Consumption behavior and its influence on their physical and mental function of fragile elderly and elderly with slight dementia

Hiroshi Nagasawa¹, Kenji Ushizawa², Shigeo Takizawa³, Tomoji Ishimaru⁴, Shouji Tashima⁴, Koujirou Matsuoka², Yuzou Okamoto⁴.

¹ Kanagawa University of Human Services. Faculty of Health and Social Work. JAPAN.
² School of Management and Information Science. SANNO University. JAPAN.
³ Biophilia Institute Inc. 4 Okamoto Hospital.

The elderly population of Japan of 65 years old or more increased rapidly, and reached 19% in 2003. Various strategies are necessary so that the aged may maintain healthy life. It appears to a physical function as a good influence if a mental function is activated for the aged. This time, the relation between a result and body various functions to practice the consumption behavior for a weak senior citizen and the slight dementia senior citizen were assumed and the relation to the state of mental was assumed to be an examination. Subjects were divided randomly into two groups, with one group (Cons-G) actually taking place in consumption activity, and with other group (W-G) only having a watching activity in the shopping center. Depression scale and face scale showed the improvement tendency in C-Group. It has been understood to cause the influence on a mental function with a physical change through this consumption behavior. It is necessary to grope for an effective technique achieving relations and these that achieve such senior citizen individual's needs.

**Key words**: consumption behavior, depression, fragile elderly, dementia.

1. **Purpose**

Japan's population is rapidly aging in a speed which no other countries have gone through. The elderly of 65 years old and over has reached 19% of all the population in 2003. In addition to the influence of declining birth rate, the percentage of the elderly will constantly rises in the future. Numbers of physical and mental aid plans were challenged in the context. It is very difficult to produce good results with the enforcements of the plans intended for the fragile elderly and/or the elderly with slight dementia. To maintain healthy life, interdisciplinary intervention including not only physical but also mental function should be necessary1-2). Also, in order to enhance the quality of living and to maintain independent life in the society, consumption with financial management in mind is needed3). This time, it aimed to examine the relation between practice and bodily functions of the consumption behavior for the fragile aged and the slight dementia and to examine the relation to the mental status.

2. **Subject and methods**

The subjects were 7 fragile elderly and 13 elderly with slight dementia, total of 20 (average age of 76.1±8.3 years, 8 men and 12 women) who are visitors of a rehabilitation facility three times a week make use of a pickup bus. We obtained their consent with explanation of the purpose of the research. As for the physical locomotive ability, 8 who are independent inside whereas needs assistance outside, and 12 who needs assistance inside and/or outside. The breakdown of them is 9 who has had a cerebrovascular accident, 8 with orthopedics-like disorder, and 3 who sufferer a decline in muscular strength. (Table 1.)

Received 26 April 2004
In order to evaluate the mental function, Self-Rating Depression Scale (SDS) by Zung, and Face Pain Rating Scale by Wong and others were used. Also, the total of SDS scores were converted into SDS measure (SDS Index=score*1.25). As the investigation of baseline evaluations were done twice, with an interval of one month. At the time of the next month, subjects were divided randomly into two groups, with one group (Cons-G) actually taking place in consumption activity (shopping at One Coin Shop with 5 items in maximum), and with the other group (W-G) only having a watching activity in the shopping center. Each purpose was enforced in the limit of 20 minutes, and evaluation was executed again right after they were done. Hearing investigation was executed about the physical condition by the interview and also the mental condition right after the consumption behavior and the watching activity. (Fig. 1)

Statistically analyzing, the level of significance was set at below 5% using SPSS10.0J.

3. Result

1. There was no difference of age, degree of dementia, personal medical history of neither cerebrovascular, nor locomotive ability, between the two groups Cons-G and W-G. But as for the man and woman ratio, Cons-G, was 6 to 4, while W-G was 2 to 8.

2. Because one person of W-G caught a cold in the day of the watching activity and became absent, W-G turned out to be nine people.

3. At the view point of the SDS total score of the two base line investigations in Speaman ranking correlation factor, both showed an efficient significant correlation (p<0.01), with Cons-G $\rho=0.529$ and W-G $\rho=0.662$.

4. In comparing of the SDS index of right after consumption activity and watching activity to the index of baseline, it was 46.4±5.9 to 44.3±9.1 with p=0.560 in Cons-G, which does not show significant change. It was 51.9±10.0 to 49.2±9.7 with p=0.459 in W-G, which also did not show significant change. (Table 2)

5. By the comparison of the SDS index in the two groups right after each behavior, the rate was p=0.270 which does not show significant difference.

6. Dividing SDS in to physiological accessory symptom and mentally accessory symptom, they were compared with the index of right after consumption activity and study to the index of baseline. In Cons-G, physiological accessory symptom decreased from 16.6±3.8 to 13.6±3.3 but significance probability was p=0.087. Mental accessory symptom increased from 17.6±3.4 to 19.2±4.7 but significance probability was p=0.339. With W-G, physiological accessory symptom changed from 16.7±3.9 to 16.4±3.4 and the significance probability was p=0.799. Mental accessory symptom changed from 21.9±5.0 to 20.4±4.7 and the significant probability was p=0.562. (Table 3)

7. Looking at the increase and decrease rate of the results no.6 score, 8 who's physiological accompanying symptom declined, 1 with no change and 1 who increased, and 2 who's mental accompanying symptom declined, 3 with no change and 5 who increased was seen in Cons-G. On the other hand, 2 who's physiological accompanying symptom declined, 4 with no change, 3 who increased, and 5,0,4 to each in mental accompanying symptom with W-G. (Table 3)

8. In the difference of Face Scale right after each activity, 5 who improved, 3 with no change and 2 who...
declined, in Cons-G. On the other hand, 2 improved, 0 had no change, and 7 declined in W-G. (Fig. 2)

9. In the hearing investigation, 8 mentioned positive impression such as "Feeling very good" "I am glad to go shopping" "It was good that you can shop by yourself", and 1 each which mentioned, "Got tired because of walking" "To walk by myself was hard" in Cons-G. On the other hand, 2 positive impressions such as "I haven't been here long so it is fun just to look at it" "I am glad because we got to walk a lot", 4 negative impressions such as "I want to shop by myself" "There were too much things that I was surprised" "I'm tired" "My legs are heavy", and 3 with no special impression were heard from W-G.

4. Discussion

A problem about how to raise the health rate of the fragile elderly and elderly with slight dementia, also about how to evaluate them, requires comprehensive subjects including the life habit, family, and environment. It is widely known that when a physical function declines, mental functions and activities in social living also decline. Adversely, if mental processes are activated, it is the fact that a good influence is shown in the physical function4-5).

By this investigation, we have used the SDS evaluation measure. But it could not show for us a statistical difference of the study in the viewpoint of the score transition by the influenced on consumption activity itself. But in the case of examining it due to dividing into the mental accompanying symptom and the physiological accompanying symptom, the tendency that consumer behavior worked out on the physiological side was seen. While in the watching activity group, both physiological accompanying symptom and mental accompanying symptom had scattered result. We can report that some kind of changes occurred during the activity of real consumption. It can be estimated from the result of Face Scale test and also the response by the interview as well.

This time it was an intervention research of a small number, so there is a need of examination with many examples to see if there is actually a difference. Also, there is a need to examine an evaluation measure which the influence of this consumption activity can be detected sharply.

As in the physical function, more active control of mental and social stress, and the evaluation of mental function will be important6). These elders are consumers as well as citizens, and living as well as elders. It is necessary to consider them each as a living person, not only as elders. Furthermore, in case of the elderly with dementia, there are problems such as follows; a difficulty of setting a goal for daily life, and how to judge the effect because of its progressiveness.

That is the reason why an interdisciplinary and longitudinal research such as medical science, economics, sociology, and psychology are needed. In the essential needs of these elderly, a wish of preventing a physical, mental, and consciousness decline, a feeling of a life and a feeling of fulfillment, and wanting of recovery of an individual's dignity and sense of being exists7). To realize these needs, and to create an effective way to attain these needs, is what we must do.
Reference

1) Chodzko-Zaiko, WJ. (1997). The World Health Organization issues guidelines for promoting physical activity among older persons. J Aging and Physical Activity. 5, pp.1-8.

2) Su, Y; Ferraro, KF. (1997). Social relations and health assessment among older people: Do the effects of integration and social contributions vary cross-culturally? J Gerontol. 52B pp.S27-36.

3) Simonsick EM; Kasper JD; Phillips CL.(1998). Physical disability and social interaction: factors associated with low social contact and home confinement in disabled older women. J Gerontol. Soc Sci. 53.pp.S209-217.

4) Mehta KM; Yaffe K; Langa KM; Sands L; Whooley MA; and Covinsky KE (2003). Additive effects of cognitive function and depressive symptoms on mortality in elderly community-living adults. J Gerontol A Biol Sci Med Sci. May; 58 (5), pp. M461-7.

5) Green CA; Polen MR; and Brody KK. (2003). Depression, functional status, treatment for psychiatric problems, and the health-related practices of elderly HMO members. Am J Health Promot. Mar-Apr; 17 (4), pp. 269-75.

6) Blain H; Vuillemin A; Blain A; and Jeandel C. (2000). The preventive effects of physical activity in the elderly. Presse Med. Jun 24; 29 (22), pp. 1240-8.

7) Kouno A; and Kanekawa K. (2000). Functional changes in one-year and related factors among community-dwelling frail elderly. Nippon Koshu Eisei Zasshi. 47 (6), pp. 508-516.

Table 1. Characteristics of subjects.

|                        |       |
|------------------------|-------|
| Fragile elderly        | 7     |
| Elderly with slight dementia | 13    |
| Age (years old)        | 76.1±8.3 |
| Men : Women            | 8 : 12 |
| The physical locomotive ability |       |
| independent inside whereas needs assistance outside | 8     |
| needs assistance inside and/or outside              | 12    |
| The past illness       |       |
| a cerebrovascular accident | 9     |
| with orthopedic disorder | 8     |
| sufferer a decline in muscular strength              | 3     |
Fig. 1 Consumption group.

They actually taking place in consumption activity at One Coin Shop (Lt).

Hearing investigation was executed right after the consumption behavior (Rt).

Table 2. Accessory symptom in SDS.

|               | physiological accessory symptom | mentally accessory symptom |
|---------------|---------------------------------|----------------------------|
| Cons-G        | $16.6 \pm 3.8 \rightarrow 13.6 \pm 3.3$ (p=0.087) | $17.6 \pm 3.4 \rightarrow 19.2 \pm 4.7$ (p=0.339) |
| W-G           | $16.7 \pm 3.9 \rightarrow 16.4 \pm 3.4$ (p=0.799) | $21.9 \pm 5.0 \rightarrow 20.4 \pm 4.7$ (p=0.562) |

Table 3. Change of accessory symptom in SDS scale.

|               | physiological accessory symptom | mentally accessory symptom |
|---------------|---------------------------------|----------------------------|
| Cons-G        | declined 8                      | 2                          |
|               | no change 1                     | 3                          |
|               | increased 1                     | 5                          |
| W-G           | declined 2                      | 5                          |
|               | no change 4                     | 0                          |
|               | increased 3                     | 4                          |
Fig. 2  Face Scale right after each activity.