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# Japanese Live Longer in Wooden Houses

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木造住宅住人の寿命に関する調査研究

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**Abstract** Japanese people living in wooden houses outlive those living in other types of structures (mainly concrete apartments) by a few years according to a direct questionnaire survey and to analysis of published statistical data. One possible reason is a decrease in cancer for the people in wooden houses.

Many Japanese were pleased to find in the newspaper "Japan No.1 country for longevity!" They don't know a crisis is coming already. As part of industrial and economic development, land values are becoming higher and higher, and the Japanese can no longer afford traditional wooden houses in big city areas. Thus concrete apartments are increasing in number.

Our previous questionnaire survey[1] showed that the livability of wooden houses in Japan is superior to that of concrete houses and that the birth rate is higher. Furthermore, it showed that people living in wooden houses live several years longer than those in the concrete houses. While the survey gave the answer to our hypothesis directly, the number of replies was of the order of hundreds. The result that people live longer in wooden houses must be confirmed from the another point of view. In this report, Japanese government statistical data for 47 prefectures in Japan were analyzed. Relationships between the ratio of wooden houses to total units and the average life span and cause of death were obtained. Although the data do not include personal histories like those we investigated in our survey and do not perfectly meet our aim, the abundance of the data is quite enough. Therefore the complementary data analysis makes the previous results more clear. The data sources were the housing survey (1968, 1978, 1988) in the Japan Statistical Yearbook, Bureau of Statistics, Office of the Prime Minister; the Municipal Life Tables (1965, 1975, 1985); and the Vital Statistics Japan (1968, 1978, 1987), Health and Welfare Statistics Division, Minister's Secretariat, Ministry of Health and Welfare.

From the analysis, at first, it becomes evident that average temperatures in the prefectures greatly influence the average life span. However, in the western part of Japan the influence is not as great as in the east because of differences in geography. Figure 1 shows the relationships between the average life spans of women and the wooden house ratios of 23 prefectures in the west during the 1980's. The life span increases with increasing wooden house ratio. The relationships are

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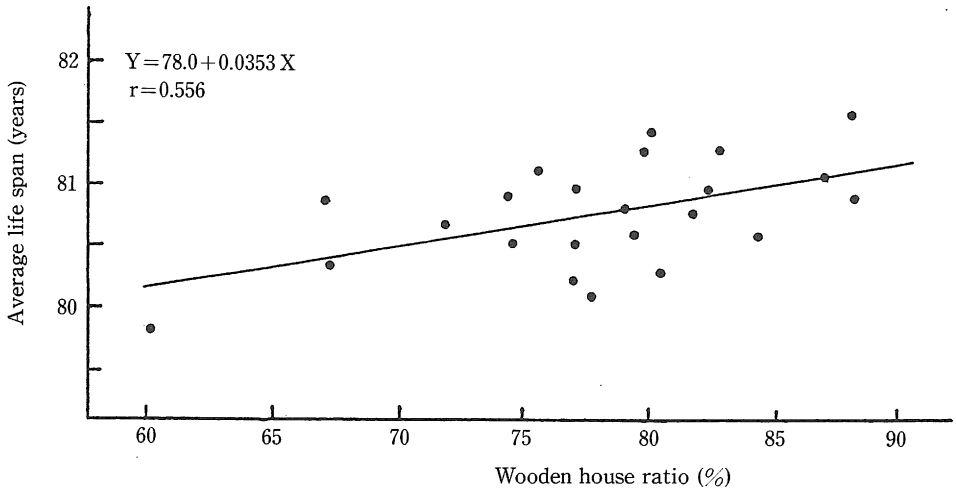


Fig 1. Relationship between average life span of women and the wooden house ratios of 23 prefectures in western Japan during the 1980's.

significant at the 1% level. The difference of average life span from the regression line is about 1 year in the range of the data and would be 3 years if the line is extrapolated to 0 and 100%. This difference is almost the same as was found from our previous survey research.

For the relationship between the wooden house ratio and the cause of death, there exists a positive correlation with the ratio of the death rate from cerebrovascular problems to the total death rate and a negative correlation with that from malignant neoplasm (cancer). The age of people dying from cerebrovascular problems generally is higher than that for malignant neoplasm, and in recent years the latter has became the principal cause of death in Japan. Therefore the decrease in the death rate from cancer must be noted. Especially lung, oesophagus, breast, and liver cancers have negative correlations with wooden house ratios. Here we should point out some factors in houses relating to the above cancers, for example, ventilation of cigarette smoke, radioactive radon, and so on with respect to lung cancer and oesophagus cancer, the high birth rate in wooden house with respect to breast cancer, and possible influences of stress and alcohol because good livability in wooden houses with respect to liver cancer. However, more detailed discussions about these are not warranted.

In addition to the geographical approach, a chronological approach is needed. Although in the 60's and 70's the wooden house ratios of the prefectures were not rary different and significant results corresponding to those discussed above were not obtained, during the last thirty years the wooden house ratios in Tokyo and Osaka, the two biggest prefectures in terms of population, have notably decreased. Over this period average life spans in them have gradually increased. Therefore the differences from the average life spans in all of Japan are important. Figure 2 shows that the differential life spans increase with increasing wooden house ratio. Furthermore, the increase is about 1.5 year from 60% to 90% wooden house ratio and this result is in good agreement with those according to the two methods

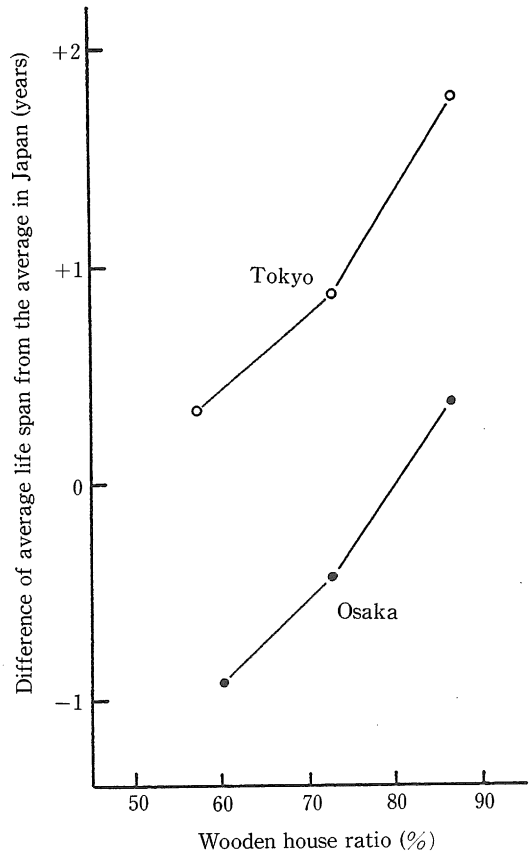


Fig 2. Relationship between average life span of women and wooden house ratio in Tokyo and Osaka from the 1960's to the 1980's.

discussed above. For the cause of death, similar tendencies were obtained, namely, that the death rate from cancer decreases with increasing wooden house ratios.

From these different analyses, it is possible to conclude that the Japanese people living in wooden houses live longer. The difference, a few years, is not small when considering that according to the life tables the average life span is estimated to become about 3 years longer if cancer were completely eliminated. Furthermore, the relationship between wooden houses and cancer must be noted. This relationship has come out in recent years after medical care, the standard of living, and so on were improved everywhere in Japan and the average life span became longer, and after the decreasing availability of traditional wooden houses. Further researches about the relationships between the living environment and human life are needed now.

## REFERENCES

1) Nakao, T. Wood Industry, Japan (in Japanese) 45, 580−584 (1990).

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