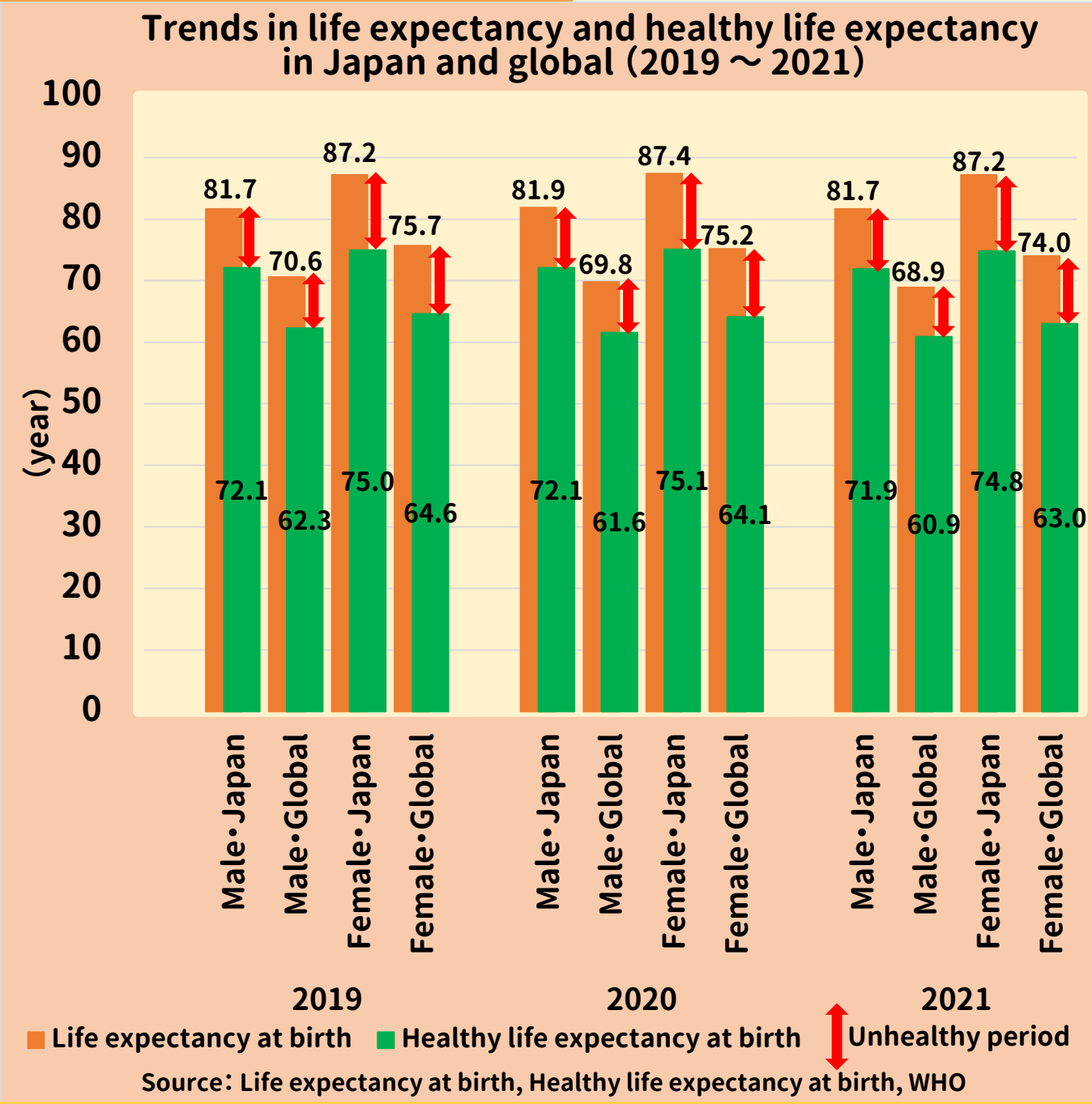


What shorten healthy life expectancy ?

1 Reality and Problems

The life expectancy in Japan is about 10 years longer than the world average for both male and female. Japan's healthy life expectancy for both male and female is more than 10 years longer than the world average.

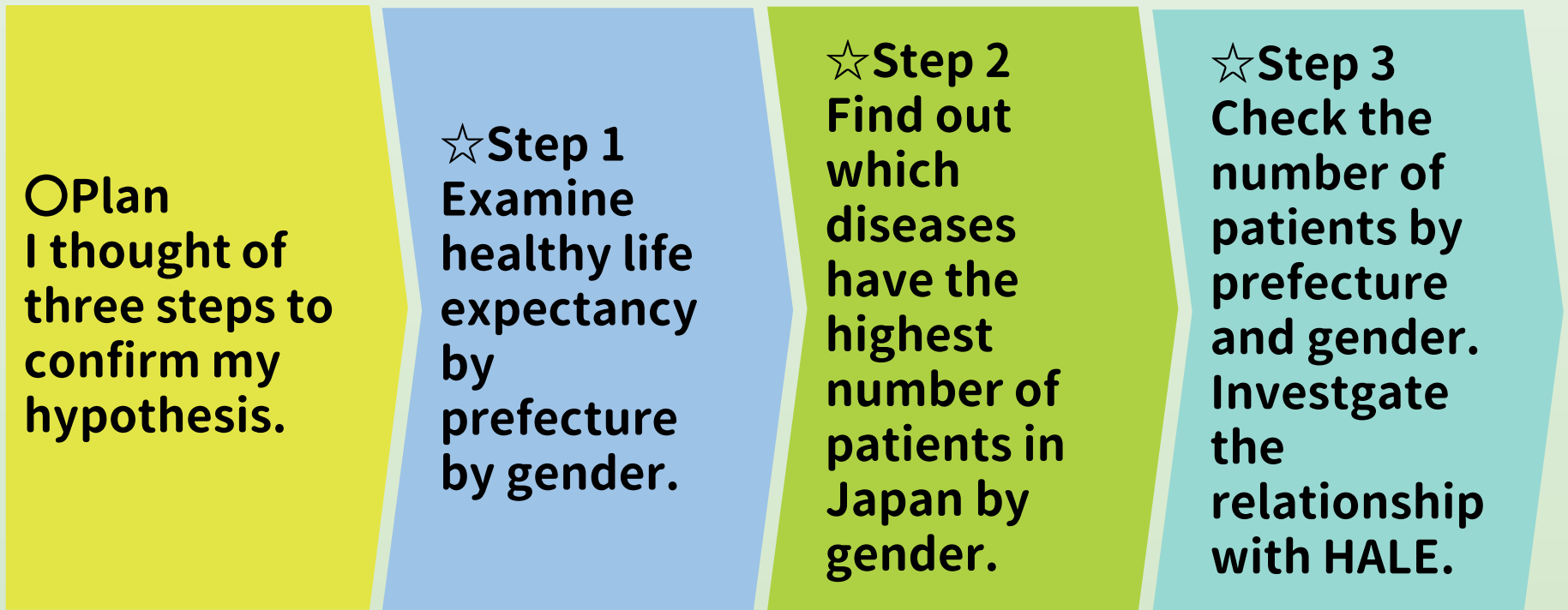
[Glossary]
•Life expectancy at birth --- The expected number of years a 0-year-old child will live.
•Healthy life expectancy(HALE) at birth --- A period during which you can live an independent life. A period when there are no restrictions on life.
•Unhealthy period --- The difference between average life expectancy and healthy life expectancy. A period during which life is restricted.



Ideally, there are no unhealthy periods. But, in Japan, there are periods in which life is restricted for about 10 years for male and more than 12 years for female. What shorten healthy life expectancy ?

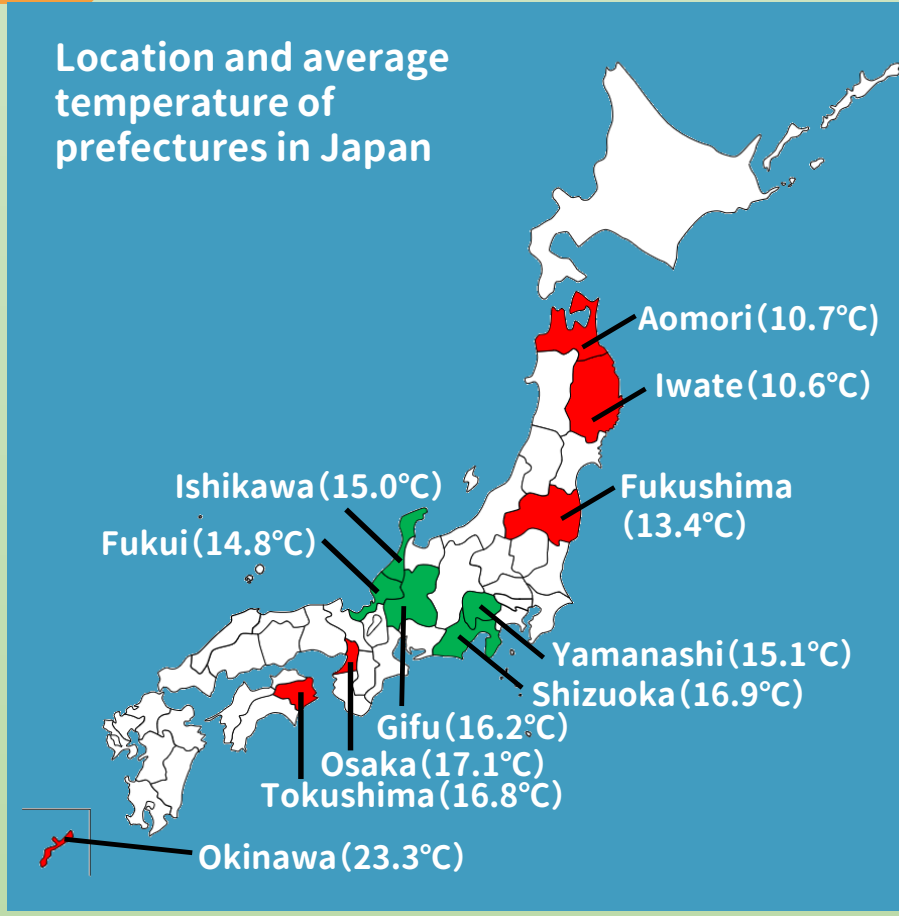
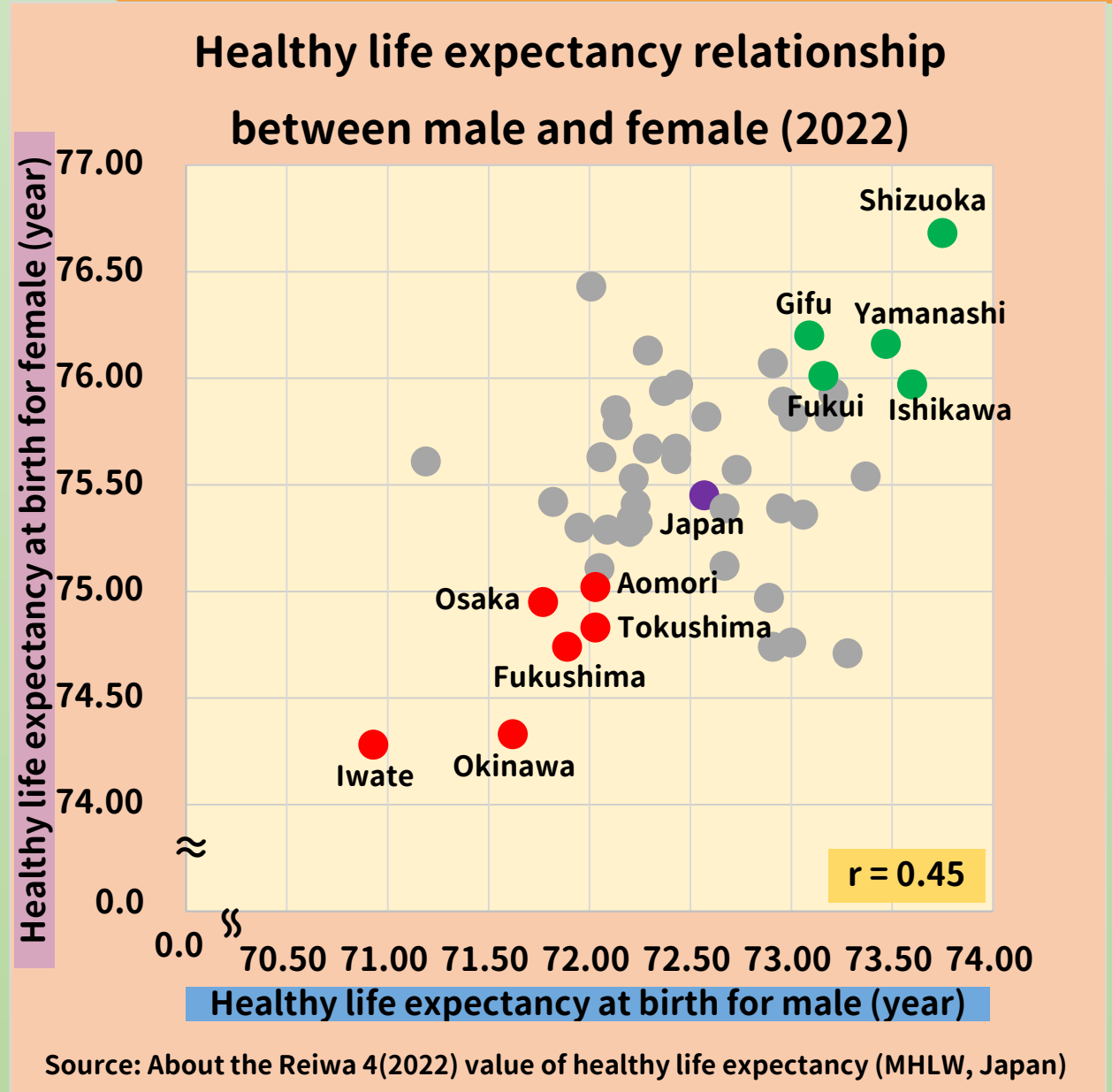
2 Hypothesis and Plan

[Hypothesis]
1. Prefectures with short healthy life expectancies may have diseases with a large number of patients.
2. Prefectures with long healthy life expectancies have fewer patients with diseases.



•There are only a few types of statistical data for each prefecture and gender.
•Disease groupings are based on the Ministry of Health, Labor and Welfare's classification.
•There were many names of diseases that I didn't know.

3 Analysis --- Step 1



Prefectures with long healthy life expectancies for both men and women are concentrated in the Chubu region.

4 Analysis --- Step 2

Major diseases with a total of over 1 million patients by gender (2023)

(Unit: 1000 people)		(Unit: 1000 people)	
Disease name	Male patients	Disease name	Female patients
hypertensive disease	7434	Dental related diseases	9962
Dental related diseases	6871	hypertensive disease	8661
type 2 diabetes	2150	dyslipidemia	3061
heart disease	2077	malignant neoplasm	1930
malignant neoplasm	2010	glaucoma	1526
dyslipidemia	1527	heart disease	1500
glaucoma	1097	type 2 diabetes	1490
cerebrovascular disease	1017	osteoporosis	1309
		cataract	1092
		asthma	1090

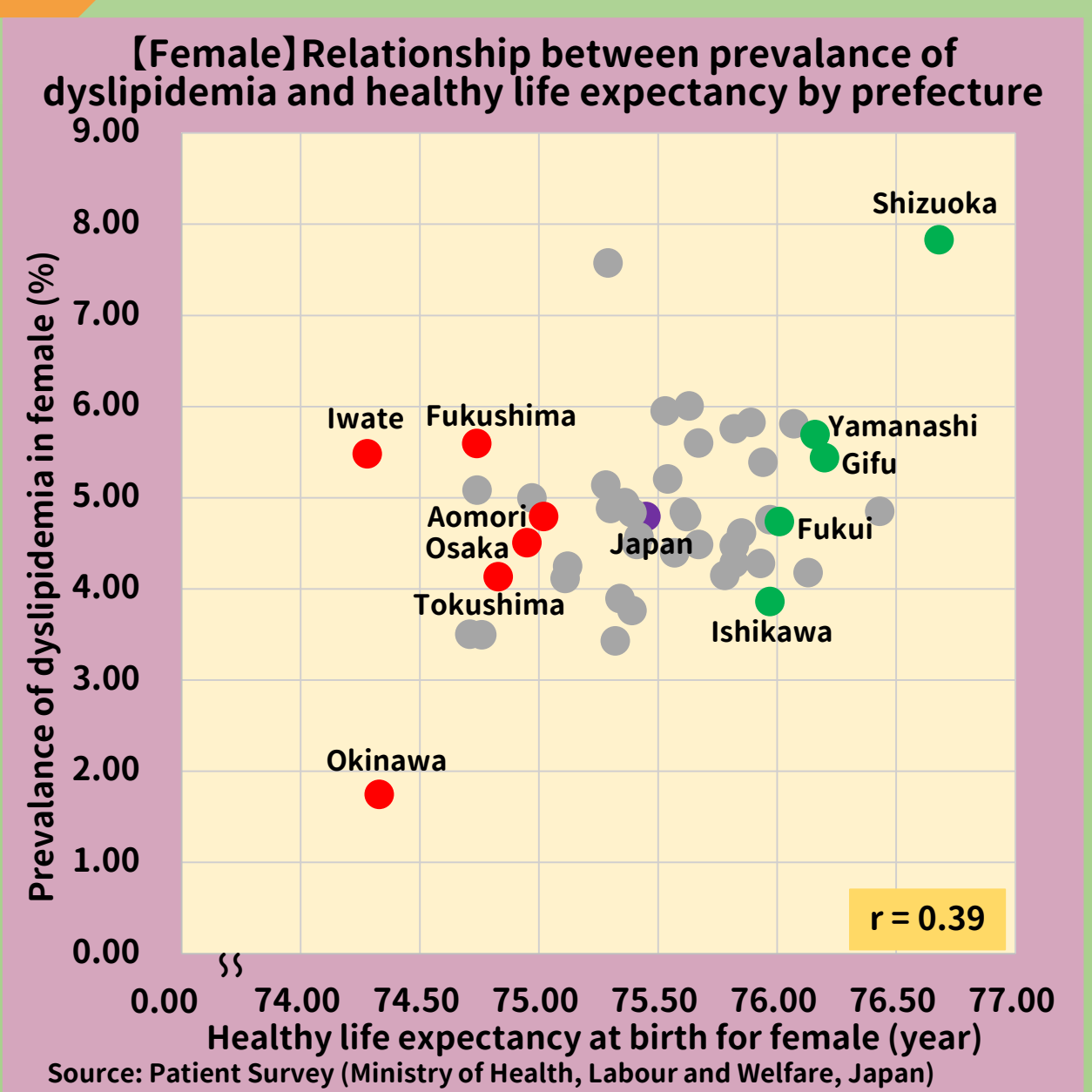
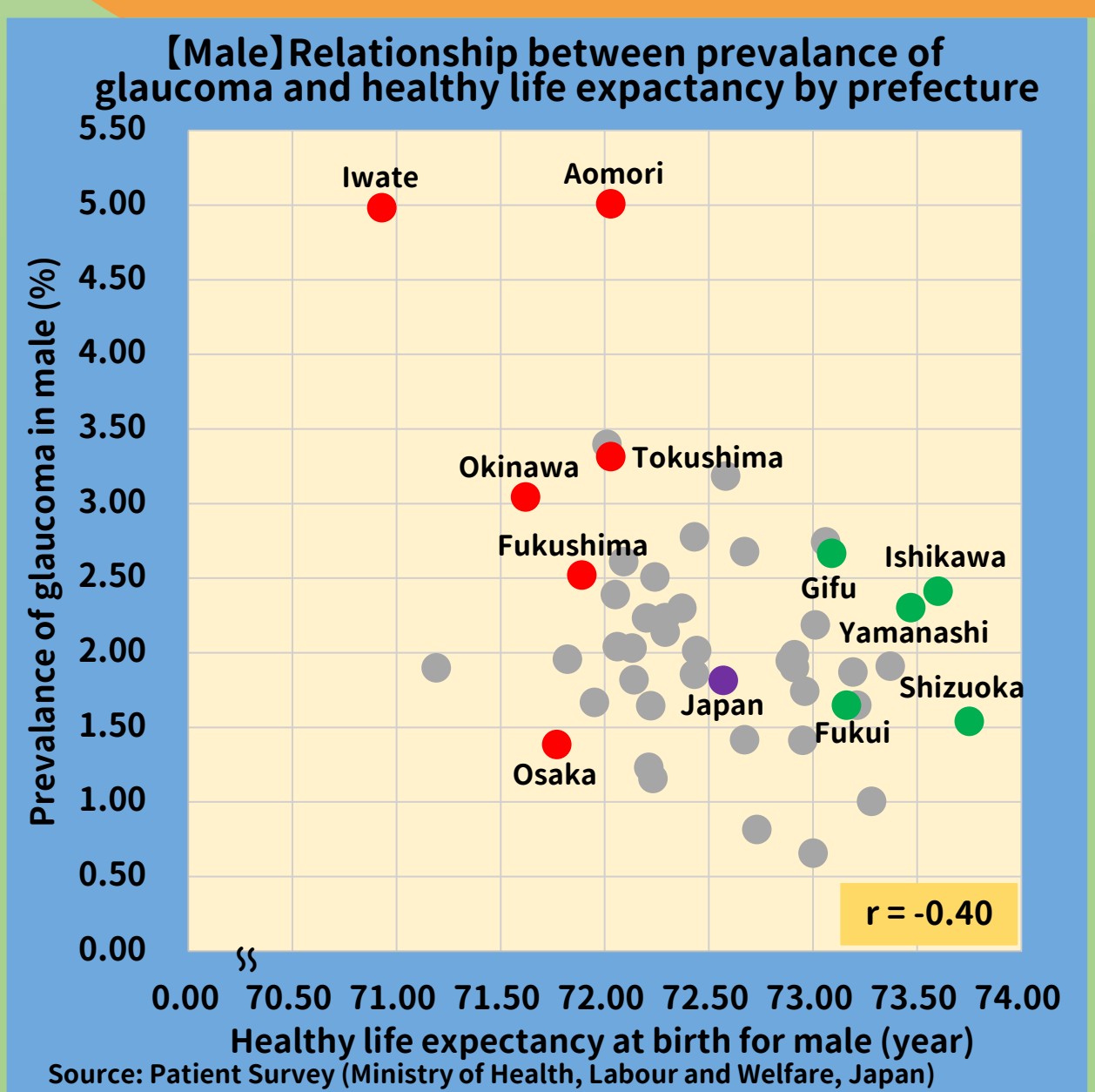
Source: Patient Survey (MHLW, Japan)

The diseases are listed in order of the number of male and female patients in Japan. The following table lists the names of diseases with more than one million patients. There are several disease names that include both male and female.

I looked into healthy life expectancy by gender for each prefecture. Of the 47 prefectures, the prefectures that were in the top 10 both men and women are colored green. Prefectures that were in the bottom 10 for both men and women are colored red. A positive correlation was found between men's and women's healthy life expectancy.

[Reference] The population of Japan is
•Male 60,492,000 people •Female 63,859,000 people
•Total 124,352,000 people
Source: Population estimates (As of October 1, 2023)
Statistics Bureau of Japan

5 Analysis --- Step 3



I investigated the prevalence of the diseases listed in Step 2 by gender and by prefecture. Next, I investigated the relationship between prevalence and Step 1 healthy life expectancy. Glaucoma was the only disease that showed a negative correlation in male. The only female case was glaucoma.

6 Conclusion

○Understanding analysis results
In step 3, I graphed glaucoma in male, which showed a negative correlation.
In female, I graphed dyslipidemia, which showed a weak positive correlation.
Most diseases had no relation to healthy life expectancy.

○Judgement of hypothesis
I found a disease that satisfies Hypothesis 1. Both male and female had glaucoma.
I also found diseases that did not satisfy Hypothesis 2. That is dyslipidemia in female.
I thought it was difficult to explain healthy life expectancy based solely on disease prevalence.

○Suggestion
Healthy life expectancy is self-reported. Is the data from unhealthy periods accurate ? In the future, we will need something that can determine when people are unhealthy.
If you are worried about your health, it is important to go to the hospital without hesitation. If treatment is started early, the condition may not become life-limiting. As a result, period of unhealthy health will be shorter.