Physical Activity and Health, "up to 80% of cases of coronary heart disease, 90% of type 2 diabetes and one third of cancers can be avoided by changing to a healthier diet, increasing physical activity and stopping smoking".[4] It is known that national action can be effective.[8,9] The need for national and global action in public health nutrition is strong and the time to take action is pertinent.

WHY IS THE BURDEN OF NUTRITION-RELATED NON-COMMUNICABLE DISEASES INCREASING?

Numerous publications describe the factors that could be associated with an increase in nutrition-related non-communicable diseases.[10-15] These factors include economic and technological development, social and cultural development, and subsequent globalization. Such processes bring about 'energy-saving systems' (in terms of saving one's *own* energy required for the activities of daily living), and they bring about an "unlimited access to virtually unlimited volumes of relatively inexpensive calorifically dense foods to all people in all place at all times".[16]

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[§] To whom correspondence should be addressed.

These developments contribute to changing disease patterns by influencing lifestyles and consumer culture, i.e. our food choices and consumption patterns. Thus they influence our *behavior*. In order to reduce the lifestyle related risk factors we have to have a profound understanding of the elements influencing our behavior at the various levels of society and we have to know what kind of counter measures exist.

The social ecological model is commonly used in health promotion to guide behavior change programs, because it encompasses multiple dimensions and levels of influence on behavior.[17,18] The social ecological model shown in figure 1, illustrates intrapersonal, social environmental, physical environmental, societal, and political and structural influences on behavior. The intrapersonal level includes an individual's hierarchy of needs, beliefs, values, self-efficacy, knowledge, genetics, age or gender. The social environmental level refers to one's family, peers, partnerships, colleagues or support systems, and the physical environmental includes for examples schools, meal service, vending machines, work sites or convenience stores. The societal level describes cultures, traditions and social norms, and the political and structural level includes local, regional and national policies, legislation and structures. The individual interacts with all of the levels and the levels also interact with each other. The social ecological model illustrates that an individual's behavior is shaped by a complex set of influential factors. Public health nutrition policies are developed at the political level, but if implemented and enforced they have great potential to positively induce changes of this 'set of factors' influencing (nutrition) behavior, as will be described below.

In reference to the definitions of public health,[19] public health nutrition[20,21] and policy, a 'public health nutrition policy' could be defined as a "government's plan of action to promote good health through collective action related to the primary prevention of diet-related illnesses in the population". This definition would include both food and nutrition policies.

GOVERNMENT'S ROLE IN PHN

The government has a number of levers it can utilize to prevent disease and promote the public's health. Policies, laws and regulations, can intervene at a variety of levels of society, to promote healthier environments and healthier behavior.[22] PHN policies are the means through which governments can have an enormous impact on the reduction of *nutrition*-related non-communicable disease. The primary goal of PHN policies is to promote the public's health. They should also ensure food security and accessibility, food safety, cultural acceptability, affordability, environmental sustainability and transparency, be inter-sectoral,[23] they should build on evidence,[23,24] and they should attempt to exert influence within and on the different levels of the social ecological model.

Thus with PHN policies, governments can create environments, which enable healthier food choices and which support healthy nutrition behavior.[23,25-31] The government can act within and exert influence on the different level of the social ecological model. These are many examples of how governments have taken up their role in public health nutrition, and the importance of this action is well-known and has long been recognized.[23,25,32,33]

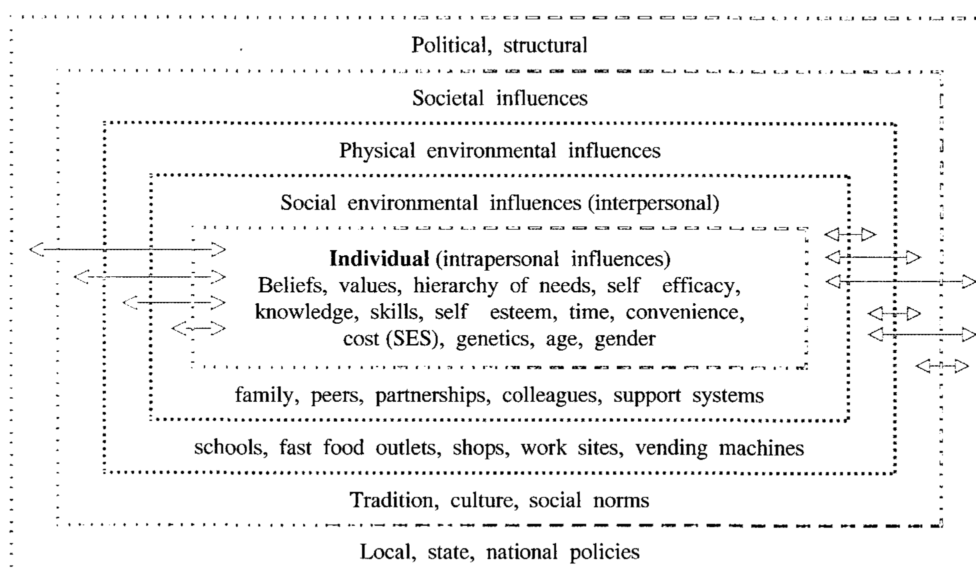

Fig. 1 Social Ecological Model (adapted from various sources)

CONCRETE GOVERNMENT ACTION

The first action governments could take is to establish an infrastructure, which supports nutrition-related work, e.g. to establish 'nutrition unit', to employ qualified nutrition staff, and to identify strong advocates for PHN in national and local governments. These are means of making the *structural level* more conducive to PHN policies. In Germany, for example, there is a specific ministry for nutrition, namely the 'Ministry of Consumer Protection, Nutrition and Agriculture',[33] and Norway has a centralized National Nutrition Council.[35] In the USA, the 'Food and Nutrition Service' within the United States Department of Agriculture deals with nutrition issues.[36]

Action at the political level includes the development and implementation of National Plans of Action on Nutrition (NPAN), which countries that signed the World Declaration on Nutrition, agreed upon.[37] The WHO Office for Europe (EURO) launched the first Food and Nutrition Action Plan (2002-2005) for the European Region in September 2000[23,38] and since then numerous European countries have initiated a National Plan of Action.[39] EURO assists member states in developing, implementing and evaluating national food and nutrition action plans.[40] The framework consists of three interrelated strategies, which include a food safety strategy, highlighting the need to prevent contamination, both chemical and biological, at all stages of the food chain ("farm to fork"); a nutrition strategy to ensure optimal health, especially in low-income groups and during critical periods throughout life; a sustainable food supply (food security) strategy to ensure enough food of good quality.[23]

Other examples of national nutrition-related action plans include the "National Action Plan against Obesity in Denmark" (National Board of Health, undated), or "Eatwell Australia: a strategic framework for public health nutrition".[41] Such plans are strategic steps in improving the public's health and - if a country has developed national health objectives - they could contribute to achieving the objectives linked to nutrition and to nutrition-related diseases.

The ratification of international strategies and agreements, such as the Codex Alimentarius or the WHO Strategy on Diet, Physical Activity and Health are other examples of PHN action at the political level.

The WHO Office for the Western Pacific Region published an introductory guide to "Using Domestic Law in the Fight Against Obesity".[33] This guide highlights three regulatory approaches. These include, using pricing controls on foods, placing restrictions on the supply of particular foods and mandating labeling requirements for foods sold in the domestic market. An example of the prohibition on domestic sales can be found in Fiji, where the Fijian Cabinet decided that the meat derived from the belly of sheep be prohibited from sale by issue of an order under the provision of the Fair Trading Decree from 1992.[33] Fiscal food policies, e.g. subsidies and taxes, are pricing policy tools, which have great potential to influence food buying patterns.[42-44] Currently fiscal food policies are mainly driven by agricultural, economic and political agendas and health needs to become a stronger driving force. The political level also includes policies related to food fortification,[45,46] for example the fortification of salt with iodine, or with iodine and fluoride; the fortification of grain products with folic acid, or the fortification of milk with vitamin D.

A recent report published by WHO[47] reviews the global regulatory environment regarding nutrition labeling (information about the nutritional properties) and health claims (statements connecting a food, food component or a nutrient to a state of desired health) from 74 countries. Many of these countries had regulations requiring some form of nutrition labeling, however, often nutrition labeling is voluntary, unless the food product has a health claim and/or the food has a special dietary use. Examples from the European Union include, the 'Regulation on Nutrition and Health Claims made on Foods' (No COM/2003/0424), the 'Directive on Nutrition Labeling' (No 90/496/EEC, as amended by Directive: No 2003/102/EC), and the 'Directive on Labeling, Presentation and Advertisement of Foodstuffs' (No 2000/13/EC, amended by Directives: No 2001/101/EC and No 2003/89/EC).[48] Legislations regarding food advertisement - if enforced - have great potential to influence social norms (societal level) and individuals' behavior (intrapersonal level).[49] The WHO recommends tighter regulation of food promotion and stricter enforcement.[50] A World Health Assembly Resolution states that: food and beverage advertisements should not "exploit children's inexperience or credulity. Messages that encourage unhealthy dietary practices or physical inactivity should be discouraged, and positive, healthy messages encouraged. Governments should work with consumer groups and with the industry (including the advertising sector) to develop appropriate approaches to deal with the marketing of food to children".[50]

In this content, a recently published report,[51] reviewed food marketing regulations in 73 countries, for television advertising, in-school marketing, sponsorship, product placement, internet marketing and sales promotions targeting children. Television advertising was identified as the most commonly used method of promoting food and beverage products, and was also the most widely regulated. 85% of the surveyed countries had some type of regulation for television advertising to children and about 45% had explicit regulations regarding the broadcasting time and the content of the TV advertisements

directed at children. (Only Norway, Sweden and Quebec banned television advertising to children). The report reiterated the principle underlying the regulations for TV ads in most countries, is that they should neither be false nor misleading.

Legislations to ensure that the quality of the foods distributed through catering services and served in settings, such as schools, day care centers, worksites, community centers, and to ensure that the foods meet the nationally recommended daily allowance – if enforced at the local levels – can exert a great deal of influence on the individual's *physical environment*. At this level regulations regarding the sale of food products in the settings are possible control mechanisms of the government, including for example the prohibition of soft drinks being sold in schools. This is currently a strong debate in schools in the United States.[52] In some states, like in California, the decision has already been made that the sales of soft drinks in schools will be limited by law. At the physical environmental level, regulations on the marketing of food products in settings, including for example 'in-school marketing', are means for PHN policies. The report which reviewed global marketing regulations, also included a review of in-school marketing, as mentioned above. Only 24 of the 73 surveyed countries had specific regulations regarding in-school marketing.[51] Other programs, such as school lunch programs or school milk programs are possibilities for PHN policies.[53]

The availability of qualified staff in settings that provide nutrition-related services to the public is a necessary structural level action that contributes to the successful implementation of the PHN policies intended to exert influence at the *physical environmental* and the *intrapersonal level*. Such policies include those that are supportive of comprehensive nutrition education. Nutrition education efforts could include point of purchase education in stores, education of nutrition-related staff (cooks, dietitians, nutritionist, meal service staff), nutrition education within settings (schools, worksites, etc.) and of course nutrition counseling services. Social marketing and public awareness campaigns are methods, which exert influence at the *societal level*, by targeting social norms.[54-56] Probably the most popular nutrition-related social marketing campaign is the '5-a-day' campaign, which initiated in the USA to promote the consumption of 5 servings of fruits and vegetables per day. Similar campaigns are now also being implemented in many European countries, e.g. in Germany, Switzerland or Austria.

The above listed examples show that, in order for a government to reduce nutrition-related NCDs through PHN policies, more than a "consumer nutrition education" component is required.[29] The magnitude of possible PHN policies illustrates that all levels of the social ecological model can be influenced through government action, if an inter-sectoral approach is used in developing and implementing them. Without 'healthy' decisions by policy and decision makers from all sectors, food corporations, food retailers, advertisers, educators and by ourselves, PHN policies will not be effective.

THE NEED FOR PUBLIC HEALTH NUTRITION POLICIES IN KOREA

Korea is an interesting example for PHN action, as it still faces problems of under-nutrition whilst problems of over-nutrition are steadily emerging. Acknowledging this 'double burden', this part focuses solely on the need for PHN action in Korea related to over-nutrition.

In Korea, comparable to other countries around the globe, lifestyles are changing as well as nutrition patterns.[57-59] The consumption of grains and cereals is decreasing and the consumption of animal foods, especially meat and meat products is increasing.[58-60] In 1971, the Korean population consumed 95.4% plant derived foods and only 4.6% animal derived foods.[61] By 1981, 89.9% of foods consumed were plant- and 10.1% animal derived. Now, about 20 years the proportion is 80.1% to 19.9%, for plant and animal foods, respectively. The proportion of daily energy intake from carbohydrates, proteins and fats was 80,7%, 13.0% and 6.3%, respectively, in 1971; 77.3%, 13.7% and 9.0%, respectively in 1981; 68.3%; and 65.6%, 14.9% and 19.5%, respectively, at the time of the last national nutrition survey, in 2001.[61]

Korea is often commonly cited in the international literature as a country, which has been able to 'withstand the nutrition transition', which typically occurs after economic developments.[62] However, local experts do not always agree, as more and more nutrition-related problems and diseases are being documented.[63-66] With the changing nutrition patterns, the prevalence of chronic, nutritionrelated diseases is increasing.[60,67] An increase in the prevalence of hypertension is observed, when comparing the National Health and Nutrition Survey data from 1995, 1998 and 2001.[68] In 1995 only 25/1000 persons were diagnosed with hypertension compared to 43/1000 in 1998 and 58/1000 in 2001. The prevalence of diabetes mellitus, type 2 is also increasing. In 1995, 16/1000 persons were diagnosed with diabetes mellitus compared to 17/1000 in 1998 and 25/1000 in 2001. The prevalence of being overweight (BMI≥25) increased from about 20% in 1995 to 26.3% in 1998 and to 30.6% in 2001, among adults aged 20 and older.[69]

Despite the rising concern of nutrition-related non-communicable diseases and the pressing need for action, the

Korean Ministry of Health and Welfare, does not have a unit or department responsible for nutrition issues. The Ministry does not even employ a nutritionist or nutrition-expert, which would be an important step in developing and implementing a national PHN policy. Another example at the political level that shows the lack of priority given to nutrition issues is the fact that even though Korea signed the World Declaration on Nutrition (1992) there has not been much work on a National Food and Nutrition Action Plan. Initial work has been done, which summarized the nutrition-related developments that have taken place.[70] However, these developments seem to be rather isolated and they do not follow clear strategic directions. Unfortunately, to date, there has not been any follow up regarding a National Food and Nutrition Action Plan.

In addition to the changes in consumption patterns and in nutrition-related disease patterns, Korea is currently experiencing a 'well-being' and 'health' trend, which greatly increases the concerns related to nutrition misinformation. Consumers take greater responsibility for self-care and become 'hungrier' for food and nutrition information. This creates opportunities for nutrition misinformation and health fraud.[71] Nutritionally unqualified persons may seize this opportunity to make money at the expense of the citizens' health. The following provides two examples of nutrition misinformation in Korea. On March 16, 2004, the Korean Broadcasting System (KBS) reported that celebrities who have lost weight appear in advertisements for diet products, in a very misleading manner. The Korea Food and Drug Administration (KFDA) disclosed a firm that sold about 800 million won worth of its diet products by broadcasting false ads on home shopping channels, as was also mentioned in the KBS report. A study, which was conducted on health and nutrition messages in baby food advertisements of women's magazines, revealed that "messages violating regulations (e.g. exaggerated or inaccurate or non-scientific messages) were frequently found in the advertisements of three kinds of baby foods".[72]

Another example, which emphasizes the need for tighter supervision of food advertisements and nutrition information, appeared in the JoongAng Daily newspaper (April 13, 2004). The title of the article read: "McDonald's beefs up marketing campaign". This article mentioned that McDonalds announced that their hamburgers contain similar caloric levels to popular Korean dishes, in an attempt to counter the conceptions that burgers are more fattening than Korean foods. Such misleading marketing statements must be identified and responded to, appropriately.

It is well known that nutrition interventions must be comprehensive and should be implemented in settings, such as schools and worksites, in order to be effective.[73] However, in Korea the settings-based approach to nutrition interventions still faces many barriers, and nutrition interventions are almost exclusively limited to local public health centers. In schools, for example, one important barrier to implementing nutrition interventions is the lack of priority that is given to nutrition within schools. Teachers and parents believe that children go to school in order to learn about the core subjects, and not about health in general, and nutrition in specific. Since the settings-based approach in Korea is not yet well accepted, the possibility to influence the physical environmental level is very small.

CONCLUDING REMARKS

In the first part of this review, the government's role in PHN was described within the different levels of the social ecological model, and the magnitude of action that can be taken by the government was summarized. In the second part the need for more concerted action in the Republic of Korea was demonstrated, and the lack of priority for nutrition issues was shown.

In the concluding part four recommendations for action are made. The first recommendation is structural, and refers to the need to establish a nutrition unit within the Ministry of Health and Welfare. This is crucial considering that nutrition-related non-communicable diseases are becoming a greater concern in Korea. There is an increased the need for a structure through which the rising nutrition-related health concerns can be addressed at the national level.

The fact that initial action has been taken regarding a National Plan of Action for Nutrition, but that there has been little follow-up shows the lack of political support for PHN and it shows the apparent lack of priority for nutrition issues within the government. The second recommendation is to develop and implement a strong advocacy strategy to make policy-makers and the public aware of the gains that result from investing in nutrition.

Nutrition misinformation is a strong concern in Korea, especially considering the wellness trend the population is in. Misleading and incorrect nutrition information is common and the regulations that exist regarding food and nutrition advertisements are not enforced properly. It is therefore recommended to implement more vigorous regulations regarding food and nutrition advertisements and to put up measures to ensure that they are being enforced. Stronger action at the political level is required, to ensure that the societal and physical environmental levels do not exert a negative influence on the social and individual levels.

The fourth recommendation is to regulate the integration of nutrition education into the core function of community settings, such as worksites and schools. This would positively influence the population's physical environment.

At this point it should be mentioned that the situation regarding public health nutrition in Korea involves many more issues than were described above. There have been remarkable achievements related to nutrition in Korea, however, most of them have taken place in isolation and have not adequately addressed all of the levels of the social ecological model. What Korea needs now is a "government's plan of action to promote good health through collective action related to the primary prevention of diet-related illnesses in the population", thus Korea needs a concerted PHN policy.

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