

Health Status and Daily Life of Elders Living in the Rural Area

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Introduction

It is significant for our society, especially for the elderly people to investigate the desirable daily life styles to lead a happy and fruitful life in mental, spiritual and physical matters. We already have reported the results of health surveyance studies conducted in 1998 and 2001 on actual conditions of health status and daily activities of the aged living in a rural area in Japan^{1,2)}. In these studies, several findings were obtained.

1) Health status of the subjects declined, on the other hand, incidences of the subjects with any diseases increased in three years. The average numbers of the diseases per person showed increasing trends from 1.07 to 1.26 in these three years.

2) Main diseases of which the average numbers per person increased were arthritis, lumbago, osteoporosis and insenescence. In elderly men subjects, diabetes and insenescence were main diseases increased in three years, and also in elderly female subjects, arthritis, lumbago, osteoporosis and insenescence, respectively ($p < 0.01$).

3) Though, life satisfaction of the subjects had a tendency to decrease with the progress of the aging, the subjects of 88 to 92 years old in 2001 showed slightly increasing trend in life satisfaction and none in this year bracket answered "quite unsatisfied". 4) Numbers of the subjects with higher life satisfaction decreased in three years, in particular in the subjects with any diseases, however, there were no changes in the subjects who had fixed roles in their family comparing with those without roles. 5) Average scores of ADL and physical strength-related scales decreased in every age group. In this study, we focused mainly

on the secular change of ADL and physical activities and functions, and analyzed the relationships of these scores to health status of the aged subjects.

Subjects and Methods

1. Subjects: All elders over 65 years old living in S-town, G-ken, Japan

2. Methods of Examination: Self-administered questionnaires, main contents of which were on their health conditions and daily activities were carried out twice to all the aged inhabitants of the town in 1998 and 2001. Results of these studies from 2,281 subjects (980 male, 1301 female) who answered the questionnaires twice in these years were analyzed on their health conditions. Recovery rates of the questionnaires were 97.3% in 1998 and 95.9% in 2001.

3. Statistical Analysis: Their physical activities and functions were evaluated with ADL (activities in daily living) scales, expanded ADL scales (eight Barthel scale items and four Roken style activity scale items), and 29 physical strength-related scale. Subjects were divided into two groups. The subjects who could preserve their ADL scores in these three years (83.6% of the subjects) were classified as 「Preserved group」. Subjects with decreased ADL score in these years (16.2 % of the subjects) were divided into 「Decreased group」.

Scores of physical strength are composed of five elements: muscular strength, sense of balance, flexibility, agility and endurance. Changes of the scores in each element were analyzed in these two groups.

Results

1. Age distribution of the subjects were shown in Table 1. Since the examinations were not carried out on the same day of a year, numbers of the subjects in some age group differed slightly.

Table1. Age Distribution of Subjects

1998				2001			
Age group	age	number	%	Age group	age	number	%
1	65-69	787	33.6	1	68-72	787	33.6
2	70-74	707	31.0	2	73-77	704	30.9
3	75-79	440	19.3	3	78-82	443	19.4
4	80-84	225	9.9	4	83-87	225	9.9
5	85-89	111	4.9	5	88-92	111	4.9
6	90-	31	1.4	6	93-	31	1.4
	total	2281	100.0		合計	2281	100.0

2. Changes of subjective health status

As shown in Fig. 1, health status of the whole subjects moved to lower stages in three years. These tendencies were more obviously seen in Decreased group (Fig.4 and 5) than in Preserved group (Fig.2 and 3). Percentages of the subjects who answered “very healthy” or “acceptably healthy” slightly decreased from 71.3% (1998) to 63.6 % (2001) in Preserved group, on the other hand, in Decreased group, the percentages dramatically decreased from 44.1% to 23.0% .

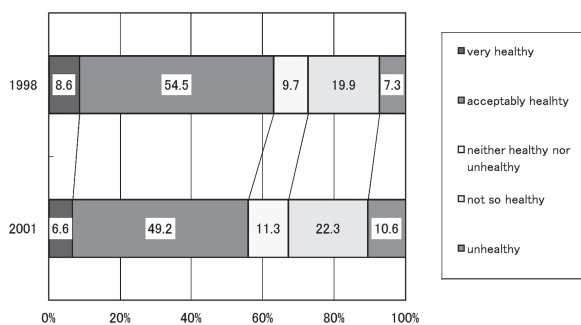


Fig.1 Changes of Subjective Health Status (whole subjects)

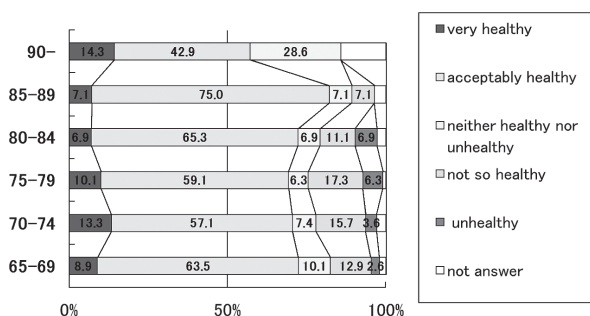


Fig.2 Age Distribution of Subjective Health Status(1998): Preserved group

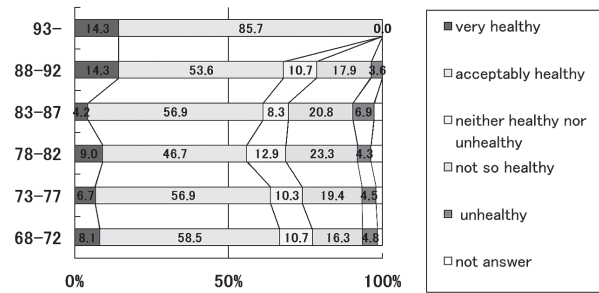


Fig.3 Age Distribution of Subjective Health Status(2001): Preserved group

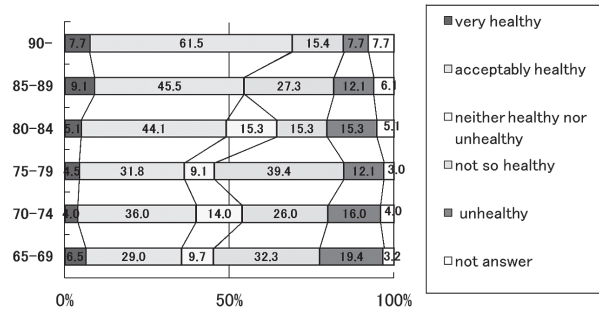


Fig.4 Age Distribution of Subjective Health Status(1998): Decreased group

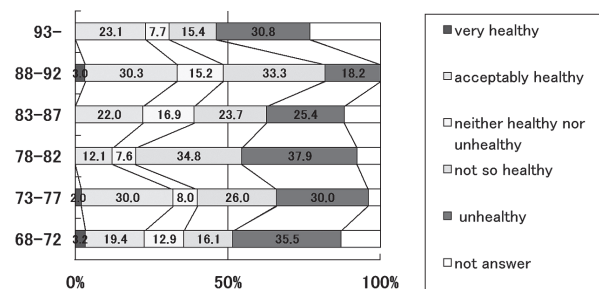


Fig.5 Age Distribution of Subjective Health Status (2001) : Decreased group

Because ages of all subjects in this study were more than 65 years old, greater part of them had any diseases and the prevalences of diseases increased in these three years as shown in Fig. 6. Though in Preserved group, incidences of the subjects with any diseases slightly increased from 58.0 % (1998) to 65.0(2001), the proportion in Decreased group increased significantly ($p < 0.05$) from 68.7 to 88.5 % . Age distribution of the subjects with any diseases in Preserved group and in Decreased group were described in Fig. 7 and Fig.8, respectively.

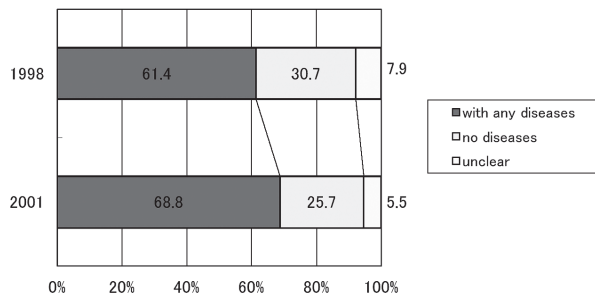


Fig.6 Change of Incidences of the Subjects with or without any Diseases (whole subjects)

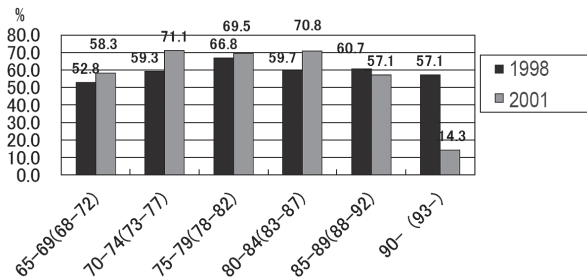


Fig.7 Age Distribution of Subjects with any Diseases: Preserved group

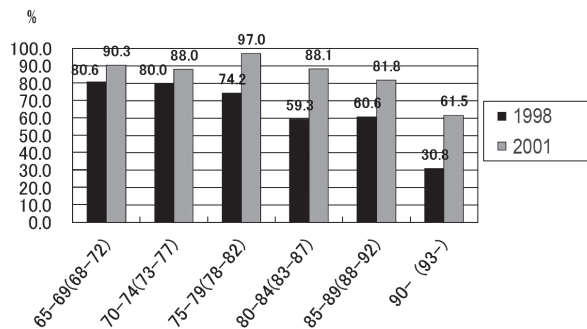


Fig.8 Age Distribution of Subjects with any Diseases: Preserved group

3. Changes of Life Satisfaction in three years

Sense of life satisfaction of the subjects deteriorated in these three years as shown in Fig. 9. Percentage of the subjects who answered “Satisfied” or “fairly Satisfied” in Preserved groups (Fig. 10 and 11) almost unchanged (around 85%) in these three years, but in Decreased group (Fig. 12 and 13), the percentage decreased more than 20 %. Though life satisfactions, in particular in Preserved groups, had a tendency to decrease with the progress of the aging, the subjects in 88 to 92 years old subjects of the group in 2001(Fig. 11) showed slightly increasing trend in life satisfaction and no subjects in this year bracket answered “quite unsatisfied”.

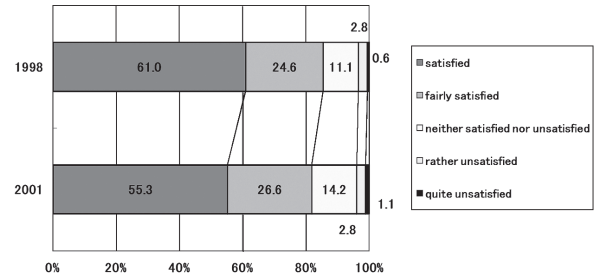


Fig.9 Change of life satisfaction in three years (whole subjects)

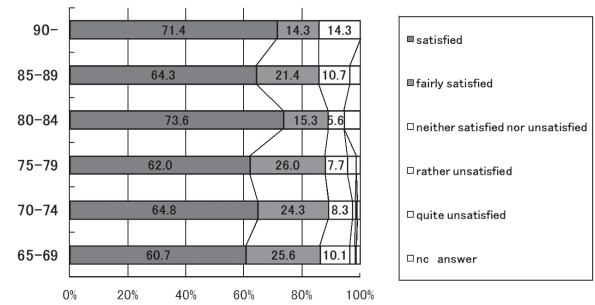


Fig.10 Age Distribution of Subjective Life satisfaction (1998): Preserved group

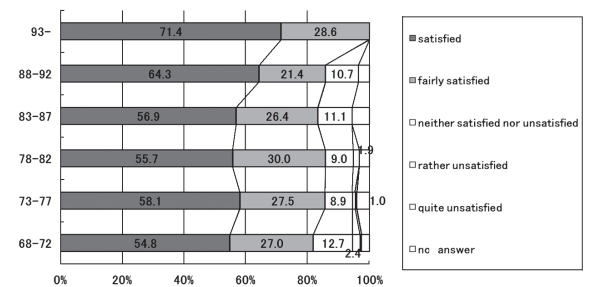


Fig.11 Age Distribution of Subjective Life satisfaction (2001): Preserved group

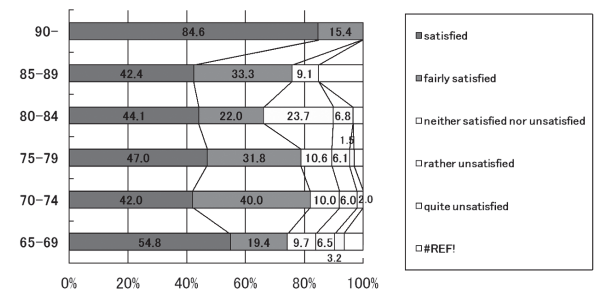


Fig.12 Age Distribution of Subjective Life satisfaction (1998): Decreased group

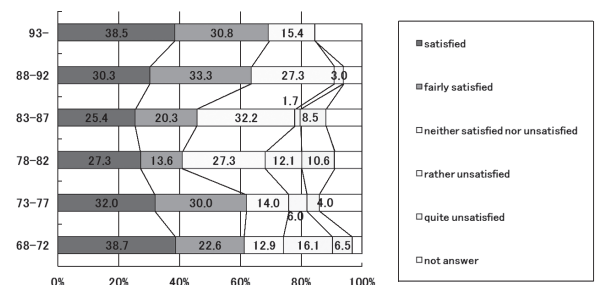


Fig.13 Age Distribution of Subjective Life satisfaction (2001): Decreased group

4. Changes of Incidences of subjects with Diseases (Table 2 and 3)

Hypertension, lumbago, arthritis, heart diseases, osteoporosis and insenscence are main diseases of the subjects of this study. In Decreased group, more incidences were observed in arthritis, lumbago, osteoporosis, heart diseases and insenscence. Furthermore, these incidences significantly augmented in the group than Preserved group in these three years (Table 2 and 3).

Table2 Changes of Incidences of Subjects with Diseases : Preserved Group

Diseases	1998	Incidence(%) 2001
Hypertension	25.2	28.1
Stroke	2.1	2.0
Heart Disease	9.7	12.5
Diabetes	4.8	6.0
Respiratory Diseases	2.4	3.8
Digestive Diseases	10.1	10.1
External Injury & Fracture	1.5	1.2
Arthritis	8.3	12.4*
Lumbago	14.4	20.3*
Osteoporosis	6.2	8.7*
Injury on Head	0.1	0.1
Depression	0.6	0.1
Insenscence	0.3	1.2*
Others	10.1	10.1
Unclear	0.5	0.5

*:p<0.05

Table3 Changes of Incidences of Subjects with Diseases : Decreased Group

Diseases	1998	Incidence(%) 2001
Hypertension	27.4	27.0
Stroke	4.4	9.9
Heart Disease	18.3	19.0
Diabetes	7.9	7.5
Respiratory Diseases	7.5	6.7
Digestive Diseases	9.1	9.5
External Injury & Fracture	3.2	4.0
Arthritis	13.1	4.0
Lumbago	19.0	21.8
Osteoporosis	10.7	17.1
Injury on Head	0.4	0.1
Depression	0.6	1.2
Insenscence	4.0	17.1*
Others	11.9	19.4
Unclear	2.0	1.6

*:p<0.05

5. Changes of Physical Activity

Evaluation with ADL scales

Average scores of ADL scales of the whole subjects were 96.9 points in 1998 and 94.1 points in 2001, full marks are 100 points (Fig. 14). These decreases in average scores were more distinct in female subjects than in male subjects. These scores declined with age, in particular, in the subjects over 90 years old, severe decreases of the scores were observed in Fig.15.

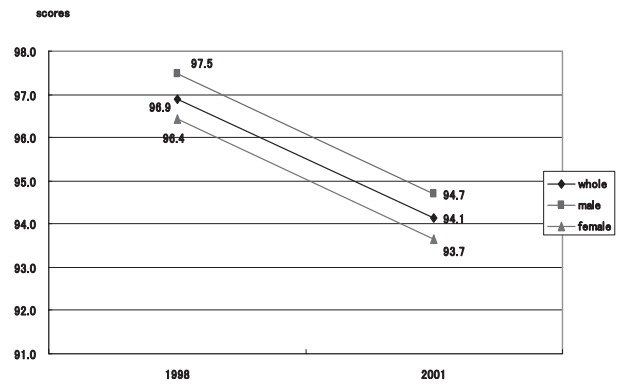


Fig.14 Change of average scores of ADL scale (Whole subjects)

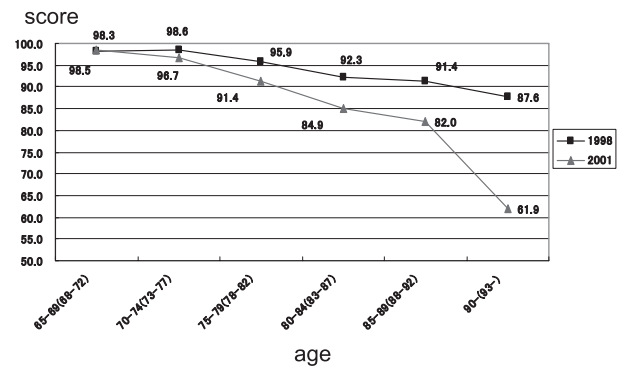


Fig.15 Change of average scores of ADL scale (whole subjects)

Evaluation with expanded ADL scale

Similar trends indicated above were seen in the results by expanded ADL scale. Average scores of expanded ADL scale in whole subjects were 11.3 points in 1998 and 10.6 in 2001, from 11.4 to 10.8 in men, from 11.2 to 10.5 in women (full marks are 12 points).

Evaluation with physical strength-related scale

Similar tendencies were also observed in the results by physical strength-related scale, full marks of this scale are 35 points. Average scores of the physical strength-related scale in whole subjects were 28.3 in 1998 and 26.3 in 2001, from 30.1 to 25.3 in men and 26.3 to 17.5 points in women. These decreases in average scores were revealed most clearly by this scale than other scales in every age group (Fig. 16 and 17). However, these declines loosened in the subjects over 85 or 88 years old.

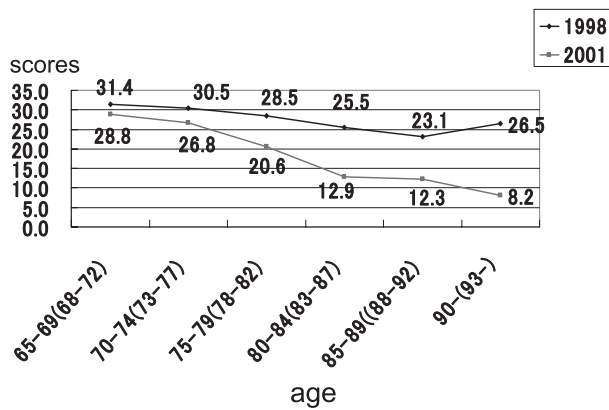


Fig.16 Change of average scores of strength-related scale (male subjects)

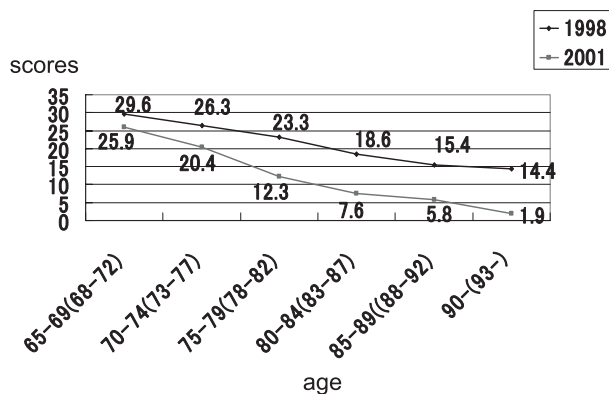


Fig.17 Change of average scores of strength-related scale (female subjects)

Though average scores of physical strength declined in all 5 elements in these three years, very slight decreases were observed in these scores in Preserved group. To the contrary in Decreased group, the scores reduced extremely ($p < 0.001$), in particular in points of agility and endurance (Fig. 18).

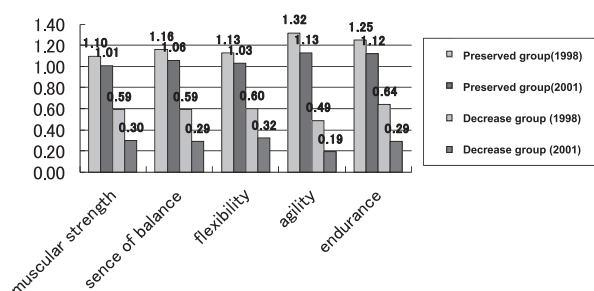


Fig.18 Changes of Average Score of Physical Strength in two groups

Discussion

Relationships between health status and physical activities were analyzed through secular changes of the subjects living in a rural area in Japan. More than 80 percent of the subjects who maintained their physical activity (Preserved group) were observed higher life satisfaction and subjective health status through the period of these studies. In particular, life satisfaction and subjective health status increased in the group of the subjects around 90 years old. These results might not mean that they became stronger with their years, but suggests that persons of advanced age with healthier and stronger physical status could remain alive. They could have preserved their physical strength, roles in their families, refrained from severe diseases, which might make them possible to keep their health and life satisfaction.

Roles in their families and physical strengths are important factors mainly related to their sense of life satisfaction^{1,2,3,4}. Rate of subjects with their fixed roles in their families reduced greatly in Decreased group, on the other hand in Preserved group, very slight decreases were observed. These results strongly suggest that activities in daily living (ADL) should be one of the most important factors influencing their subjective health status and life satisfaction.

In this study, secular changes of physical strength of the aged subjects were analyzed. Subjects classified as Decreased group were observed significantly lower scores of their physical strength at the first time of the study, and then serious decline of the physical strength three years later, in particular, in points of agility and endurance.

These might be most important factors to maintain their physical activities that enable them to keep better life satisfaction and subjective health^{5,6,7,8}. As shown in Table 2 and 3, main diseases of the aged subjects in this study were arthritis, lumbago, osteoporosis. They are disorders of muscle, bone and joints which might restrain their abilities relating to the physical strength⁹. We should need to develop safe and effective methods of training for maintaining physical activities, especially for agility and endurance of the aged.

We consider that, to live a happy and fruitful life in mental, spiritual and physical matters, it should

be necessary for elders to lead a healthy, active life and to be encouraged to be independent. Further investigation would be required to clarify relationships of their health status to many factors —life satisfaction, roles in the family, social networks, reasons for living, feeling of happiness, the present diseases and physical activity.

Conclusion

Though the subjects of these studies prided themselves on their high levels of physical activities, very clear declines were observed in their physical activities in these three years through 3 kinds of evaluating methods. These declines in their physical activities were more obvious with age, especially in female subjects. The subjects who could preserve their physical strength maintained better health status and physical activity. Development of safe and effective training methods for the aged and daily practice of physical exercise must be required to keep their activities, sense of happiness, which leads them to enhance their QOL.

This study was conducted in the joint study on the campus of Chubu Gakuin University from 1994 to 2004 on the extension of active and healthy life span of elders living in a rural area.

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