

[Original] Matsumoto Shigaku 23 : 172~177, 1997

key words : insurance — dental health beliefs — removable dentures

## A Comparative Study of Dental Health Beliefs between Wearers of Insurance-Provided Removable Dentures and Wearers of Other Removable Dentures

SHINYA MIGO and YOSHIMASA IGARASHI

*Department of Removable Prosthodontics, Matsumoto Dental University School of Dentistry  
(Chief : Pro. Y. Igarashi)*

### Summary

In Japan, people are living longer and require dental services for more decades of their life than ever before. The disposable income for dental service has risen steadily, even though people have a reduced average income during their retirement years. Through education, financial stability, people have become increasingly concerned with their oral health. Elderly Japanese become more able and willing to invest much in oral health care. The purpose of this study was to compare dental health beliefs between wearers of insurance-provided removable dentures and wearers of other removable dentures. A total of 182 patients with removable dentures who attended the Prosthodontic Clinic of the Showa University Dental Hospital were interviewed followed by the oral examination. Patients with removable dentures had little concern for oral health. We found no significant differences in dental beliefs between wearers of insurance-provided dentures and wearers of other dentures. The results suggest a need for patient education by dentists, especially for patients who wear non-insurance-provided removable dentures.

### Introduction

National Survey on the lifestyle preference<sup>1)</sup> showed that the Japanese thought health and medical care were the most important in the later life. Middle-aged and older adults were greatly concerned with their own health. In dentistry, natural dentitions of elderly people are often reduced and removable dentures frequently used to replace missing teeth. Epidemiological figures<sup>2)</sup> show the increasing number of missing teeth are found in the later life and over 40% of Japanese adults use removable dentures. The role of removable dentures is quite important for oral health of the middle aged and older adults. Thus the quality of removable dentures used are important for their oral health and functioning.

It must be noted that removable dentures in Japan are divided into two types, the insurance-provided removable denture and the non-insurance-provided removable denture. To the patients who seek a good-quality removable denture, dentists recommend the non-insurance-provided

denture. To our knowledge, there was only one study<sup>3)</sup> about a comparison of insurance-provided dentures and non-insurance-provided dentures with regard to patient's satisfaction and denture functioning. But no studies have ever tried to compare dental health beliefs which would affect the oral health condition between the insurance-provided removable denture and the non-insurance-provided removable denture. Little is known about the dental beliefs of those who wear non-insurance-provided removable dentures.

A total of 182 patients who attended the Prosthodontic Clinic of Showa University Dental Hospital were interviewed and examined to compare dental health beliefs between wearers of insurance-provided removable dentures and wearers of other removable dentures.

### Subjects and Methods

Dentate patients aged 50 years and older who attended the Prosthodontic Clinic of Showa University Dental Hospital were clinically examined. A total of 182 patients with removable dentures were divided into those who wore non-insurance-provided dentures and those who wore insurance provided dentures.

The patients were interviewed to investigate their dental knowledge and dental health beliefs. The questionnaire contained the number of permanent teeth, interdental cleaning device, and dental implant. Their dental health beliefs regarding a use of interdental cleaning device, dental checkup last 5 years, periodic dental checkup and dental health consultation were also examined (Table 1). One dentist carried out dental examination and interview. Contingency tables were constructed for data and statistical differences were analysed using chi-square test with the level of significance taken at  $P < 0.05$ . Student's t-test was also used. The data obtained were analyzed using SPSS statistical software package.

### Results

Of the 182 subjects, 50 subjects wore non-insurance-provided removable dentures, 132 subjects wore insurance-provided removable dentures (Table 2). The mean age of the subjects with non-insurance-provided removable dentures was 65.5 (SD 9.0), while that of the subjects with insurance-provided dentures was 64.3 (SD 8.5). There was no significant difference between the two types of dentures in respect of age and gender.

The responses to the questions regarding dental knowledge and dental health beliefs are presented in Table 3. Overall 50 subjects with non-insurance-provided removable dentures, 18% of the subjects knew the number of permanent teeth, 24% knew an interdental cleaning device, 14% knew dental implant. Only 12% of the subjects had used an interdental cleaning device and no one had attended dentists for the purpose of dental checkup. Among 132 subjects with insurance-provided removable dentures, 17% of the subjects knew the number of permanent teeth, 28% knew an interdental cleaning device, 14% knew dental implant. Only 11% of the subjects had used an interdental cleaning device and only 2% of the subjects had attended the dentist for a dental checkup. Of all the subjects, no one had got a dental health consultation.

No significant difference was found between the subjects with non-insurance-provided removable dentures and the subjects with insurance-provided removable dentures regarding dental knowledge and dental health beliefs.

**Table 1 :** Questions regarding dental knowledge and dental health beliefs

1. Do you know anything to clean between the teeth with ?
2. Do you know the number of permanent teeth ?
3. Do you know dental implant ?
4. Have you ever used any device for interdental cleaning ?
5. Have you visited a dentist for a checkup in the last five years ?
6. Do you go to the dentist for a regular checkup even if you are not in pain ?
7. Have you ever been given any advice about looking after your teeth or gum ?

**Table 2 :** Distribution of subjects by gender and type of removable dentures

	Non-insurance-provided dentures	Insurance-provided dentures
	N	N
Male	19	50
Female	31	82
Total	50	132

**Table 3 :** Responses to the questions regarding dental knowledge and dental health beliefs according to type of removable dentures

	Non-insurance-provided dentures	Insurance-provided dentures
	%	%
1. Interdental device	24	28
2. Permanent teeth	18	17
3. Dental implant	14	14
4. Use of interdental device	12	11
5. Checkup	0	2
6. Regular checkup	0	0
7. Consultation	0	0

No significant difference was found between the subjects with non-insurance-provided dentures and insurance-provided dentures

## Discussion

In Japan, people are living longer. Japan's life expectancy is the highest in the world for both males and females. As people become older, they lose their teeth because of dental caries and periodontal diseases. When teeth are lost, most people receive prosthodontic replacement in order to restore oral function and appearance. Tooth loss and the prevalence of removable dentures are closely related to age. Elderly Japanese need oral health services for more decades of their life than ever before.

Grossman<sup>4)</sup>, economist, examined demand for health issues. He regards health as an investment. The central proposition of his model is that health can be viewed as a durable capital stock that produce an output of healthy time. Individuals inherit an initial stock of health that depreciates with age and can be increased by investment. In health care generally, dentistry included, behavior taken to maintain or improve health status can be seen as an investment.

However, the elderly are not likely to utilize oral health services. They utilize oral health services only for emergency care. The reason why they are not willing to use oral health services may be their high cost. There exists strong relationship between income level and dental service utilization. Tuominen<sup>5)</sup> points out that a useful measure for estimating the effect of income on the utilization of oral health services is income elasticity. Income elasticity can be defined as: "The

proportional change in the quantity purchased divided by the proportional change in income". The income elasticity for oral health services has been studied by various methods. Although the estimation methods are different, most of the researches indicate that the effect of income is positive in relation to utilization of oral health services. Income has been identified as a primary influence on the utilization of dental services. People with higher incomes are found to use dental services more often.

After World War II, Japanese average income has remarkably risen because of Japan's economic development. Hukuchi<sup>6)</sup>, who is an econometrician, refers to the fact that Japanese average income is the highest among highly industrialized countries. Takayama and Arita<sup>7,8)</sup> mentioned that Japanese elderly maintained their income level even after their retirement age. Through financial stability, Japanese elderly may become increasingly concerned with their oral health, and able to invest much in oral health care. A higher level of income could make Japanese elderly more willing to have their missing teeth replaced with high-quality removable dentures.

By the way, the oral health status of the elderly depends on their dental health behavior besides the price of dental care. It is quite important for the elderly with removable dentures to care the remaining teeth and soft tissues. Oral hygiene is a key factor in the success or failure of prosthodontic treatment. If the patient can maintain oral hygiene adequately, then the prognosis of treatment is good. It is widely acknowledged that abutment teeth are likely to have caries and periodontal diseases. Drake and Beck<sup>9)</sup> investigated 809 dentate elderly to examine the effects of removable dentures on their oral condition. The results indicated that wearing a partial denture was significantly related to gingival recession, loss of attachment and root surface caries. Therefore professional recall and good oral self-care was important to reduce such a risk. Mojon et al<sup>10)</sup> evaluated the influence of prosthodontic status on caries and periodontal disease of elderly people. They concluded that replacement of missing teeth with a removable partial denture was associated with gingival recession and plaque accumulation in the corresponding arch. They insist that rehabilitation of an elderly patient with a removable partial denture should be considered only after careful evaluation of the compliance with oral hygiene instruction and recalls. The self-care behavior of the patient plays an important role in the prosthodontic treatment.

One of the most famous sociologists, Parsons<sup>11)</sup>, developed a concept of the sick role which provided some basic guidelines for understanding patients' role. Although Parsons' concept of the sick role has become a basic concept in medical sociology, the model has some serious defects. One of major categories of criticism regarding Parsons' concept of the sick role is that it seems to apply only to acute diseases<sup>12)</sup>.

Depending on the severity of symptoms, Szasz and Hollender<sup>13)</sup>, both physicians, proposed three basic models of the doctor-patient relationship. These models are the model of activity-passivity, the model of guidance-cooperation, and the model of mutual participation. The mutual participation model applies to the management of chronic illness in which the patient works with the doctor as a full participant in the controlling of the disease. Rehabilitation such as learning the use of prostheses is considered as the model of mutual participation.

Our previous study<sup>14)</sup> revealed that removable denture wearers had lower concern for oral health compared to the other patients. Because the risk of oral diseases can be reduced with appropriate oral care instruction and recall systems, removable denture wearers should be a special target group for dental health education. In this study, there were no significant differences in dental beliefs between wearers of insurance-provided dentures and wearers of others. The results suggest

a need for patient education by dentists, especially for patients who wear non-insurance-provided removable dentures.

One of basic concepts in medical economics is utility<sup>5)</sup>. Everybody wants to be as happy as possible. In other words, they want to maximize their utility. How much they spend on dental services depends on their personal evaluation of them in relation to the importance of their health. Tuominen et al<sup>15)</sup>. analyzed how certain sociodemographic factors, especially income, affected the utilization of oral health services in the edentulous population. The value of income elasticity estimated was much less than that of dentate subjects. They indicate that edentulous persons try to maintain their old dentures instead of seeking expensive ones.

In the future dental disease will have a considerable impact on the oral health and well being of the elderly. The dental profession should make more effort to increase the proportions of patients receiving oral examinations and oral hygiene education, especially of the people wearing removable dentures. Our study suggested the importance of the dentists' active role in dental health education.

### References

- 1) The Economic Planning Agency Social Policy Bureau (1997) National survey on life style preference, 22, Printing Bureau Ministry of Finance, Tokyo. (in Japanese)
- 2) Nakamichi I (1993) What is a good quality and effective medical services? (1) *Nihon Dent Rev* **609**: 191—203. (in Japanese)
- 3) Morita M, Ishikawa A, Kohmoto S, Miyaura K, Watanabe T, Shirai C and Yamashita A (1996) A comparative study of denture satisfaction and masticatory function between wearers of insurance-provided dentures and wearers of other dentures. *JJPH* **46**: 12—27. (in Japanese)
- 4) Grossman M (1972) On the concept of health capital and the demand for health. *JPE* **80**: 223—55.
- 5) Tuominen R (1994) Health economics in dentistry, 78—9, Med Ed, Malibu.
- 6) Hukuchi T (1995) A challenge to superceiling, 26, Tyuokoron, Tokyo. (in Japanese)
- 7) Takayama N and Arita F (1992) The 1989 economic status of the elderly couples in Japan. *Econom Rev* **43**: 158—78. (in Japanese)
- 8) Takayama N and Arita F (1992) The 1989 economic status of the elderly singles in Japan. *Hitotsubashi Rev* **107**: 16—34. (in Japanese)
- 9) Drake CW and Beck JD (1993) The oral status of elderly removable partial denture wearers. *J Oral Rehabil* **20**: 53—60.
- 10) Mojon P, Rentsch A and Budtz-Jorgensen E (1995) Relationship between prosthodontic status, caries, and periodontal disease in a geriatric population. *Inter J Prosthodont* **8**: 564—71.
- 11) Parsons T (1951) *The social system*, 436, The Free Press, New York.
- 12) Cockerham WC (1995) *Medical Sociology*, 6 th, 159—62 Prentice Hall, New Jersey.
- 13) Szasa TS and Hollender MH (1955) A contribution to the philosophy of medicine. *AMA Arch Internal Med* **97**: 585—92.
- 14) Migo S (1993) Factors affecting the dental health belief and behavior of the middle-aged and older adults. *Showa Sigaku* **13**: 365—74. (in Japanese)
- 15) Tuomine R, Sintonen H and Paunio I (1985) Utilization of oral health services among edentulous Finnish adults: An epidemiological and econometric analysis. *Community Dent Health* **2**: 43—50.

抄録：給付方法の違いによる有床義歯患者の歯科に対する意識・行動の違いについて

御郷信也, 五十嵐順正 (松本歯大・歯科補綴学第一講座)

本研究の目的は、保険給付による有床義歯を装着している患者と保険給付外の有床義歯を装着している患者の歯科に対する意識・行動を比較し、医療社会学・医療経済学的に考察することである。昭和大学歯科病院に来院した50歳以上の有歯顎患者182名を調査対象とした。保険給付による有床義歯を装着している患者は132名、保険給付外の有床義歯を装着している患者は50名であった。直接面接調査法により、調査対象者の歯科に対する知識・意識・行動を調査した。調査の結果、有床義歯装着者の口腔健康管理は満足できる水準ではなかった。保険給付による有床義歯を装着している患者と保険給付外の有床義歯を装着している患者とでは、歯科に対する知識・態度・行動に有意な差は認められなかった。以上の結果より、有床義歯装着患者に対する歯科医師およびその他のスタッフによる患者教育の必要性が示唆された。欠損歯列を有する患者と医師との関係は相互参加モデルであり、健康の維持に患者自身が果たす役割が大きい。また保険給付外の有床義歯患者は自らの口腔の健康の健康維持に多額の医療投資を行ったと考えられ、これらの患者に対する十分な健康教育が必要であると考えられた。