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# 博　士　論　文

**Analysis of the Differences between Certificated Grades of Care Required of Long-term Care Insurance System in Japan and the Care Provided**

『我が国の介護保険制度における要介護度と介護サービス提供との関係』

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**Analysis of the Differences between Certificated Grades of Care Required of Long-term Care Insurance System in Japan and the Care Provided**

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**Abstruct:** The purpose of this study was to clarify and analyze the problems associated with long-term care insurance systems in Japan. We investigated the number of care services utilized and the duration of care services received during day care. In total, 490 clients (142 male and 348 female; average age 81.3 ± 7.9 years old) whose care plans were prepared at five institutions providing home care support in the Hyogo Prefecture enrolled for study A in March 2001. For study B, 31 clients (14 male and 17 female; average age 76.7 ± 10.9 years) from the five day care centers attached to the Geriatric Health Service Facility in Hyogo and Okayama prefectures, and all of whom needed care verbally consented to participate. In study A, the relationship between actual utilization and the use limits of each grade was examined. In study B, the relationship between the duration of actual service time offered and standard time allocated for each grade was examined. Results clarified that 65.3% of the clients utilized below the use limits for their grade (Study A), while a relationship was not found between allocated time and the actual service time offered (Study B). In conclusion, it is apparent that a reconsideration of certification methods is implicit, as no differences were found between the actual demand and supply of care time.

**Key words:** Long-term care insurance, aging, care, grade of care required, actual care

## Introduction

Care for the elderly has become a major issue in Japan, with the advent of an aged society. Care for the aged by elderly caregivers is a particularly big problem. Furthermore, this trend is increasing due to the prevalence of nuclear families in which care is undertaken by family members who are themselves elderly. It was suggested that this social care issue be addressed by society as a whole, and in April 2000 Long-term Care Insurance (LTCI) was introduced in Japan.[1] LTCI aims to provide 1) socialization of care for the elderly, 2) self-selection of services by the elderly, and 3) an emphasis of the importance of providing care in the home. In short, these were intended to support the self- reliance of people in need of care.

The LTCI system in Japan was based on an LTCI system in Germany.[2] In Germany, clients who are classified as needing care are able to choose between enrolling in the care service system or receiving cash payments to assist family care. In Japan, however, LTCI doesn't offer this cash payment scheme, and in addition verification of the need for care and preparation of a care plan are required prior to receiving any services. Care services are provided on the basis of this care plan. This system is designed to limit the services available for a particular client, and depends on certification within a grade of care required. Remuneration rates are based on this certification grade, and the clients themselves

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must pay any fees in excess of this. Furthermore, the user must also pay 10% of the fee, even if the amount of services used are within his or her limit.

LTCI has been in practice in Japan for 2 years, and so far several problems have been identified. Among these, problems relating to the process of certification are significant. This is especially true from the perspective of a care institution as certification is used to determine the number of care services made available to a client, and the resultant remuneration.[3] This study elucidates issues related to the discrepancies between certification grade of care required and the number of care services utilized as well as the duration of care service received during day care.

## Subjects and Methods

### 1. Relationship between the number of care services utilized and certification grade of care required (Study A)

In total, 490 clients (142 male and 348 female; average age 81.3 ± 7.9 years old) enrolled as subjects. Care plans were prepared at five institutions providing home care support in Hyogo prefecture in March 2001. Four of these institutions were equipped with Special Nursing Homes for the Elderly, and one with a Geriatric Health Service Facility. The certification grade of the clients observed, in ascending order of the grade of care required were as follows: needing assistance (74), grade I (172), grade II (90), grade III (57), grade IV (47), and grade V (50).

Participants were surveyed for certification grade and the number of services used, such as, the day service, visiting service, short-stay service, and leased home healthcare equipment service. Utilization rates were calculated for each available service. In addition, the number of clients who used the available services at a degree below the use limit of their certification grade was determined.

To determine the number of units for day services, the total number of day care provided by the Geriatric Health Service Facility, and the day services provided by the Special Nursing Homes for the Elderly, were evaluated. For analysis of visiting services, the total number of care and nursing visits were evaluated. For short-stay services, the total numbers of living care and medical care stays were evaluated.

### 2. Relationship between duration of care service and certification grade of care required (Study B)

Thirty-one clients (14 male and 17 female; average age 76.7 ± 10.9 years old) all of whom required care verbally consented to participate in this survey. All were utilizing the five day care centers attached to the Geriatric Health Service Facility in Hyogo and Okayama prefectures. Certification grade distributions were as follows: needing assistance (2), grade I (5), grade II (9), grade III (3), grade IV (8), and grade V (4). The study was approved by the Institutional Review Board of the Kibi International University and each client gave oral informed consent.

Each client was surveyed over one utiliza tion day at the end of August 2002. All activities were recorded from the time they arrived at the day care center until they left. Recorded data included the involvement of care staff and the kinds of activities conducted. One staff member stayed with each client, and made one-on-one recordings. Activities and care content were recorded at one minute intervals for each client and clas-

Table 1: Numbers of Care Services Utilized

| Care Classification Grade | Number (Persons) | Day Service (Units) | Visiting Service (Units) | Short-term Stay Service (Units) | Total (Units) | Utilization Ratio (%) |
|---|---|---|---|---|---|---|
| Needing Assistance | 74 | 1475.3 | 1250.0 | 76.6 | 2850.5± 1890.2 | 46.3±30.7 |
| I | 172 | 3146.8 | 1711.8 | 704.2 | 5797.9± 4355.1 | 35.0±26.3 |
| II | 90 | 4688.4 | 1623.2 | 1473.8 | 7979.2± 5984.7 | 41.0±30.7 |
| III | 57 | 5764.1 | 1475.1 | 3590.3 | 10957.6± 7269.4 | 41.0±27.2 |
| IV | 47 | 4946.9 | 4213.4 | 2749.0 | 12030.6± 9398.2 | 39.3±30.7 |
| V | 50 | 4518.1 | 7719.4 | 5003.7 | 17603.3±10839.0 | 49.1±30.3 |
| Total | 490 | 3794.6 | 2451.2 | 1721.4 | 8156.1± 7584.4 | 40.3±29.0 |

(Each service: Mean; Total and Utilization Ratio: Mean±SD)

Table 2: Comparison between Unit Limitation and Units Utilized

| Care Classification Grade | Number of Clients in Each Group | Number of clients who used services: 5 Levels below Classification Grade | 4 Levels below Classification Grade | 3 Levels below Classification Grade | 2 Levels below Classification Grade | 1 Level below Classification Grade | In accordance with Classification Grade | In excess of Classification Grade |
|---|---|---|---|---|---|---|---|---|
| Needing Assistance | 74 | - | - | - | - | - | 71 | 3 |
| I | 172 | - | - | - | - | 107 | 62 | 3 |
| II | 90 | - | - | - | 41 | 39 | 6 | 4 |
| III | 57 | - | - | 20 | 25 | 4 | 6 | 2 |
| IV | 47 | - | 18 | 15 | 4 | 4 | 6 | 0 |
| V | 50 | 8 | 17 | 3 | 11 | 4 | 6 | 1 |
| Total | 490 | 8 | 35 | 38 | 81 | 158 | 157 | 13 |

(Clients)

sified into the following five classifications, from which the total duration was calculated: "basic care time" per minute of activity and the type of care provided, which covered the three major care areas of feeding, sanitation, and bathing, and movements before and after these functions; "expanded care time" for the time staff engaged in recreation or conversation with the client; "exchange" for the time the client spent in conversations or exchange while unattended by a staff member; and finally, time spent alone was classified as either "activity time with purpose", when the client was acting with certain purpose, or "activity time without purpose" when the client was not. The time when care staff were involved, or the care ratio, was calculated as a ratio of staff to clients in need of care.

One-way analysis of variance was performed to compare differences in numbers of utilization units with certification grade of care required, and duration of care services received. Tukey's "honestly significant difference" (HSD) method was used for multiple comparisons; 5% was considered a significant difference. STATISTICA Pro. 2000 (STAT Soft) was used for statistical analysis.

## Results

### 1. Relationship between the number of utilization units available and the number of units actually utilized (Study A)

Table 1 shows the utilization units for each care service. On a whole, the utilization rate was 40.3 ± 29.0%. The number of clients utilizing the short-term admission type services was 82, and the average number of days these were utilized was 9.4 ± 7.2 days (range; 1 to 30 days). Less than half the clients used more than 50% of the services available in their grade.

The relationship between the number of units utilized and the number of utilization units available is shown in Table 2. In total, 320 clients (65.3%) utilized care services equivalent to a lower level of care than that which they were certified: 158 clients utilized care services one grade level below their certified grade, 81 utilized services two grade levels below their certified grade, 38 utilized services three grade

Table 3: Duration of Each Care Service Received during Day Care

| Care Classification Grade | Number (Clients) | Basic Care (min.) | Expanded Care (min.) | Exchange (min.) | Activity with Purpose (min.) | Activity without Purpose (min.) | Caring Ratio (%) | Care Intensity: Basic Care (min.) | Care Intensity: Expanded Care (min.) |
|---|---|---|---|---|---|---|---|---|---|
| Needing assistance | 2 | 4.5 | 54.0 | 77.5 | 181.5 | 42.5 | 16.3 | 2.8 | 13.6 |
| | | (.7) | (15.6) | (102.5) | (31.8) | (47.4) | (4.8) | (1.1) | (10.3) |
| I | 5 | 12.2 | 69.4 | 76.4 | 145.0 | 82.0 | 21.2 | 10.1 | 27.7 |
| | | (9.1) | (11.3) | (59.1) | (29.5) | (79.6) | (4.7) | (7.8) | (9.7) |
| II | 9 | 35.9 | 85.3 | 28.6 | 111.8 | 117.3 | 32.1 | 34.7 | 43.4 |
| | | (24.9) | (28.7) | (29.6) | (38.2) | (62.5) | (9.4) | (24.9) | (27.9) |
| III | 3 | 61.0 | 47.7 | 18.3 | 155.7 | 81.7 | 30.0 | 69.3 | 19.6 |
| | | (7.2) | (19.7) | (20.8) | (103.5) | (71.2) | (7.6) | (13.0) | (15.2) |
| IV | 8 | 64.6 | 66.1 | 6.3 | 62.6 | 168.1 | 35.5 | 64.8 | 29.1 |
| | | (27.0) | (31.7) | (14.5) | (51.8) | (59.9) | (10.9) | (36.3) | (13.3) |
| V | 4 | 59.0 | 99.8 | 14.5 | 105.0 | 93.0 | 43.1 | 65.7 | 50.9 |
| | | (29.4) | (62.9) | (26.4) | (56.3) | (67.9) | (19.0) | (31.6) | (28.9) |
| Total | 31 | 42.9 | 74.0 | 30.9 | 112.3 | 113.3 | 31.4 | 43.8 | 33.9 |
| | | (30.0) | (33.8) | (43.6) | (59.6) | (71.1) | (12.3) | (34.1) | (22.1) |
| ANOVA | | p<0.01 | n.s. | p<0.05 | p<0.05 | n.s. | p<0.05 | p<0.01 | n.s. |

Care Intensity: Duration of care * Number of Staff, Mean (SD); *:p<0.05

levels below their certified grade, and 35 clients utilized services four grade levels below their certified grade. In 50 clients with grade V, only 8 clients (16.0%) utilized amount of services within the utilization limits of needing assistance. Thirteen clients exceeded their utilization limit, whilst the remaining 157 (32.0%) clients utilized services in accordance with their certification grade.

## 2. Time related duration of care services received (Study B)

The duration of each care service received at the day care centers is summarized in Table 3. The average duration of time spent at the facility was 373.4 ± 26.6 minutes, and the average time spent directly involved with members of care staff was 42.9 ± 30.0 minutes for basic care, and 74.0 ± 33.8 minutes for expanded care. From the viewpoint of care intensity (number of care staff x care service duration), the duration of care service received was 77.1 ± 40.9 minutes, of which basic care and expanded care accounted for 43.8 ± 34.1 and 33.9 ± 22.1 minutes, respectively. On the other hand, the average time spent solely engaged in an activity with purpose was 112.3 ± 59.6 minutes, whilst the average time spent idly in an activity without purpose was 113.3 ± 71.1 minutes. The average percentage of time spent involved with members of care staff was 31.4 ± 12.3%.

With regards to the relationship between the time spent on various activities and certification grade, significant differences were observed in that spent on basic care ($p<0.01$), exchanges ($p<0.05$), and activities with purpose ($p<0.05$). The basic care time required by those in grade IV was significantly longer than that required for basic support in the grade I and needing assistance groups. Exchange time required by the grade IV group was significantly shorter than for the grade II group. Those in grade IV tended to spend a shorter time on activities alone compared to the other grade, although this was not statistically significant. For expanded care time, no differences were observed between the certification grade groups.

# Discussion

## 1. Utilization of care services

In this study, although there were large differences in the amount of care services utilized by different individuals, overall utilization was less than 50%, which is low but consistent with the reported nationwide utilization rate of 40% [4]. The results of this study indicate that

when the certification grade increases, the need for care also increases, but clients do not necessarily use all the services available to them. One possible reason for this is that while some people where classified as care required, they could actually live without the care services thus made available to them. Furthermore, some elderly people were reluctant to utilize the care services because of the 10% co-payment burden and in some cases the amount or type of care service available was insufficient for meeting the client's needs. According to the results of this study, 65.3% of clients used services equivalent to one grade lower than they had been certified, and it is believed that this is a general tendency. The LTCI system requires those who need care to pay 10% of the cost. The reality is that this 10% co-payment burden imposes a limitation on the utilization of care services. Sugisawa et al[3] investigated the causes of under-utilization and concluded that the income influences the level of utilization and pointed out that there is a disjunction between the theory and the reality. Maeda[5] also examined the factors which explain under-utilization, and concluded that there are many occasions when this issue does not pose a problem because the need for care is low and can be provided by family members, although it was also pointed out that there are instances when "we cannot afford to pay so much money".

**2. Duration of entitlement to care services**

Determination of the proper certification grade is derived from reference times used in the certification process, which delineates five certification grade of care required. These begin with grade I (more than 30 but less than 50 minutes) and increase in 20-minute increments to grade V (over 110 minutes). This finding is derived from the results of a time study that primarily targeted care staff. In the present study, it was assumed that one member of nursing staff cares for five clients for ten minutes, which indicates that the time per person is 10/5 (=2) minutes. With family care, the caregiver is home all the time and involved with 1:1 care. Thus, there is obviously a significant difference between the two situations.

In this study, duration of care service received was recorded from the aspect of client. The average caring rate of 31.4 ± 12.3 (range; 12.9 to 65.1)% (range; 8.3 to 154.6 minute) obtained in this study indicates that some clients were provided more care time in comparison to their needs while others had less contact time with the staff. It should be remembered that in the current survey the number of personnel in one utilization day was limited. The time for care available for those enrolled in the survey was shortened because staff also had to help clients who were not being recorded. Although the purposes and policy of care should be defined as a care plan, it was not possible to specify the time involved. The time required for care depends on the activities of the day and needs to be flexible to the care requirements of each client. As seen in the results, the time made available for care did not vary according to the grade of care required although time limits, for example 20 minutes per client, were not observed. The factor by which the true necessity for care should be judged is not time, but content or quality. Therefore, in certifying the grade of care required, the aspect of quality should be emphasized by identifying not only what kinds of care are provided but also whether the time required for care is long or short.

**3. Problem areas in certifying the grade of care required**

From the viewpoint of support for self-reliance, it is preferable those certification grades are defined in proportion to the extent of self-reliance necessary for daily life. In practice, however, it is unlikely that this is reasonably considered. According to a one-minute time study targeting demented elderly individuals conducted by Hikigi et al [6], the grade of care required does not satisfactorily reflect the extent of care required for dementia.

In the case of a person who requires home care, the actual services available are greatly restricted by limitations in the number of services the provider can make available, and by payment of the 10% utilization fee. These limitations and responsibilities yield a considerably lower utilization rate, which indicates that for those who need home care, the limits on utilization units will not be exceeded as long as the client is certified to grade III. Any certification to a higher grade would be meaningless. In addition, the remuneration for day service is a flat rate for grade III and above. Grade II tends to be more economical although this depends on utilization.

For LTCI to support those who need care, but also help maintain their self-reliance, and reduce the burden of care borne by a family caregiver, innovation within the system of grade certification is recommended. In the present study, it is apparent that a reconsideration of certification methods is implicit, as no differences were found between the actual demand and supply of care time. Moreover, appropriate measures should be taken to support clients who do not use the care service full-time by developing a scheme similar to the German LTCI system where clients can choose between using the available care services or receiving cash payments to help with care at home.

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