Factors Associated with Self-rated Health of Rural Population: A Report from the Prospective Observational Study

Yoshihisa Hirakawa¹, Takaya Kimata² and Kazumasa Uemura¹

¹ Center for Postgraduate Clinical Training and Career Development, Nagoya University Hospital, Japan
² Aoi Home Clinic, Japan

Self-rated health (SRH) is a single question asking people to assess his or her overall health status, and is a widely used indicator of person’s perception of his or her own health. Although a number of studies have focused on the topic, SRH is still an important study topic to enhance the quality of life among people. Especially, there are not sufficient data on factors associated with self-rated health in rural areas in Japan. Therefore, we previously performed a pilot retrospective study on the topic by using the Kyusyu Asakura Project (KAP) data. The KAP is an observational cohort study of all users who underwent an annual health check-up at a public clinic in Asakura City (Kyushu region, Western Japan) from 2009 to 2016. KAP included a questionnaire survey, and the items were age, sex, somatometry, family budget conditions, family structure, SRH, whether or not attending a hospital or clinic regularly, medication related to life-related disease, eating habits, exercise habits, Geriatric Depression Scale 5 (GDS5). As the results of the pilot study, there were statistically significant differences in regular hospital or clinic attendance between the high and low SRH groups, while there were no significant differences in eating or exercise habits between the two SRH groups.

To confirm the results of the retrospective analysis, we revised the questionnaire adding additional items such as subjective symptoms, comorbid diseases, smoking habit, and drinking habit, and performed the prospective study by using the KAP data from April 2012 to January 2013. As the same as the retrospective study, we defined the subjects who responded yes to the above-mentioned SRH related question as high SRH group, and no as low SRH group. And then, we compared the data between high and low SRH groups. We used t-test for continuous value, and chi-square test for discontinuous value. A P-value less than 0.05 was considered statistically significant. We used IBM SPSS statistics 20 as statistics software.

After excluding one hundred fifty five subjects whose SRH related data was missing from the present analysis, we analyzed the data of 818 subjects (155 men aged less than 65, 189 women aged less than 65, 230 men aged 65 and over, 244 women aged 65 and over). The characteristics and results of the study subjects are shown in Table 1. Two thirds of the subjects have a high SRH (67.4%). More subjects in high SRH group were involved in farming. The subjects in low SRH group were more likely to have some subjective distress symptoms including headache, dizziness, general fatigue, pain in the lower back, shoulder or neck, insomnia, or constipation. The subjects in low SRH group were likely to have heart disease, diabetes mellitus, hypertension or hyperlipidemia. Although there were no significant differences in eating, smoking or drinking habits between the two SRH groups in all the four categories, the subjects in high SRH group had exercise habits. There are statistically significant differences in GDS5 scores between high and low SRH groups.

Our results of the prospective study added several new evidences to the retrospective study. As mentioned above, there are significant differences in the prevalence of some subjective distress symptoms including headache, dizziness, general fatigue, pain in the lower back, shoulder or neck, insomnia, or constipation between high and low SRH groups. Paying attention to and controlling such distress symptoms possibly contributes to good SRH and quality of life. Also, our results suggested that the presence of chronic health problems for the persons is strongly related to low SRH. It is natural that the persons think their own health conditions are not good. As previously stated in the
retrospective study\textsuperscript{7)}, there are some previous studies to support our results. Our results confirmed proceeding studies and implied that rural physicians should give their patients not only an explanation of health conditions but also emotional or psychological support to deal with their own health problems positively.

Although we observed in the retrospective study\textsuperscript{7)} that there were little relation between healthy life habits and good SRH, there were relation between exercise habits and good SRH. In addition, Igarashi and Iijima suggested that the persons’ SRH is not affected by each life-style factor such as diet or exercise habits, but by mental factors such as depressed mood.

### Table 1 Characteristics and lifestyle-related habits of study participants according to self-related health (SRH) (n=818)

|                  | High SRH (n=551) | Low SRH (n=267) | p value |
|------------------|------------------|-----------------|---------|
| Age (year)       | Average ± SD     |                 |         |
| Gender           |                  |                 |         |
| Female           | 294              | 139             | 0.958   |
| Male             | 257              | 128             |         |
| Livelihood       |                  |                 |         |
| Full-time farmer | 198              | 72              | 0.040   |
| Part-time farmer | 105              | 62              |         |
| Non-farmer       | 216              | 114             |         |
| Subjective distress symptoms |          |                 |         |
| Headache         | 41               | 32              | 0.037   |
| Dizziness        | 26               | 31              | 0.001   |
| Shortness of breath | 31            | 28              | 0.014   |
| Arrhythmia       | 45               | 33              | 0.058   |
| Cough/Sputum     | 57               | 33              | 0.405   |
| Tinnitus         | 106              | 56              | 0.575   |
| Insomnia         | 31               | 47              | 0.000   |
| General fatigue  | 56               | 61              | 0.000   |
| Palsy            | 75               | 67              | 0.000   |
| Pain (lower back, shoulder, neck) | 215          | 151             | 0.000   |
| Frequent urination | 57            | 36              | 0.197   |
| Heartburn        | 44               | 28              | 0.239   |
| Constipation/Diarrhea | 55         | 59              | 0.000   |
| Illness          |                  |                 |         |
| Stroke           | 4                | 6               | 0.141   |
| Heart disease    | 14               | 21              | 0.001   |
| Hypertension     | 142              | 97              | 0.002   |
| Diabetes Mellitus| 43               | 54              | 0.000   |
| Hyperuricemia    | 11               | 8               | 0.458   |
| Hyperlipidemia   | 74               | 53              | 0.023   |
| Liver disease    | 21               | 8               | 0.688   |
| Gastric ulcer    | 51               | 22              | 0.696   |
| Duodenal ulcer   | 43               | 26              | 0.351   |
| Bronchial asthma | 18               | 17              | 0.044   |
| Prostatic hyperplasia | 31         | 24              | 0.076   |
| Smoking          | Yes              |                 |         |
| Yes              | 64               | 30              | 0.545   |
| No               | 251              | 133             |         |
| Alcohol intake   |                  |                 |         |
| Every day        | 134              | 68              | 0.899   |
| Sometimes        | 152              | 62              |         |
| No               | 251              | 133             |         |
| Good exercise habits | Yes           |                 |         |
| Yes              | 422              | 166             | 0.000   |
| No               | 485              | 225             |         |
| Healthy eating habits | Yes          |                 |         |
| Yes              | 485              | 225             | 0.217   |
| GDS5             |                  |                 |         |
| 0                | 374              | 93              | 0.000   |
| 1                | 118              | 21              |         |
| 2                | 118              | 21              |         |
| 3                | 21               | 47              |         |
| 4                | 3                | 3               |         |
| 5                | 0                | 0               |         |

The t-test was used for continuous values and the chi-square test for discontinuous values.
as life satisfaction or general health image⁹. It seems controversial whether there is relation between exercise habits and good SRH or not so far. Additional studies are needed to confirm our results.

Our results suggested that depressive mood shown by GDS5 scores is negatively related to good SRH. In our retrospective study, the relation was observed only among the female population aged less than 65 years old. Although we do not show the results, our results of the present study suggested that depressive mood shown by GDS5 scores is negatively related to good SRH in all age- or gender- categories (men aged less than 65, women aged less than 65, men aged 65 and over, women aged 65 and over). Thus, by the present study which is larger scale than the retrospective study, we can confirm that depressive mood shown by GDS5 scores is negatively related to good SRH regardless of age or gender.

In conclusion, we conducted the larger-scale study than our retrospective study⁷, including several important factors possibly associated with SRH, such as history of smoking. Because the study was biased because only a portion of Asakura city’s population underwent a check-up and was therefore included in the data, our results should thus be generalized with caution. However, by the present study, we finally responded several questions which arose from the retrospective study and remain unanswered.

Acknowledgement

This work was supported in part by a research grant from the Japanese association of rural medicine. The authors are grateful to all participants and all medical staff of Asakura clinic.

References

1. Mitoku K, Takahashi T, Hoshi T. Reviewing the studies of the relation between the subjective feeling of health and mortality. Kawasaki Medical Welfare Journal 2006; 16: 1–10 (in Japanese, Abstract in English).
2. Arnadottir SA, Gunnarsdottir ED, Stenlund H, et al. Determinants of self-rated health in old age: A population-based, cross-sectional study using the International Classification of Functioning. BMC Public Health 2011; 11: 670. [Medline] [CrossRef]
3. Pijls LT, Feskens EJ, Kromhout D. Self-rated health, mortality, and chronic diseases in elderly men. The Zutphen Study, 1985–1990. American Journal of Epidemiology 1993; 138: 840–848. [Medline] [CrossRef]
4. Giltay EJ, Vollaard AM, Kromhout D. Self-rated health and physician-rated health as independent predictors of mortality in elderly men. Age Ageing 2012; 41: 165–171. [Medline] [CrossRef]
5. Sugisawa H, Liang J. The impact of self-rated health on change in daily living activities among Japanese elderly; from the three-year follow-up survey. Social Gerontology 1994; 39: 3–10 (in Japanese, Abstract in English).
6. Sugisawa H. Qualitative and quantitative views of self-rated health among the elderly. Social Gerontology 1993; 38: 13–24 (in Japanese, Abstract in English).
7. Hirakawa Y, Kimata T, Uemura K. Factors associated with self-rated health of rural population: age- and gender-specific analysis. J Rural Med 2013; 8: 222–227. [CrossRef]
8. Yesavage JA, Brink TL, Rose TL, et al. Development and validation of a geriatric depression screening scale: A preliminary report. J Psychiatr Res 1982-1983; 17: 37–49. [Medline] [CrossRef]
9. Igarashi H, Iijima S. Effects of life-style factors and health related factors on subjective health in male workers. Yamanashi Nurs J 2006; 4: 19–24 (in Japanese, Abstract in English).