



Perception Why the Prefecture has a Longer Life Expectancy Among Japanese Students

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Abstract

One reason to study life expectancy may be to determine desirable health behaviours. Therefore, the purpose of this study was to clarify which Japanese prefectures university students recognise as having the longest lifespans and why. In June 2020, a self-administered questionnaire was completed by 32 first-year college students (3 males and 29 females) at a registered dietician training school in Aomori Prefecture, Japan. In order to determine the students' perceptions, the following question was asked: "What prefecture do you think has the longest life expectancy?" The reasons were limited to dietary habits due to the characteristics of the department, and answers were written out freely. Additionally, the questionnaire included: "Why do you think that prefecture has the longest life expectancy? Please write the reasons, including dietary habits." Nagano was most frequently chosen by the students as the prefecture with the longest life expectancy ($n = 24$; 75%). The extracted words were "vegetable" (mentioned 28 times), "intake" (21 times), "salt" (14 times), "fruit" (10 times), "reduced salt" (4 times), "nutrient" (4 times), and "miso soup" (4 times). Most students thought that desirable dietary habits included more vegetable intake and less salt.

Keywords: *Life Expectancy; Intake; Vegetable; Salt; Japanese University Students*

Introduction

One goal of Health Japan 21 (the second term) has been to reduce health disparities [1]. In this study, health disparity refers to the difference between groups in terms of health status caused by communal and socioeconomic differences. One of the regional disparities in Japan is the difference in life expectancy between the prefectures [2]. While the life expectancy of men in Aomori Prefecture has been the lowest in Japan since 1965, the prefectures with the highest life expectancy have changed frequently. The life expectancy of men in Okinawa Prefecture dropped from fourth to twenty-sixth place in 2000 and has continued to drop. The life expectancy of men in Nagano prefecture was the highest from 2000 to 2015; however, Shiga prefecture became the highest in 2015. There may be various reasons for these differences in life expectancy, but they have not been clarified [3].

Life expectancies arranged by prefecture are published in newspaper articles and are used as an index of health conditions. This data is easy for the general population to understand, and life expectancy can be regarded as a comprehensive index of the health conditions in an area. Additionally, life expectancy can be used as a way to determine what health behaviours people think are desirable. Therefore, the purpose of this study was to clarify which prefectures university students recognise as having the highest life expectancy and why.

Materials and Methods

In June 2020, a self-administered questionnaire was completed by 32 first-year college students (3 males and 29 females) at a registered dietician training school in the Aomori Prefecture. Subjects were recruited through a lecture. The first question used was:

"What prefecture do you think has the longest life expectancy?" Due to the characteristics of the department, the students were additionally asked: "Why do you think that prefecture has the longest life expectancy? Please include reasons related to dietary habits," and they freely wrote their answers. The User Local text mining tool by User Local Co., Ltd. was used for the analysis. Text mining is used to analyse some collection of non-standardized character information through a natural language analysis method in order to extract useful information. With this tool, you can extract frequently-found words by multiplying them by a certain coefficient, while excluding commonly used, irrelevant words.

Results and Discussion

Nagano was the prefecture that the university students most frequently considered to have the longest life expectancy ($n = 24$; 75%), followed by Okinawa ($n = 6$; 19%), Kyoto ($n = 2$; 6%), Kanagawa ($n = 1$; 3%), and Shizuoka prefecture ($n = 1$; 3%).

According to data from 2015 on life expectancy by prefecture, men in Shiga had the longest life expectancy in Japan, and females in Shiga had the fourth longest life expectancies. In Nagano, men had the second longest life expectancies, and females had the longest life expectancies in Japan [2]. In this study, three-quarters of the students recognised Nagano Prefecture as having the highest life expectancy. Even though the average life expectancy in Okinawa has been decreasing for males, about 20% of the students in this study recognised it as the prefecture with the highest life expectancy. While Nagano and Okinawa Prefectures were often chosen, Shiga Prefecture was rarely chosen, which seems to have influenced students' perceptions.

The extracted words were "vegetable" (mentioned 28 times), "intake" (21 times), "salt" (14 times), "fruit" (10 times), "reduced salt" (4 times), "nutrient" (4 times), and "miso soup" (4 times).

Students recognised that vegetable intake was positively associated with better health, and they also cited that since residents of Nagano Prefecture had the highest vegetable consumption in Japan, they would have a longer life expectancy. It has also been shown that Okinawan vegetables are associated with desirable health conditions [4]. Therefore, many students wrote that the intake of vegetables was the reason for longer life expectancy in Okinawa Prefecture. It is also known that Nagano Prefecture pro-

duces many fruits, and students perceived that fruit intake was positively associated with longer life expectancy in Nagano.

It is also widely known that excessive intake of salt is unhealthy and is often cited as the reason why Aomori Prefecture has a shorter life expectancy [5]. Students concluded that, conversely, in the prefecture with the longest life expectancy, salt intake would be lower. Miso soup is high in salt and contributes significantly to salt intake in Japan [6]. Therefore, students described miso soup as a keyword related to life expectancy. The use of dashi is a method of reducing the salt content of miso soup. Dashi is used in Japanese dishes, and therefore students wrote that Kyoto Prefecture, which is famous for its Japanese dishes, had a high life expectancy.

However, the literature has not reflected these assumptions. One study showed no correlation between vegetable intake and life expectancy in 47 Japanese prefectures [7]. Moreover, no correlation was shown between salt intake and life expectancy according to prefecture [7]. This lack of evidence of a correlation, however, is a result of both the limited number of regional correlational studies and the positive correlation between vegetable intake and salt intake in Japan [7]. Indeed, the Japanese often use salt condiments when they eat vegetables, so this positive correlation is well noted.

Few students mentioned caloric intake in their responses. Obesity, which is related to caloric intake, is not equal between prefectures, and the mean BMI in Aomori is one of the highest in Japan [8]. Obesity is also associated with non-communicable diseases [9]. Even though the prevalence of obesity in Japan is increasing, it is lower than in Western countries [1], so the effects of obesity on health may not be well recognised in Japan.

There were some limitations to this study. First, the participants were dietician students at a university. Thus, a random sampling method was not adopted. However, to minimise the influence of nutritional education, the survey was conducted within two months of the start of the course.

Conclusion

Most students considered Nagano as the prefecture with the longest life expectancy because its inhabitants consumed more vegetables and less salt. Students often stated vegetable, fruit, and salt intake as desirable dietary behaviours.

Prefecture	Reasons
Kanagawa	I investigated the mortality rate due to diabetes in Kanagawa prefecture was the lowest in Japan. Moreover, it seems that they will actively conduct health check-ups and focus on the primary prevention of diseases.
Kyoto	I think that the salt intake in Kyoto is lower compared to other prefectures, especially Aomori, because there is an image that miso soup is not seasoned. For that reason, I thought that it would be less likely to have lifestyle-related diseases such as high blood pressure compared to other prefectures.
Kyoto	Kyoto vegetables are a famous product, so I think that many people in that area eat them. There are many tourist spots, and I think there are many opportunities for local people to go out and go out to play. I thought that there are many slopes, stairs, and mountains in temples and shrines.
Nagano	They succeeded in reducing salt. Because they can eat a lot of vegetables and fruits and have a nutritionally balanced diet.
Nagano	High intake of vegetables and abundant fruits such as grapes and apples. Actively serve soba that is kind to the body.
Nagano	Because they eat many vegetables, they can get various nutrients such as potassium, vitamins, and iron. Because the vegetables are delicious. Because of the large amount of vegetables produced.
Nagano	They often eat vegetables. There are meals including staple foods, main dishes and side dishes. They are working on Shinshu ACE. (exercise, health check-up, healthy eating) Miso soup is a lot of dashi stock and spices are used to reduce salt.
Nagano	It produces many vegetables and fruits and has a healthy image.
Nagano	High vegetable intake. Low smoking rate and obesity rate. The activities of members to improve eating habits are active.
Nagano	I think that salt intake is low and that few people will suffer strokes or cancer. I have read in a newspaper that Nagano prefectures have high health awareness as well as eating habits. It has a longer life expectancy because it has a lower smoking rate and alcohol consumption than Aomori Prefecture, and a lower risk of life-style related disease.
Nagano	Salt intake is not so low, but there are exercise and walking habits. Rich in vegetables and fruits and consumed daily.
Nagano	Nagano prefecture has plenty of vegetables in miso soup, and the daily intake of nutrients such as vitamins, potassium, iron, calcium, and dietary fiber exceeds the national average. Also, their staple food is more rice than bread and noodles, and more milk and dairy products. Animal proteins and fats are below the national average, and the eating habits centred on vegetables with one soup and three vegetables are a characteristic of eating habits in Nagano Prefecture. However, salt intake is high; even if the intake of salt is high, it is considered to have a long life expectancy because it is a diet centred on vegetables.
Nagano	It faces many prefectures and I think that they can take various foods.
Nagano	I have heard that there is a habit of washing and eating pickles.
Nagano	They have a diet that allows them to eat a lot of vegetables. By moving actively during agricultural work, etc., it is possible to resolve the lack of exercise.
Nagano	High vegetable intake. To overcome the problem of high salt intake, they are conscious of specific examples such as "one cup of miso soup per day" and "leave half of ramen and soba soup". The consumption of fermented foods is also high. They also eat pickles made from food-derived lactic acid fermentation. They often eat fruits as well as vegetables.
Nagano	Unlike Aomori prefecture, the seasoning is not so much. Since the amount of fruits produced is large and the people in Nagano often eat fruits due to local production for local consumption, they can take in vitamins and dietary fiber well.
Nagano	I used to see that I was ranked high in the ranking of vegetable production. Because it is a basin, I think it is a good place to grow vegetables and fruits.
Nagano	Because of the high intake of vegetables. Because the intake of salt is low (measures to reduce salt such as miso soup). Because the proportion of drinking alcohol and smoking is low.
Nagano	Because they eat a lot of vegetables.

Nagano	They had many salts, but they had also vegetables and exercise a lot. They do not smoke much. Like Aomori prefecture, Nagano prefecture is famous for apples, but it has longer life expectancy because it covers everything except salt.
Nagano	High vegetable intake. Low mortality from cancer.
Nagano	I think they eat a well-balanced and high-nutrient meal.
Nagano	Because the dweller in the prefecture have high health awareness. Health guidance and efforts are positive. Because there are plenty of hot springs. Because there are few fast food restaurants and it is a large prefecture, so it is far away. Good balance of eating habits. They can get a lot of vegetables. Although Nagano is not surrounded by sea, they have become eat seafoods due to the development of transportation.
Nagano	They often eat vegetables (highland vegetables). The proportion of drinking alcohol and smoking is low. They often eat homemade dishes. Exercise a lot. They often take beans and dairy products.
Nagano	It is said that Nagano prefecture eats rice by refraining from bread and noodles as its staple food and eats many vegetables in miso soup. I think this is because the amount of vegetables consumed in one meal is higher than in prefectures where the amount of vegetables consumed is low.
Nagano	Agriculture is flourishing, and they can easily get fresh vegetables and fruits. In the past, we used to take a lot of salt, but since we started working on salt reduction, the salt intake decreased.
Okinawa	Strong local connections. They eat a lot of tropical fruits.
Okinawa	I have found that the high salt intake in Aomori Prefecture and the Tohoku region was because I used to eat salty foods as a preserved food when I could not farm or fish in the cold winter. So, I thought that Okinawa has a high life expectancy because it does not eat preserved foods with high salt throughout the year.
Okinawa	Even in winter, the temperature is high, and it is thought that there is almost no need to raise body temperature by ingesting salt. It is surrounded by the sea and I think they eat a lot of fish.
Okinawa	I have heard on TV that Okinawa’s dietary habits (traditional dishes) have little salty taste.
Shizuoka	Shizuoka Prefecture is rich in nature because it is surrounded by the sea and mountains. In addition, it has a freshness, such as Japan’s leading catch of Yaizu Port and tea, and the active production of vegetables and fruits that take advantage of the warm climate. I thought it would be an environment where you could quickly get foods rich in nutrients.

Table: Japanese students’ perceptions about why certain prefectures have a longer life expectancy.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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