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## ORIGINAL ARTICLE

# Care Service Staff's Awareness of the Management of Undernutrition in Japan

Yuko FUJIO <sup>1)</sup> Megumi KODAIRA <sup>2)</sup>

1) Juntendo University Faculty of Health Sciences and Nursing

2) International University of Health and Welfare Graduate School

## ABSTRACT

This study aimed to help develop collaborative care models for care service staff working in homes and residential facilities to implement measures for the improvement of undernutrition in terms of nursing care. The survey is care service staff's awareness of undernutrition including required information. Although nursing care providers were aware of the overall care-related needs of their care recipients, they were in somewhat knowledgeable level about the nutritional health/functioning status that can be assessed by the nutritional condition indices such as the BMI(body mass index) and serum albumin level. The results of this study suggest that the level of nursing care service providers' awareness of the improvement of undernutrition of the elderly in need of nursing care was not high; although in-home nursing care providers understood the overall picture of services or their tasks including the levels of nursing care required by elderly patients and their levels of independence in ADL(activities of daily living) according to their degrees of disabilities or dementia, they did not comprehend the nutritional status of their patients such as the styles of diet and intake of meals; and nursing care service providers in residential facilities were aware of the nutritional status of their patients, although they were not unable to understand the overall picture of services. There were significant differences in the levels of the awareness of the improvement of undernutrition by the types of nursing care-related professions ; for example, while consultants were only aware of the basics of services like the level of nursing care required by patients, nursing care providers understood the styles of diet as well as dental and choke-related conditions and health care professionals comprehended the intake of meals, BMI, and serum albumin level. The study results suggest that it is necessary to develop tools for the collection of care service-related information and assessment to be shared by care service staff to improve undernutrition to prevent the elderly from becoming to require higher levels of nursing care.

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yfujio@juntendo.ac.jp (Yuko FUJIO)

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## I . Background and Purpose of the Study

Undernutrition is one of the factors causing the elderly to require nursing care. The revision of the Long-Term Care Insurance Act in 2006 set the aim of preventing the elderly from becoming to require higher levels of nursing care, and adopted the improvement of undernutrition as the primary goal. Its effects, however, have not been shown yet. According to “A Study of the Comprehensive Assessment and Analysis of the Effects of Projects for Nursing Care Prevention” (Tsuji et al., 2008), approximately 30% of the elderly who needed “nursing care or support” are required to improve their nutritional conditions even after the introduction of the Project for Nursing Care Prevention.1) As suggested by the results of this study, the undernutrition of the elderly is as serious an issue as the elderly in need of (a high level of) nursing care, and the improvement of undernutrition of the elderly is an urgent task. Therefore, it is necessary to develop specific measures for the improvement of undernutrition of the elderly in terms of nursing care.

This study that included the survey on the awareness of the improvement of undernutrition of the elderly in need of nursing care aimed to help develop collaborative care models for care service staff in homes and residential facilities to implement measures for “the improvement” of undernutrition in terms of nursing care; The development of the model is expected to specifically help implement the improvement of undernutrition, which is the policy established by the revision of the Long-Term Care Insurance Act in 2006, in terms of nursing care.

As the percentage of population aged 60 years or over of Japan was 32.0% of the total population by 2050 according to the report of UN in 20132), this study may serve as a significant guide to reduce social security expenses that have continually increased in the world where the population is rapidly ageing.

<Table 1> Specific Elderly People who may become the need of Nursing Care and the Elderly in need of Nursing Care and Nutritional Improvement

	Elderly not requiring nutritional improvement	Elderly requiring nutritional improvement		
		Body weight loss	Low body weight	Body weight loss and low body weight
Specific elderly people who may become the need of nursing care	1,503	311	171	82
	72.7%	15.0%	8.3%	4.0%
Elderly people in need of nursing care	4,795	1,102	755	361
	68.4%	15.7%	10.8%	5.1%

*This table was excerpted from “A Study of the Comprehensive Assessment and Analysis of the Effects of Projects for Nursing Care Prevention (2008)”*

## II. Study Methods

- (1) Study Design: Quantitative and descriptive study
- (2) Period: April, 2013 to March, 2014
- (3) Survey Items: The survey items included nutritional conditions (BMI, serum albumin level, dietary style, and food intake), physical and psychological functions (the levels of required nursing care and the levels of independence in ADL(activities of daily living)of the elderly according to their degrees of with disabilities, dementia, and the ability to move), and oral functions (dental and choke-related conditions). In previous studies conducted by the authors of this study, it was found that these survey items were associated with the dietary habits of the elderly in need of nursing care and the nutritional conditions of the elderly who preferred soft food were worse than those who did not.<sup>3)4)</sup>
- (4) Data Collection and Analysis Methods: The survey on care service staff's awareness of the improvement of undernutrition of the elderly in needs of nursing care was conducted by distributing and collecting questionnaires during workshops that were held in seven areas including Akita, Saitama, Tokyo, Shizuoka, Aichi, Okayama, and Oita Prefectures in Japan when the authors served as an instructor. The questionnaire was constructed based on the Likert scale, and the care service staff were asked to choose one of four options in response to each question. The collected data from the survey were analyzed via statistical software SPSS Ver.20.0 to understand care service staff's awareness of the improvement of undernutrition of the elderly in need of nursing care.

## III. Ethical Considerations

The following information was explained to the subjects: Responding to the survey must be based on their own free will. The survey was conducted anonymously. Obtained data would be coded, analyzed, and used only for this study. Only people who had agreed to participate in this study responded to the questionnaire and the completion of the questionnaire was regarded as the consent to participate in this study. This study was conducted with the approval of the Ethics Committee of the Juntendo University Faculty of Health Sciences and Nursing (Approval number: 25003).

## IV. Study Results

The survey for care service staff was conducted in seven areas of Japan to examine their awareness of the improvement of undernutrition of the elderly in need of nursing care, and 641 questionnaires were collected; the numbers of the respondents who provided care services for the elderly in homes and residential facilities were 225 (35.1%)

and 416 (64.9%), respectively; and there were 138 males (21.5%) and 503 females (78.5%) respectively. As to the types of profession, there were 238 nursing care service providers (37.1%), 207 health care professionals (32.3%), and 196 consultants (30.6%); the mean period of work experience was  $7.15 \pm 6.7$  years.

The majority of the respondents were aware of the overall care-need status of their care recipients. However, most respondents were “somewhat” or “not” knowledgeable about the nutritional health/functioning status of their care recipients including the BMI and serum albumin level; the numbers of respondents who were somewhat and not knowledgeable about the BMI were 313 (48.8%) and 128 (20.0%) respectively; and the numbers of respondents who were somewhat knowledgeable and not knowledgeable about the serum albumin level were 287 (44.8%) and 222 (34.6%), respectively (Table 2).

Although these two items are important indices to understand nutritional conditions, care service staffs were only in the somewhat-knowledgeable level.

<Table 2> Care Service Staff s' Awareness of the Improvement of Undernutrition (n=641)

	Very knowledgeable about	Knowledgeable about	Somewhat knowledgeable about	Not knowledgeable about
Level of requiring nursing care	184	359	87	11
Degree of independence in daily activities in the elderly with disabilities	87	295	197	62
Degree of independence in daily activities in the elderly with dementia	92	310	175	64
BMI	54	146	313	128
Alb	19	113	287	222
Dietary style	194	379	57	11
Food intake	111	317	185	28
Ability to walk	204	369	55	13
Dental conditions	93	374	155	19
Susceptibility to choking / aspiration	156	403	69	13

The levels of the awareness of the care service staffs of the improvement of undernutrition of the elderly in need of nursing care were compared with where they work via the non-parametric test; there were correlations between where they work such in the home or residential facility and their levels of awareness of nutritional condition indices, which show their levels of awareness of the improvement of undernutrition of the elderly in need of nursing care, such as the levels of required nursing care, the levels of independence in ADL of the elderly with disabilities or dementia, serum albumin level, dietary styles, food intake, and dental and choke-related conditions ( $p < 0.05$ ). Although

most respondents who have been providing in-home nursing care services stated that they are somewhat knowledgeable about the BMI and serum albumin level, they were very knowledgeable or knowledgeable about the levels of required nursing care and the levels of independence in ADL of the elderly with disabilities or dementia and they were knowledgeable or somewhat knowledgeable about dietary styles, food intake, and dental and choke-related conditions (Table 3). Respondents who have been providing nursing care services in residential facilities were knowledgeable or somewhat knowledgeable about the levels of required nursing care and the levels of independence in ADL the elderly with disabilities or dementia and were very knowledgeable or somewhat knowledgeable about dietary styles, food intake, and dental and choke-related conditions (Table 3).

<Table 3> The Levels of the Awareness of the Care Service Staffs of the Management of Undernutrition of the elderly in need of long-term care : Comparisons by Where They Work

	Very knowledgeable about		Knowledgeable about		Somewhat knowledgeable about		Not knowledgeable about	
	In-home	Residential	In-home	Residential	In-home	Residential	In-home	Residential
Level of requiring nursing care	58.7%+	12.5%-	34.7%-	67.5%+	5.3%-	18.0%+	1.30%	1.90%
Degree of independence in daily activities in the elderly with disabilities	24.4%+	7.7%-	54.7%+	41.3%-	17.8%-	37.7%+	3.1%-	13.2%+
Degree of independence in daily activities in the elderly with dementia	26.7%+	7.7%-	56.9%+	43.8%-	12.9%-	35.1%+	3.6%-	13.5%+
BMI	6.20%	9.60%	19.10%	24.80%	57.3%+	44.2%-	17.30%	21.40%
Alb	0.0%-	4.6%+	7.6%-	23.1%+	56.4%+	38.5%-	36.00%	33.90%
Dietary style	18.2%-	36.8%+	65.3%+	55.8%-	13.8%+	6.3%-	2.70%	1.20%
Food intake	4.4%-	24.3%+	34.2%-	57.7%+	53.8%+	15.4%-	7.6%+	2.6%-
Dental conditions	7.6%-	18.3%+	58.20%	58.40%	31.6%+	20.2%-	2.70%	3.10%
Susceptibility to choking/ aspiration	15.1%-	29.3%+	65.80%	61.30%	16.4%+	7.7%-	2.70%	1.70%

*Pearson  $\chi^2$  test:  $p < 0.05$  Adjusted residuals: 2.0 or higher +, 2.0 or lower -*

The levels of awareness of the improvement of undernutrition of the elderly in need of nursing care were also compared with the types of professions such as nursing care service providers, health care professionals, and consultants. There were correlations between the types of professions and their levels of awareness of nutritional condition indices, which show their levels of awareness of the improvement of undernutrition of the elderly in need of nursing care such as the levels of requiring nursing care, the levels of independence in ADL of the elderly with disabilities or dementia, BMI and serum albumin level, dietary style, food intake, and dental and choke-related conditions

( $p < 0.05$ ). The results were consistent with the above-mentioned correlations. Although most respondents stated they were somewhat knowledgeable about the BMI and serum albumin level, consultants were very knowledgeable about the levels of required nursing care and the levels of independence in ADL the elderly with disabilities or dementia and nursing care service providers were very knowledgeable about dietary styles and dental and choke-related conditions. Most health care professionals were very knowledgeable about food intake. Although most respondents stated that they were somewhat knowledgeable or not knowledgeable about the BMI or serum albumin level, the majority of health care professionals were knowledgeable about them (Table 4).

<Table 4> The Levels of the Awareness of the Care Service Staff of the Management of Undernutrition of the Elderly in need of Long-term Care : Comparisons by the Types of Nursing-Care-Service-Related Professions

	Very knowledgeable about			Knowledgeable about			Somewhat knowledgeable about			Not knowledgeable about		
	Nursing care service providers	Health care professionals	Consultants	Nursing care service providers	Health care professionals	Consultants	Nursing care service providers	Health care professionals	Consultants	Health care professionals	Medical specialists	Consultants
Level of requiring nursing care	8.0%+	16.4%-	66.8%+	73.9%+	60.90%	29.1%-	16.80%	20.8%+	2.0%-	1.30%	1.90%	2.00%
Degree of independence in daily activities in the elderly with disabilities	3.8%-	11.10%	28.1%+	40.3%-	43.50%	55.6%+	40.8%+	35.30%	13.8%-	15.1%+	10.10%	2.6%-
Degree of independence in daily activities in the elderly with dementia	5.0%-	10.1%-	30.1%+	42.9%-	47.30%	56.1%+	37.8%+	31.40%	10.2%-	14.3%+	11.10%	3.6%-
BMI	3.8%-	14.5%+	7.70%	18.5%-	29%+	21.40%	47.50%	44.00%	55.60%	30.3%+	12.6%-	15.30%
Alb	1.70%	6.8%+	0.5%-	11.8%-	33.3%+	8.2%-	42.00%	39.60%	53.6%+	44.5%+	20.3%-	37.80%
Dietary style	36.1%+	34.80%	18.4%-	58.40%	52.7%-	66.8%+	5.0%-	9.70%	12.8%+	0.40%	2.90%	2.00%
Food intake	21.4%+	24.6%+	4.6%-	59.2%+	49.80%	37.2%-	16.4%-	22.7%-	50.5%+	2.90%	2.90%	7.7%+
Dental conditions	24.4%+	9.7%-	7.7%-	58.80%	56.00%	60.20%	15.1%-	30.0%+	29.10%	1.70%	4.30%	3.10%
Susceptibility to choking / aspiration	36.6%+	18.8%-	15.3%-	57.1%-	64.70%	67.90%	5.5%-	14.5%+	13.30%	0.80%	1.90%	3.60%

*Pearson  $\chi^2$  test:  $p < 0.05$  Adjusted residuals: 2.0 or higher +, 2.0 or lower -*

## V. Discussions

It has been pointed out that “undernutrition” is a major factor leading the elderly to become to require higher levels of nursing care, and the revision of the Long-Term Care Insurance Act in 2006 stipulated nutritional management for the improvement of undernutrition as part of the project for nursing care prevention.<sup>5)</sup> The results of an assessment of the effects of the project for nursing care prevention in 2008, however, showed that approximately 30% of the elderly were required to improve their nutritional conditions.<sup>1)</sup>

Previous studies suggested that the nutritional conditions are correlated with physical and psychological functions,<sup>6)7)</sup> and that the morbidity and mortality rates of the elderly in need of nursing care have increased when their nutritional conditions have worsened.<sup>8)</sup>

Although the development of plans for nutrition management, which was introduced in 2006, is compelled by law, nationally registered dietitians are responsible for the creation of plans, and there has been the concern about a lack of specific measures that may be implemented at each level of nursing care. In this study, a survey on the status of the development of plans for the nutrition management was conducted.

To discuss the status of measures at the level of nursing care and required information, the survey for care service staff working in homes and residential facilities in seven areas of Japan was conducted to examine their awareness of the improvement of undernutrition of the elderly in need of nursing care, and 641 valid questionnaires were collected. Although the care service staffs were aware of the overall care-need status of their care recipients, they were not knowledgeable or somewhat knowledgeable about the indices of nutritional conditions such as BMI and serum albumin level that shows the nutritional health/functioning status. The results suggest that the level of care service staff's awareness of the improvement of undernutrition of the elderly in need of nursing care is not high.

There were differences in levels of the awareness of the improvement of undernutrition by whether care service staff work in homes or residential facilities. Although in-home nursing care service providers understood the overall picture of services or the basics of their services including the levels of requiring nursing care and the levels of independence in ADL of the elderly with disabilities or dementia, they did not comprehend the overall care-need status of the elderly in need of nursing care such as the styles of diet and intake of meals as well as dental and choke-related conditions. On the other hand, nursing care service providers in residential facilities were aware of the overall care-need status of the elderly in need of nursing care in terms of care, although they were unable to understand the overall picture of services.

There were also differences in the levels of the awareness of the improvement of undernutrition among various care-service-related professions including consultants, nursing care providers, and health care professionals. Consultants completely understood the overall picture of the basics to take care of the elderly such as the levels of required nursing care and the levels of independence in ADL of the elderly with disabilities or dementia. While nursing care providers were very knowledgeable about the dietary habits of the elderly as well as their dental and choke-related conditions, health care professionals were very knowledgeable about the intake of meals of the elderly and knowledgeable about the BMI and serum albumin level. The results suggested that nursing care providers and health care professionals were able to comprehend the status of the elderly in terms of nursing care.

These differences in the levels of the awareness of care service staff may be caused by the characteristics of the services that they have provided and the professions that they have joined, or by the current status that the measures for nutritional management have not been implemented consistently at the level of nursing care yet. In addition, the "basic



check list for the prevention of withdrawal”, an assessment method to select subjects for “nutritional management”, includes only two nutrition-related items: “Have you lost more than 2 to 3 kg over the past six months?” and “the height, body weight, and BMI”, and the assessment scores were not associated with the level of nursing care.

The study results suggest that it is an urgent task to develop tools to be shared by diverse care service staff in homes and in residential facilities including nursing care providers, health care professionals, and consultants with the aim of improving undernutrition of the elderly in need of nursing care.

## **VI. Limitation of the study**

This study examined care service staff's awareness of the improvement of undernutrition of the elderly in need of nursing care. However, the survey was only conducted for individual providers, but not for nursing care setting or homes or residential facilities.

Collaborative care models for care service staff in homes and residential facilities to implement measures for the improvement in terms of nursing care cannot be developed solely based on the results of this study. Further research that includes the survey on the nutritional conditions of the elderly in need of nursing care should be conducted. The study results suggest that it is necessary to develop tools designed to improve undernutrition of the elderly in need of nursing care that can be shared by care service staff and other professionals in homes and residential facilities

## **VII. Conclusion**

The survey on the awareness of improvement of undernutrition of the elderly in need of nursing care was conducted for care service staff in homes and residential facilities, and the results suggested that the levels of care service staff's awareness of the improvement of undernutrition was not high. There were significant differences in the levels of the awareness of the improvement of undernutrition among care service staff depending on the types of services they have provided. Therefore, it is necessary to develop tools to be shared by care service staff who provide diverse types of care service with the aim of improving undernutrition to prevent the elderly from becoming to require higher levels of nursing care.

This study is a part of the Development of Collaborative Nursing Care Models for In-home and Residential Care Settings to improve undernutrition of the elderly, which was designed to help prevent the elderly from becoming to require higher levels of nursing care and supported by Grants-in-Aid for Scientific Research (C).

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