

Relationship between Public Health and Climate in Japan

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Abstract

This commentary discusses the relationship between Japan's climate and public health. For example, in Japan, the climate varies in different regions. For this reason, there are regional differences in the food that can be harvested. Furthermore, there are also regional differences in whether people eat specific foods raw, or whether food can be processed for long term storage. These differences influence local occurrence of food poisoning. Conversely, Japan's regional differences in climate are being lost because of global environmental problems, development of building technology, or imports. In this paper, we explain food sanitation and the relationship between climate and environmental hygiene and occupational health in Japan.

Keywords: Public health; Heat stroke; Climate; Cool/warm biz

Introduction

Japan is located in the mid-latitudes of the Northern Hemisphere, with a long terrain extending north and south. For this reason, there

are four seasons. It also has climate classifications ranging from subarctic to subtropical depending on the area, and temperature, humidity, precipitation and sunshine differ greatly between regions [1]. Because of these differences in climate, some public health issues differ depending on the region. Here, we discuss the relationship between climate and public health in Japan (Table 1).

Region	Temperature (°C)*	Precipitation (mm)*	Sunshine (hours)*	Specialty goods
Southern (Naha, Okinawa)	17–29	100–260	90–240	Pineapple, sequester, dragon fruit
Central (Tokyo)	5–26	45–210	120–180	Japanese radish, pear, sweet fish
Northern (Sapporo, Hokkaido)	–4–23	45–140	90–200	Hot cup, salmon, scallops

*Shows the range of average monthly temperatures

Table 1: Characteristics of each region.

This table was prepared by quoting the data of 1981–2010, published by the Meteorological Agency.

Food Hygiene

Japan is an island, with many coastal areas. For this reason, use of marine food products is quite common. Even in non-coastal areas, there are certain cultures that eat dried foods and salted fish and shellfish, which can be preserved for a long time. As well as fish and shellfish, the Japanese diet is traditionally high in vegetables and meat. Harvested foods are commonly consumed in limited areas because they are easy to grow according to the climate of each area. For example, processed products such as pickles and raw fruits and vegetables that grow only in specific areas are special products and are often exported to other regions.

Food poisoning caused by these foods is a public health problem each year. Food poisoning outbreaks are seasonal, with bacterial sources mainly occurring in summer and viral outbreaks frequently occurring in winter. The main bacterial pathogen is pathogenic

Escherichia coli and the main viral pathogen is norovirus. The main cause is the ingestion of uncooked contaminated fish, shellfish and meat, and ingestion of food that has been in contact with soil bacteria [2]. In recent years, with improved food preservation and transport, food products have increasingly become available regardless of season or geographical region. In addition, the growth of greenhouse cultivation of vegetables, cultivation of fish and shellfish and importation of foods means food poisoning tends to be prevalent irrespective of the season.

Environmental Hygiene

As mentioned above, temperature and humidity differ greatly depending on the region, even in Japan. Therefore, countermeasures for heat and cold are also different depending on the area. In the north, it is cold enough to be concerned about frostbite in winter, while from central Japan southward, there heat stroke is a concern because of high temperatures in summer. Heat stroke in particular has become a major public health issue in recent years, regardless of region and season, and

there is an increasing need to enhance indoor temperature regulation. It is also necessary to be aware that heat stroke can also occur in small spaces, such as in a car. Extreme heat and cold have often been observed in Japan recently and it appears that spring and autumn are shortening. Although this may be caused by global environmental problems, at a local level this also affects the prevalence of wild animals and growth of plants and industrial flora and fauna. This could potentially lead to a situation where production of some foods that were previously grown nationwide can only occur in the northern part of the country [2]. Furthermore, because a rise in average temperature has also been observed, breeding and overwintering of exotic insect pests such as *Latrodectus hasseltii*-which normally inhabit tropical regions, have been observed [2].

Occupational Health

In Japan, the labour safety and sanitation law stipulates room temperature during working hours should be 17–28°C. However, most noteworthy is the recommendation of Cool/Warm Biz by the Ministry of the Environment [3]. These guidelines suggest wearing of clothing in relation to temperature and comfort, mainly for the purpose of reducing the use of air conditioning and heating. It is recommended that even businesspeople that normally need to wear suits do not need to wear jackets or neckties in the summer, and should wear thermal or woollen underwear or sweaters in winter. These guidelines encourage the use of clothing to regulate body temperature, without having to

depend on the room temperature. It is hoped that this will lead not only to reducing expenses for individual companies, but will also go some way towards the broader viewpoint of energy saving and reducing the impact of global warming throughout the country. In addition, the government provides guidelines for recommended air conditioner setting temperatures (winter heating: 20°C, summer cooling: 28°C) [3]. As the authors believe that this environment is out of health maintenance, we do not recommend compliance. In the case of companies targeting public services, there is a tendency for the temperature setting to be about 25°C, which seems to be more comfortable. In the case of those who may be physically weaker than able-bodied adults, such as infants and pets living within homes, there is a possibility that the temperatures recommended by the guidelines may be detrimental to personal health.

This commentary discussed the relationship between Japan's climate and public health. The authors hope it will help people outside Japan to gain a better understanding of Japan's climate.

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